



GUIDANCE
ON THE
ROUTE CHARGES SYSTEM

A first edition of the Guidance was approved by the enlarged Committee for Route Charges at its 57th Session in June 1999. It was submitted to the Provisional Council at its 5th Session, on 16 July 1999, during which the following decision was taken.

*"The **PROVISIONAL COUNCIL:***

- a. took note of the production of a booklet on "Guidance on the Rules and Procedures of the route charges system";*
- b. supported the enhanced role of the Central Route Charges Office as summarised in paragraph 6 of the report by the President of the enlarged Committee (...); and*
- c. noted that the role and participation of user organisations were clearly recognised in the booklet."*

According to the enlarged Committee's decision at its 57th Session, the Guidance is to be periodically reviewed by an appropriate group of experts.

The Guidance is produced in English and in French (which are the working languages of the Agency). Other languages are delivered on request.

This is the sixth edition of the Guidance, approved by the enlarged Committee on 28 June 2012.

The Guidance is not a part of the EUROCONTROL Principles for establishing the cost-base for en route charges and the calculation of unit rates (hereinafter “the Principles” - version approved on 20 September 2011 and entered into force on 1st October 2011).

The information contained in this Guidance is intended to guide and support the users of the EUROCONTROL route charges system in the application of the Principles. Its use is therefore intended to be on a voluntary basis. It does not replace a legal text or change the law; however it aims to elucidate the Principles which are the binding instruments.

The Guidance is the result of extensive discussions with users and reflects a broad consensus.

The Guidance is a living document which is amended periodically in the light of the development of the route charges system.

All texts extracted from ICAO documents (Document 9082 "ICAO's Policies on Charges for Airports and Air Navigation Services" and Document 9161 "Manual on Air Navigation Services Economics", current versions) and from the Principles are in italics.

TABLE OF CONTENTS

	<i>Page</i>
Introduction	1

Part I: GENERAL

Section 1: Role of the Central Route Charges Office.....	3
1. General definition.....	3
2. Practical arrangements.....	3
2.1 Member States.....	3
2.2 Integration of new Member States into the System.....	5
2.3 Compliance by non-Member States with the Principles.....	6
Section 2: Procedures and processes.....	7
1. Timing for the communication of the reporting tables (Annexed II and III to the Principles).....	7
1.1 Preliminary data.....	7
1.2 Final data.....	7
1.3 Service units forecasts (Preliminary and Final Data).....	7
2. Consultation.....	7
2.1 Multilateral.....	8
2.2 Bilateral.....	8
2.3 Bilateral agenda.....	8
3. Time-table for the presentation of preliminary and final cost and traffic data.....	9

Part II: GUIDANCE ON HOW TO APPLY THE PRINCIPLES

Section 1: Questions relating to the determination of costs by nature	11
1. Introduction.....	11
2. Staff costs.....	11
3. Other operational costs.....	12
4. Cost of capital.....	13
4.1 Introduction.....	13
4.2 Determination of the capital employed.....	13
4.3 Weighted average cost of capital.....	15
5. Investment costs/costs to capitalise.....	19
5.1 General: costs to capitalise.....	19
5.2 Pre-operational phase.....	21
5.3 Research and development costs.....	21
5.4 Land / Buildings.....	21
6. Treatment of interest receivable.....	22

7.	High inflation	22
7.1	General	22
7.2	Depreciation.....	22
7.3	Net Interest	23
7.4	Establishment of forecast costs	23
7.5	Establishment of actual costs	23
7.6	Establishment of actual revenues.....	23
8.	Application of Current Cost Accounting principles (CCA)	24
Section 2: Questions relating to the determination of costs by services		27
1.	Air traffic management.....	27
2.	Communication	27
3.	Navigation	28
4.	Surveillance	28
5.	Search and Rescue	28
6.	Aeronautical information	28
7.	Meteorological services	28
8.	Supervision costs.....	29
9.	Other State costs	29
Section 3: Questions relating to cost-allocation.....		31
1.	Introduction	31
2.	Allocation between en route and terminal air navigation services	31
3.	Allocation between aeronautical and non-aeronautical users.....	33
3.1	MET services	33
3.2	SAR services	35
4.	Allocation between GAT and OAT services.....	35
5.	Allocation between IFR and VFR users	36
Section 4: Questions relating to cost-accounting systems.....		37
1.	General guidance for setting up cost-accounting systems.....	37
2.	General guidance for annual accounts	37
3.	General guidance for the reporting tables/Separate reporting of costs.....	38
Section 5: Questions relating to the full-cost recovery method		39
1.	Reporting tables – Table 1 (Total costs)	39
2.	Reporting tables – Table 2 (Unit rate calculation)	40
Section 6: Questions relating to the determined cost method.....		43
1.	Description of Tables 1 & 2.....	43
1.1	Reporting tables – Table 1 (Total costs).....	43
1.2	Reporting tables – Table 2 (Unit rate calculation).....	45
2.	Yearly adjustments of determined unit rates.....	47
2.1	Adjustment for inflation (items 3.2 & 4.2).....	47
2.2	Carry-overs due to traffic (items 3.5 & 4.3).....	48
2.3	Traffic cost-sharing (items 3.4 & 3.5).....	49
2.4	Uncontrollable costs items 3.6 & 4.4)	52
2.5	Bonuses and penalties (item 3.7)	53
2.6	Carry-overs of under-/over-recoveries incurred before the first reference period (items 3.8 & 4.5)	54

Section 7: Financial incentives for airspace users and for air navigation services providers 55

ANNEX 1 IFRS and EUROCONTROL Principles 57

ANNEX 2 List of IFRS particularly applicable to ATM service providers 81

ANNEX 3 Example for the calculation of cost of capital 83

Reference list..... 85

INTRODUCTION

- 1 This introduction outlines the structures, bodies and legal obligations connected with the multilateral System. The main body of the Guidance is then split into two parts. Part I gives a general outline of the route charges system, and is further split into sections on the role of the Central Route Charges Office (CRCO) and on procedures and processes. Part II is of a more technical nature, and gives detailed guidance on interpreting the Principles.

Brief description of the structure of the route charges system:

- 2 The EUROCONTROL route charges system is governed by the **Multilateral Agreement relating to Route Charges** (hereinafter “the Multilateral Agreement”), an international agreement signed on 12 February 1981 and entered into force on 1 January 1986, by which Contracting States decided to adopt a common policy, to create a joint system for the calculation, billing and recovery of their route charges and to use for this purpose the services of EUROCONTROL.

The accession to the EUROCONTROL Convention requires simultaneous accession to the Multilateral Agreement.

- 3 The **enlarged Commission for Route Charges** (hereinafter “the enlarged Commission”), consisting of the Ministers of Transport of the Member States or their alternates, is the decision-making body governing the common route charges system. It takes formal decisions, generally by unanimity, on all issues of major importance, as listed in Article 3.2 of the Multilateral Agreement.
- 4 The **enlarged Committee for Route Charges** (hereinafter “the enlarged Committee”) is the executive body, in charge of supervising the operation of the system, and of preparing the decisions of the enlarged Commission. It is assisted in this function by the CRCO (the role of the CRCO will be described in detail in Part I of the present Guidance). It enables the States to monitor the proper functioning of the common system. It holds at least three sessions per year (in March, June and November), and constitutes the main forum for multilateral consultation with the user organisations.
- 5 The **user organisations** in the route charges system are the representatives of the main aircraft operators. Since 1997 they have attended, with observer status, the whole sessions of the enlarged Committee (with the exception of confidential items).
- 6 The multilateral consultations take place in the June session, where States present their first estimates for calculating their cost-base and unit rate(s) for the following year, and in November for the discussion on the final figures and calculation of the unit rates for the following year.

- 7 In addition to the above, the EUROCONTROL **revised Convention** was signed on 27 June 1997, but it is not yet in force. In the meantime, States have decided the “early implementation of certain provisions of the revised Convention”. A **Provisional Council** was established on 1 January 1998. It is composed of representatives of the Contracting Parties at Directors General of Civil Aviation (DGCA) level, and the user organisations have observer status. The Provisional Council, which meets two times a year, is now the body through which the enlarged Committee reports to the enlarged Commission in order to obtain policy guidance on issues of major importance. The enlarged Commission remains the decision-making body for the route charges system, pending a new legal order.

- 8 The Principles provide for two calculation methods for the unit rate within the common EUROCONTROL multilateral route charges system: the full cost recovery method and the determined cost method. The two methods are reported via the respective tables in the Annexes of the Principles.

PART I: GENERAL

SECTION 1: ROLE OF THE CENTRAL ROUTE CHARGES OFFICE

1. GENERAL DEFINITION

9 The CRCO supports the enlarged Committee in the following areas:

- a. the definition and application of the Principles by Member States (and their service providers);
- b. the compliance by new Member States with the Principles as a prerequisite for their integration into the route charges system.

10 In addition, the CRCO shall ascertain the compliance with the Principles by non-Member States who have concluded bilateral agreements with EUROCONTROL relating to the collection of air navigation charges. Prior to the implementation of such an agreement, the CRCO needs to be satisfied, and report to the enlarged Committee, that the State's cost-base is properly constructed and that the amounts claimed are cost-related, and conform with the Principles. During the continuing learning process a more established Member of the system may also act as mentor to the non-Member State offering guidance and advice based on its own experience. Such a partnering scheme would be beneficial both to the non-Member State concerned and to the route charges system should the State subsequently become a Member.

11 The role of the CRCO does not include:

- a. auditing the accounts of States / Air Navigation Service Providers (ANSPs);
- b. judging the cost-efficiency of States / ANSPs;
- c. target setting;
- d. enforcement of compliance with the Principles.

2. PRACTICAL ARRANGEMENTS

12 The CRCO shall exercise its role as follows:

2.1 Member States

Analyses initiated by users

13 As an initial step, concerns relating to possible non-compliance with the Principles may be raised by the users via a representative user organisation, e.g. at a bilateral consultation meeting with a State/service provider. The CRCO may attend such meetings and provide expert advice on request.

- 14 If this informal approach is unsuccessful, the users may address their concerns to the CRCO in writing. The CRCO shall take up the matter bilaterally with the State concerned and shall inform the users within four weeks of the agreement reached with the State. Any reasons for the State's possible non-agreement on certain points shall also be reported.
- 15 Should the users not be satisfied with the outcome of this procedure, they may bring their concerns, relating to possible non-compliance with the Principles, duly motivated, to the attention of the enlarged Committee in writing, at least three weeks before the meeting.
- 16 In this case, the enlarged Committee may formally task the CRCO to carry out an analysis of the situation. The CRCO shall submit a report to the next session, together with any dissenting views expressed by the State concerned.

Analyses initiated by a Member State

- 17 As an initial step, concerns by a Member State (or an individual user through the Member State) regarding the possible non-compliance with the Principles by another State may first be raised on a bilateral basis with a view to reaching a mutual understanding. The CRCO may participate in any discussions between the States concerned and provide expert advice on request.
- 18 If this informal approach is unsuccessful, the enquiring State may address its concerns to the CRCO in writing. The CRCO shall take up the matter bilaterally with the other State and shall inform the enquiring State within four weeks of the agreement reached with the other State. Any reasons for the State's possible non-agreement on certain points shall also be reported.
- 19 Should the enquiring State not be satisfied with the outcome of this amicable procedure, it may bring its concerns, relating to possible non-compliance with the Principles, duly motivated, to the attention of the enlarged Committee in writing, at least three weeks before the meeting.
- 20 In this case, the enlarged Committee may formally task the CRCO to carry out an analysis of the situation. The CRCO shall submit a report to the next session, together with any dissenting views expressed by the State in question.

Communication to the Provisional Council

- 21 If, after these stages, it proves impossible to reach a solution satisfactory to all parties involved, the enlarged Committee may inform the Provisional Council of the matter, irrespective of whether the analysis is initiated by user organisations or by a Member State.

Analyses initiated by the CRCO

- 22 If, during the course of its routine analysis of cost-base data presented by the Member States, the CRCO finds apparent misinterpretation/misapplication of the Principles, it should contact the relevant State bilaterally in an attempt to clarify the situation.

2.2 Integration of new Member States into the System

- 23 It is a *sine qua non* condition to Membership that an applicant State should demonstrate its full compliance with ICAO Policies and EUROCONTROL Principles.
- 24 In accordance with Article 36 of the EUROCONTROL Convention, accessions to the EUROCONTROL Convention and to the Multilateral Agreement relating to route charges are effective at the same date. For various reasons the technical integration into the Route Charges System may not take place at the same date.
- 25 At its 79th Session in 1991, the Permanent Commission agreed to grant the State concerned a reasonable interval before requiring its practical participation in the Route Charges System. A State may present such request if it appears that the necessary amendments to the national legislation have not been made in time for the accession and the technical integration. By virtue of its accession to the Multilateral Agreement, a State is required to ensure that it can meet its legal obligations to adhere to the provisions of the Multilateral Agreement. This in turn necessitates the amendment of any legislation or regulation that would be incompatible with the said obligations. The legal implications of the State's accession to the Multilateral Agreement should therefore be addressed during the legislative process leading to the ratification of the Multilateral Agreement or at an earlier stage before the State applies for accession. Although the provision of the Multilateral Agreement would prevail over any conflicting national legislation or regulation, States should identify and solve such conflicts as soon as possible in the accession process.
- 26 Provision of assistance by the CRCO to an applicant State when constructing the cost-base, regarding the correct application of the Principles, will be an essential part of that State's timely integration into the route charges system. To this end, the CRCO shall, at the start of the integration process (roughly one year before the integration target date, see time line at the end of this Section), organise information sessions for the applicant State's staff to provide them with detailed explanations of the Principles.
- 27 The new Member State shall then be requested to establish preliminary forecast cost-base figures for the June enlarged Committee session together with ancillary data as foreseen in the Principles. These data shall be carefully analysed by the CRCO and additional information may be required.
- 28 The requirement for a bilateral user consultation meeting shall be stressed by the CRCO, and the CRCO may attend such a meeting providing expert advice on request. Between June and November the refinement of the cost forecast shall be monitored by the CRCO. A detailed report analysing the applicant State's cost figures and giving a clear indication of the CRCO's informed judgement on the compliance with the Principles shall be prepared by the CRCO, and submitted to the enlarged Committee's November session with the consent of the applicant State or with its dissenting views. On the strength of this report, the enlarged Committee shall confirm the envisaged integration date or otherwise. In accordance with the Decision of the enlarged Commission, approval of a State's technical integration should be as soon as reasonably possible after accession.

2.3 Compliance by non-Member States with the Principles

- 29 The procedures applying to non-Member States with which EUROCONTROL has signed a bilateral agreement for the collection of charges on their behalf are similar to those described in 2.2 above, as far as the establishment of their initial cost-base is concerned. Subsequent enquiries initiated by the users in particular shall be treated by analogy with the proceedings outlined for existing Member States (cf. paragraph 2.1 above). Depending on the seriousness of the non-compliance, if any, with the Principles by the non-Member State, the report to be submitted by the CRCO to the enlarged Committee may include a proposal to the enlarged Commission regarding the possible termination of the bilateral agreement.
- 30 The standard task schedule for the integration (on 1 January of the year “n + 1”) of States into the Multilateral System is as follows:

As early as possible	<ul style="list-style-type: none">- Appointment of a project co-ordinator- Appointment of specialised correspondents- Begin to set-up/modify RCO (e.g. new equipment, staff)- Examination of legal aspects- Set-up a communication system with the CRCO- Preparation of the cost base- Preparation of the decision on exemptions- Arrange co-ordination meeting
February year “n”	<ul style="list-style-type: none">- General information session
March year “n”	<ul style="list-style-type: none">- Meeting on cost base calculation
March-April year “n”	<ul style="list-style-type: none">- Two operational meetings (flight data collection and flight data transmission separately)- Transmission of the first traffic sample- Arrange bilateral consultation meeting with users
May-June year “n”	<ul style="list-style-type: none">- Operational meeting (claims)- Notification of the preliminary data by 1 June year “n”- June Session of the enlarged Committee
July year “n”	<ul style="list-style-type: none">- Transmission test completed- Notification of the decision on optional exemptions
September-October year “n”	<ul style="list-style-type: none">- Local training of the RCO- Transmission of the second traffic sample (1 October year “n”)- Notification of the final data by 1 November year “n”
November-December year “n”	<ul style="list-style-type: none">- Operational trials (1 November year “n”)- November Session of the enlarged Committee- Notification of the decision on military exemptions- Publication of regulations- Information to the users
1 January year “n + 1”	<ul style="list-style-type: none">- Technical integration into the route charges system

SECTION 2: PROCEDURES AND PROCESSES

1. TIMING FOR THE COMMUNICATION OF THE REPORTING TABLES (Annexes II and III to the Principles)

31 Financial information is provided in two stages:

1.1 Preliminary data

32 This data should be reported to the CRCO not later than 1 June. The Principles also stipulates that this data should be made available to users three weeks before the June meeting of the enlarged Committee.

33 Whilst every endeavour should be made to transmit accurate and nationally agreed data, it is more important to ensure the timely transmission of perfectible data rather than to withhold information for the sake of completeness or certitude.

34 Consequently, States can provide their information with "caveats" (e.g. "subject to the approval of the Supervisory Board" or "information given on a provisional basis" etc.) to indicate that some, or all, of the data provided is not approved, and therefore likely to be confirmed, updated or amended.

35 The "preliminary estimates" should only be the best possible figures, not the final ones. On the other hand, any gaps in the transmission of data should be justified in detail and in writing in the Additional Information.

1.2 Final data

36 In November the data provided by the States should be complete and accurate. No imprecision or gaps should be admitted, unless in exceptional circumstances and duly justified in writing (in the Additional Information). Should any State fail to provide necessary data in due time before the enlarged Committee session (see above), the CRCO would be entitled to use the latest available data to calculate the unit rate.

1.3 Service units forecasts (Preliminary and Final Data)

37 The CRCO will provide service unit forecasts for all Contracting States in view of consultations with users regarding preliminary and final data twice a year. The CRCO will also communicate these forecasts to the user organisations. However States are responsible for the service unit forecasts used in the calculation of the national unit rates.

2. CONSULTATION

38 Meaningful consultation is necessary for a productive working relationship between States / Air Navigation Service Providers (ANSPs) and their users. The underlying philosophy of the consultation process is transparency of information and the rationale of decisions. Elements such as a set of procedures and the timely provision of enhanced financial and traffic information, together with other relevant supplementary data will serve as prerequisites for meaningful consultation. The process should provide users with a better understanding of their costs and charges. It should be emphasised that this is a process, and not just an event.

39 The goal of consultation should be to reach consensus between the participants and this requires a spirit of openness and understanding from both sides. It is recognised that agreement cannot always be achieved, but decisions made following consultation should take into account the users' views. Where users' views are not accepted the reasons should be explained or justified. In the case of disagreement, users should have the right of referral to the competent authority or regulator.

40 There are two main types of formal consultation: multilateral and bilateral.

2.1 Multilateral

41 The common policy laid out in the Principles includes accounting policies, the specification of the information to be disclosed, and the consultation process. ANS is provided by statutory monopolies where airspace users have little economic option other than to use those services. It is therefore in the collective interest of the States to ensure that appropriate mechanisms are in place to support effective consultation and secure the confidence of all stakeholders in the system. This should be consistent with the Performance Review Commission's information disclosure policy, including the publication of business plans aimed at ensuring that comprehensive information is available to users and assisting performance review.

42 This multilateral consultation takes place primarily at the scheduled meetings of the enlarged Committee, and also at the various enlarged Committee Groups and Task Forces. These meetings allow the users' representatives to raise issues regarding the common route charges system. This may be concerned with trends or themes as well as more specific matters. They also allow the users' representatives to identify and request where there are requirements for bilateral consultations or follow-up actions.

2.2 Bilateral

43 The membership and size of the common route charges system does not facilitate detailed discussion with individual States / ANSPs at the enlarged Committee meetings. Users' representatives therefore request more detailed bilateral consultations where necessary¹. Circumstances under which bilateral meetings are requested include, but are not limited to:

- a. relatively high increases in cost-base or unit rates;
- b. any unsubstantiated changes with insufficient information in commentary;
- c. new Member States.

2.3 Bilateral agenda

44 The agenda is usually agreed between the State/ANSP and the users' representatives taking into consideration any special requests or issues. However, the following standard agenda is given as a minimum to structure bilateral consultations:

- a. *Update on organisation and financing* – brief outline of provider organisation with particular reference to finance/charges position and reporting lines within the organisation; the relationship to Civil Aviation Authorities (CAA), Regulators and Ministries; methods of financing allowed and used; financial targets, rates of return and brief background of national economic factors affecting cost-base and charges.

¹ States should note that the user organisations expressed the wish to hold the consultation meetings in English, or to benefit from interpretation from/to English, wherever possible.

- b. *Update on service issues* – a review of any significant service and facility issues; brief summary of capacity/delay situation.
- c. *Capital expenditure* – brief summary of capital expenditure programme, with planned implementation dates, which impact on costs and charges.
- d. *Review of year “n - 1” actual results* – Update and reasons for any significant changes from earlier forecasts on traffic, costs and revenue.
- e. *Latest estimates for year “n”* – Update and reasons for any significant variances from previous traffic, costs and revenue forecasts.
- f. *Year “n + 1” proposed cost-base and unit rate* – explanation and reasons for any significant variances in costs and traffic, and information on cost allocation methodology.
- g. *Forecast cost-bases and unit rates for years beyond “n + 1”*. This information assists users for route planning and budgeting purposes.

3. TIME-TABLE FOR THE PRESENTATION OF PRELIMINARY AND FINAL COST AND TRAFFIC DATA

45

1 June year “n”	Latest date for the provision by States of preliminary data* to the CRCO. Data is dispatched to users and Member States without delay.
Mid-June (or later) year “n”	Consultation with users at the enlarged Committee’s session.
1 November year “n”	Latest date for the provision by States of final data* to the CRCO. Data is dispatched to users and Member States without delay.
Mid-November (or later) year “n”	Consultation with users at the enlarged Committee’s session.
Mid-December (or earlier) year “n”	Approval by the enlarged Commission of the unit rates with effect from 1 January year “n + 1”.
31 December year “n”	Publication by States of the unit rates with effect from 1 January year “n + 1”.

*: *For States applying the full cost recovery method, preliminary and final data includes service unit forecasts for year “n + 1” to “n + 5”. Establishing these forecasts is the responsibility of the States. In order to support States, the EUROCONTROL Agency publishes three service unit forecasts in February, May and October each year.*

The States applying the determined cost method send their reporting tables with initial forecast figures eighteen months before the start of a new reference period, i.e. for the June session of year “N - 2” (new reference period starting on year “N”). From that June session onwards, the States concerned prepare two sets of documents, one relating to the current reporting period and one relating to the new reference period starting on year “N”.

PART II: GUIDANCE ON HOW TO APPLY THE PRINCIPLES

SECTION 1: QUESTIONS RELATING TO THE DETERMINATION OF COSTS BY NATURE

1. INTRODUCTION

46 The costs of eligible services, facilities and activities shall be established in such a manner as to be consistent with the financial accounts. *These accounts shall comply with the International Accounting Standards / International Financial Reporting Standards (IAS/IFRS). Where, owing to the legal status of the service provider, full compliance with the IAS/IFRS is not possible, the Contracting State shall ensure that the provider achieves such compliance to the maximum possible extent.* A comprehensive list of the IFRS/IAS and a brief description of the main standards are included at **Annex 1**.

2. STAFF COSTS

47 Staff costs that are attributed to the en route cost-base consist not only of direct wages costs but may also contain a whole series of costs indirectly related to the employment of staff.

48 The staff costs may consist of the following elements:

a. Gross wages, salaries and benefits

These include all gross wages (including overtime hours, allowances paid to the personnel, income tax and other social security charges payable by employees) but exclude pension or social security contributions payable by the employer.

b. State social security scheme contributions

This comprises all elements of staff costs that represent a payment by the employer for the benefit of employees to the State or an agency, such as social security costs, health services.

c. Pension contributions/payments

Staff costs may also contain various elements related to pension. This means actual retirement payments, together with legal pension schemes contributions, additional retirement pay schemes and allocations to pension provisions.

With regard to contributions to pension funds, Member States can decide either to follow IAS/IFRS or to use prudent assumptions according to the governance of the scheme or to national law, as appropriate.

d. Other staff costs

Some organisations may report certain operating costs (training costs, missions, ...) as well as certain forms of services provision (temporary workers, consultants) as staff costs.

This will depend on the relevance of such costs to en route ANS provision and the way the organisation is structured.

3. OTHER OPERATING COSTS

49 Paragraph 2.3.2 of the Principles states that *other operating costs shall include costs incurred through the purchase of goods and services used to provide en route services, in particular outsourced services such as communication, external staff such as consultants, material, energy, utilities, rental of buildings, equipment and facilities, maintenance, insurance costs and travel expenses. Where an air traffic service provider purchases other en route services, the service provider shall include the actual expenditure for those services in its other operating costs.*

Operating costs shall include non-recoverable taxes and be calculated net of ancillary revenues.

Some examples of *other operating costs* are (but are not limited to):

- a. *rental costs for land transmission lines;*
- b. *rental costs of land, buildings and other facilities including taxes and other charges, where applicable;*
- c. *costs of utilities including water, heating and all energy supplies;*
- d. *rental costs for communication lines;*
- e. *repairs and maintenance costs, excluding internal staff costs, but including non capitalised equipment, e.g. spare parts or other small expensed items;*
- f. *operating costs of other operational and technical support facilities, including administrative support, legal, consultancy and audit;*
- g. *costs of application software unless considered as an investment;*
- h. bank charges and commissions, and exchange rate differences arising from the provision of ATM services;
- i. provisions related to operating costs.

50 Operating costs should take into account other revenues attributed to the provision of en route air navigation services (see paragraph 3.2.1 of the Principles).

51 Write-offs are part of operating costs.

52 For write-offs, provisions should only be made for debts that are clearly impaired. Once a figure has been agreed the provision is established by charging the amount to the profit and loss account and creating a provision in the balance sheet.

53 The provision for doubtful debts is regularly reviewed, usually on an annual basis, and adjusted accordingly. It may be increased or decreased depending on the particular situation. It is important to note that any subsequent debts for users already included in the provision are added to this provision for doubtful debts in the balance sheet. Creating a provision does not mean that the normal credit control process should cease and, indeed, if a debt is subsequently recovered it must be written back.

54 Provisions for doubtful debts should be taken into account on the same grounds as amounts written off. Like write-offs, provisions for doubtful debts could also be established in accordance with the EUROCONTROL Financial Regulations. Net amounts, i.e. the difference between provisions in respect of year "n - 1" and provisions in respect of year "n - 2" are shown in the EUROCONTROL Balance Sheet and Administrative Accounts.

55 EUROCONTROL applies the same criteria for determining provisions for doubtful debts and write-offs for both route charge debts and interest on late payment debts.

4. COST OF CAPITAL

4.1 Introduction

56 The cost of capital is defined in paragraphs 2.3.4 of the Principles. An example for the calculation of the cost of capital is provided at **Annex 3**. Cost of capital should be calculated on average capital, representing the average of opening capital and closing capital for the financial year. Therefore overnight interest rates for very short term borrowings or even overdrafts lasting less than a year would be eliminated from the average capital. These costs should be considered as expenditures items or operational costs. Overdrafts for periods longer than one year would be included in the calculation of cost of capital.

57 Two questions will be examined in succession: the determination of capital employed, and the weighted average cost of capital.

4.2 Determination of the capital employed

Definitions

58 The cost of capital should be calculated annually on the capital employed in the organisation. The capital employed should be determined on the basis of the definitions set out in the ICAO manual (paragraphs 6.36 et seq.).

59 The capital employed is defined in the ICAO manual (paragraph 6.36) as follows:

The cost of capital should be calculated annually on all capital invested in fixed assets, or other expenditures, which should be properly written off over time, and on working capital.

- a. *In the case of fixed assets, the cost of capital should be applied on net asset value;*
- b. *for other investments that are spread over a number of accounting periods, the cost of capital should be assessed annually on the net value;*
- c. *and in the case of working capital (net current assets), on the average value for the financial year.*

60 In the case of an ANSP which has no comprehensive balance sheet this definition can be used directly for calculating the capital employed. Net asset values of fixed assets and of investments that are spread over a number of accounting periods can be calculated from the file of assets that has to be maintained for calculating depreciation costs. As individual assets are allocated to the different activities, including en route services, by means of cost centres and repartition keys, both depreciation costs and net asset values can be allocated to these activities, thus enabling the determination of capital employed for en route services.

- 61 In the case of an autonomous ANSP, which has a comprehensive balance sheet, it is possible to determine a value for capital employed. The capital employed may be defined in terms of the capital invested in the ANSP or of its assets as shown below:

long-term capital

capital definition

= share capital + reserves + long-term debt

asset definition

= fixed assets + net current assets

(where net current assets = current assets – current liabilities)

- 62 By construction, the long-term capital (i.e. the sum of the share capital, the reserves and the long-term debt) is equal to the sum of fixed assets (net value) and net current assets. The latter sum represents the capital employed as defined above.
- 63 The above definitions are the most commonly used and are likely to be the most applicable to the provision of air navigation services. However, there is no single generally accepted definition of capital employed because its composition depends on the use to which it is put. For example if short-term debt is used to finance the operation then it could be legitimate to include it in the definition of capital employed. Alternative definitions of capital employed are therefore highlighted in paragraph 4.75 of page 4-16 of the ICAO manual.

Complements for the determination of the capital employed

- 64 If the rate of return is calculated pre-interest and pre-tax, then the debtors and creditors for interest receivable, interest payable and tax should be excluded from the definition of current assets and liabilities used to calculate the capital employed. In addition current liabilities should exclude loans repayable within one year of the balance sheet date. This is because in the context of the provision of ANS these loans are funding the operation like any other loans.
- 65 For an ANSP the net fixed assets should represent the major part of the capital employed. The net current assets, i.e. the working capital, should normally be a rather small portion of the capital employed owing to the credit period on route charges (which can be estimated at present at about 65 days) and should also take account of the credit period from suppliers. Amounts in interest bearing accounts shall be excluded from the net current assets.
- 66 In order to calculate the cost of capital it is usually appropriate to use the average of the opening and closing figures of capital employed over the accounting period (ICAO manual, paragraph 4.76).
- 67 Unless included in the interest bearing accounts mentioned above, any over-recovery should be recorded as a current liability (debt to users), thus reducing the working capital and therefore the capital employed as previously defined. Conversely, any under-recovery should be recorded as a current asset (debt from users), thus increasing the working capital and therefore the capital employed. This also applies to the adjustments carried over under the determined cost method.
- 68 The capital employed taken into account should include all capital investment expenditure incurred in respect of en route facilities not yet in service (see 5.1 below).

4.3. Weighted average cost of capital

- 69 Based on the definitions given above, the weighted average cost of capital is the weighted average of the cost of equity and the cost of debt. The latter reflects the cost at which the air navigation service organisation can borrow from financial institutions and does not raise any specific question as far as the calculation of the cost-base is concerned.
- 70 First of all, it should be noted that *air navigation services may produce sufficient revenues to exceed all direct and indirect operating costs, and so provide for a reasonable return on assets (before tax and cost of capital) to contribute towards necessary capital improvements* (ICAO Document 9082, paragraph 38 v.).
- 71 The appropriate *weighted average cost of capital to be used is a matter for the State (or other national economic regulator) to approve, taking into account the low financial risk of providing air navigation services. The government bond rate, or alternatively rates payable in financial markets by enterprises of comparable low risk, may be taken as a guide* (ICAO manual, paragraph 6.36 – see also Principles, paragraph 2.3.4.2).
- 72 ANSPs operating under a full cost-recovery regime might be expected to face a cost of capital close to the government borrowing rate of the country in question, particularly for en route services. Services, operations, technology used and funding are to a broad extent very similar. This is reflected even more in the common route charges system operated by EUROCONTROL on behalf of its Member States whose ANSPs benefit from the low financial risks attached to en route traffic management. Given these low financial risks, rates of return should be approaching close to government bond rates or sovereign loan rates, with limited variations due, *inter alia*, to the fact that ANSPs have not exactly the same capital structure.
- 73 However, in the case of corporatised ANSPs, the State may require the cost of equity to include a different risk margin. The risk margin so included should be clearly stated and the level of such a risk margin should be justified.
- 74 If relevant, the appropriate cost of equity should be determined separately for the activity of providing en route ANS services. This is because the risk attached to activities other than en route ANS services may be higher and therefore may generate an extra cost which would not be appropriately borne by users of en route ANS services.
- 75 States should provide detailed information on their cost of capital, in the format required by the reporting table 1 in Annex II to the Principles. The capital employed should be presented together with explanations about the differences between cost of capital and government bond rates.

Cost of Capital should be reported before tax in the reporting tables.

Capital Asset Pricing Model

- 76 A common method used for calculating cost of capital is the “Capital Asset Pricing Model” and a fuller description of the cost of capital (including an example of its calculation), are provided below.

- 77 Capital of an activity is normally made up of Equity and Debt. The long-term capital (i.e. the sum of the share capital, the reserves and the long-term debt) is equal to the sum of fixed assets (net of depreciation) and net current assets (current assets less current liabilities). Capital is therefore made up of Equity and Debt each with a different financing cost to the activity or organisation. For calculation of cost of capital the average of the opening and closing capital for the financial period, normally one year is taken as the capital employed.
- 78 Within the Route Charges System there are different types of ANSPs – Government owned corporatised organisations, part privatised corporate organisations or organisations which are parts of Government services. The cost of financing for these ANSPs varies depending on their structure, ownership and nature of cost recovery.
- 79 However, irrespective of these different structures the general principles of calculation of cost of capital should be considered first. To arrive at the “Cost of Capital” first the financing costs of each part that is ‘Equity’ and ‘Debt’ are calculated as percentage rates of return. Then a “Weighted Average Cost of Capital (WACC)” rate is calculated depending on the proportion of Equity and Debt in the total capital of the organisation. This rate is applied to the average capital employed to arrive at the cost of capital. Each component of an ANSP’s capital structure has a different cost rate.

Cost of Equity

- 80 Determining the cost of Equity is complex. The cost of common equity is an estimate of a reasonable rate of return on the shareholders’ or owners’ investment. It is normally estimated by using a market driven model called the “Capital Asset Pricing Model (CAPM)” which attempts to measure the relationship between the risk of a share or stock and the return the share or stock provides at the level of risk of the activity. In the case of ANSPs there is at present no market for shares. Therefore the market risk has to be estimated.
- 81 The CAPM formula states that an organisation’s cost of capital is equal to the risk-free rate of return (typically the yield on a ten-year treasury bond) plus a premium to reflect the extra risk of the investment or its “Beta”. The exact rate of return on equity will depend on perception of risk (‘beta’ or ‘β’) on the part of the equity holders.
- 82 The formula could be expressed algebraically as follows:

$$\text{Cost of Equity} = R_f + \{(R_m - R_f) \times \beta\}$$

Where R_f and R_m represent risk free rate and market rate and β represents either the industry or the industry or company risk. As stated earlier Government Bond rates with a ten-year yield spread is a good representation of risk free rate.

Whereas the average market return obtained on share indices like FTSE, DAX, S&P 500 etc represents the market return in a particular State. The difference between the market return and the risk-free return represents the “Market Risk Premium”. The market risk premium is then adjusted to the industry company risk premium by multiplying by the industry equity Beta². The equity Beta of a company typically depends on the industry beta, the capital structure of the company and its tax rate.

² The beta used in this worked example does not necessarily represent the industry beta for the ATM industry but it is used for illustrative purposes.

Cost of Debt

- 83 Determining the cost of 'Debt' is relatively straightforward. This cost is represented by the weighted rates of interest paid by the ANSP on its debt instruments. The rate of interest of debt will depend on market interest rate plus a premium based on the conception of risk of the ANSP on the part of lenders. Therefore for the cost of debt this should reflect the cost of actual borrowing (i.e. interest rates attached to the bonds and loans) plus any contributory risk factors 'β' attached to the debt (normally risk of default). This beta of debt could be close to zero for large organisation and in particular low risk organisations. However it can be high for organisations with poor credit rating. ANSPs could have different types of debts like long-term bond or loans, Pension Reserves or short-term debt. The weighted average rates of interest paid on these different debts should be taken as the representative rate.

Weighted average Cost of Capital

- 84 The Weighted Average Cost of Capital (WACC) would therefore depend on the gearing of the ANSP that is the proportion of Equity and debt in its total capital as:

Cost of Capital = Cost of Equity + Cost of Debt.

Or

$$\text{Return on Capital} = \text{Return on Equity} \times \frac{\text{Equity}}{\text{Debt} + \text{Equity}} + \text{Return on Debt} \times \frac{\text{Debt}}{\text{Debt} + \text{Equity}}$$

A worked simple example of an illustrative ANSP would help in demonstrating the calculation:

1. Return on 10 year Government Bond – 4.5%
2. Average Market rate of return – 6.0%
3. β equity beta - 0.55

Therefore cost of equity = $0.0450 + 0.55 (0.0600 - 0.0450) = .0450 + .0082 = .0532$ or 5.32%

Fixed Assets	€ 4,000,000
Less Accumulated Depreciation	<u>€ 800,000</u>
Net Assets	€ 3,200,000
Working Capital	<u>€ 300,000</u>
Total	€ 3,500,000

Capital Structure

Long-term Debt	€ 1,400,000	40%
Equity	<u>€ 2,100,000</u>	<u>60%</u>
Total	€ 3,500,000	100%

Cost of Capital

	Weight	Rate	Weighted Rate
Long Term Debt	40%	4.50%	1.80%
Equity	60%	5.32%	<u>3.20%</u>
WACC			<u>5.00%</u>

Different charging methods

85 As stated earlier in cases of Government services or ANSPs without comprehensive balance sheet the cost of capital should be calculated annually on all capital invested in fixed assets or other expenditures, which should be properly written off over time and on working capital, which is represented by the average value of net current assets (current assets less current liabilities).

For States applying the full-cost recovery method, the risk premium should be low and rates of returns expected should approximate to the ten-year government bond rates. However, in some cases the State may require cost of equity to include a different risk margin. The risk margin so included should be clearly stated and the level of such a risk margin should be justified. It is also possible where such an ANSP has issued financial instruments or borrowed in the market without sovereign backing that the risk premium could be higher.

Under the determined costs regime, the cost of capital might be expected to be higher than required under a full cost recovery regime. This is due to the fact that no full cost recovery applies in the short run and hence returns are likely to be more volatile (in line with traffic volumes) depending on the price cap imposed on the ANSP in question. As a result their equity beta³ is likely to be higher. The cost of debt might also be higher, depending on how the market views the default risk of the ANSP in question. Under the determined costs regime the regulator should provide a clear explanation and transparent methodology of how the cost of capital for the ANSP in question has been determined.

The issue of Taxation

86 As explained earlier for reasons of transparency and comparability Cost of Capital should normally be calculated pre-tax and pre-interest. Therefore, the debtors and creditors for interest receivable, interest payable and tax should be excluded from the definition of current assets and liabilities used to calculate capital employed. The issue of taxation is complex and the tax legislation differs from state to state. Even though it is closely associated with cost of capital, taxation is considered an integral part of the overall cost of capital, i.e., the scale of operating returns required to sustain the ability of an entity to finance new investments there are many variables, which need to be considered:

- Corporation tax is a charge on corporate profit;
- Timing differences between the liability to tax and the recognition of accounting profits are generally associated with capital transactions;
- The liability to corporation tax is significantly influenced by the capital structure of the company, notably by the mix of debt and equity;
- The tax position of shareholders is, in principle, influential in determining cost of equity and debt with firms being price takers in respect of capital in competitive international capital markets.

³ Equity beta is a measure of the sensitivity of a company's stock (shares) to market movements and represents the non-diversifiable risk associated with investing in that particular company. Examples of non-diversifiable risk are movements within the general economic environment like changes in interest rate, Gross Domestic Product, inflation that impact to varying degrees on all companies.

The distinction between using a post-tax, post-financing cost of capital and pre-tax cost of capital (and calculating a 'tax-wedge' in the cost of capital) is largely one of presentation provided they are prepared consistently.

The cost of equity and cost of debt equations change with tax to as follows:

Cost of debt = $R_d = (\text{Risk free interest rate} + \text{Credit premium}) (1 - \text{Tax rate})$

Cost of equity = $R_e = \text{Risk free rate} + \beta \times \{1 - (1 - \text{Tax Rate})\} (\text{Market Rate} - \text{Risk Free rate})$

Cost of Capital should be reported before tax in the reporting tables.

5. INVESTMENT COSTS/COSTS TO CAPITALISE

5.1 General: costs to capitalise

87 Any item which is capitalised appears on the organisation's balance sheet as an asset. An asset is a resource from which future economic benefits over several years are expected to flow to the air navigation services organisation that owns or controls it.

88 This definition can also include intangible assets which may be defined as assets which do not have physical substance but are identifiable and controlled by the entity through custody or legal rights.

89 In terms of capital expenditure it is expenditure which introduces a new asset, or replaces, enhances or extends the life of an existing asset, so that the benefits to the business will be realised over a period greater than one year.

90 In some organisations it may not be deemed practical to capitalise all expenditure which meets the above criteria, and a capitalisation threshold is introduced by which only expenditure above a certain level can be capitalised. Therefore an individual item below a certain amount need not be capitalised unless:

- a. it forms part of the expenditure associated with a project to acquire or construct a fixed asset;
- b. it forms part of a larger asset or system and cannot operate outside the system for which it is expensed; or
- c. on aggregation, the expenditure is significant across the organisation as a whole or in a particular area.

91 It should be noted that the purchase of a large asset, system or group of assets should not be broken into individual purchases of less than the threshold account to avoid capitalising expenditure.

92 Most accounting standards incorporate some basic rules which could be applied to the provision of air navigation services. These include the following:

- a. Costs are limited to those directly attributable to bringing assets into working condition for intended use. This would include initial spares, acquisition costs, site clearance and preparation, initial delivery and handling and installation costs.

- b. Only costs which are directly attributable to bringing the asset into working condition for its intended use should be included. Abnormal costs due to design error, industrial disputes, wasted materials, production delays etc. should be excluded. Similarly, costs associated with a project feasibility study should only be capitalised where there is a clearly defined project which is technically feasible and commercially viable. Concerning research and development costs: see 5.3 below.
- c. Costs should only be capitalised up to completion of a project to acquire or construct an asset. This will include costs which occur between technical and operational hand-over.
- d. When assets are acquired or constructed the amount capitalised should include all external costs associated with bringing the asset to working condition for intended use. Internal costs may also be capitalised but these should be directly attributable to bringing the asset to working condition. These could include directly attributable labour costs but would exclude administration and general overheads except where the costs would have been avoided if the asset had not been bought (see also 5.2 "Pre-operational phase" below).
- e. Subsequent expenditure which enhances an asset's originally assessed standard of performance should be capitalised, but expenditure which is aimed at maintaining an asset's originally assessed standard should be expensed.
- f. Expenditure which replaces a component which is being treated as a separate asset and which has been depreciated over its own separate life should be capitalised.
- g. Intangible assets e.g. patents, trademarks and intellectual property rights should be capitalised. However, internally developed intangible assets should only be capitalised where there is a readily ascertainable market value as evidenced by frequent transactions. It is important to recognise that for the criteria to capitalise rather than to expense requires that rights to future benefits are clearly realisable.
- h. Where goodwill is purchased, i.e. the difference between the costs of an acquired entity and the aggregate of the fair values of the entity's identifiable assets and liabilities, it should be capitalised. Internally generated goodwill should be expensed.

93 Basic and application software referred to in paragraph 2.3.3.1 of the Principles should be defined as follows:

- a. Basic software shall comprise the integral standard software components of any computer system which are essential for its basic functioning but which do not by themselves enable the individual computers, or the system itself, to process specific data for a specialised task. Examples of the components included in this category are: operating systems, monitors and supervisors, compilers, service programs and interfaces between supervisors and monitors.
- b. Application software should be defined in the technical sense of the word as the software which enables the computer systems, or elements thereof, to fulfil any Air Navigation Services task. This category also includes maintenance and improvement of the programs.

5.2 Pre-operational phase

- 94 Costs of the pre-operational phase are dealt with in accordance with IAS/IFRS rules:
- a. In order to be taken into account, facilities and services shall either be in operation, or be expected to be put into service, by the end that year. Facilities introduced during the year shall only be taken into account on a pro-rata basis.
 - b. Investment costs to be included in the cost-base comprise amortisation of fixed assets (tangible and intangible assets) and cost of capital.
 - c. Charging users for amortisation of a facility should not commence until it is placed in service.
- 95 In most cases, the pre-operational phase for a given facility involves the use of internal resources, for instance staff resources for procurement or for trial purposes. As indicated in the ICAO manual 9161, paragraph 6.31, in calculating the amount of the costs chargeable for the depreciation of any item of equipment, *it is appropriate to include the cost of installation and of any calibration and testing required to render the equipment operational*. Corresponding expenses, i.e. staff and other operating expenses should be capitalised and then depreciated together with the fixed asset in question. However, such processing of cost data should be done only for projects involving significant resources, and expenses in respect of internal resources should be capitalised only if they would have been avoidable if the fixed asset had not been purchased (cf. paragraph 5.1 above).
- 96 When implementation of a new facility is significantly delayed, the relevant state should consider, as regards its cost-base, limiting the amount of cost of capital included for the pre-operational phase.

5.3 Research and development costs

- 97 Research and development costs should be distinguished from installation, testing and trial costs incurred during the pre-operational phase of a given facility. The latter are directly associated to a precise facility for which both a date of entry into operation and an operating life can be defined. Conversely, research and development activities do not provide benefits for a given period. They aim at increasing knowledge, skill, and know-how which will then be applied to future equipment, procedures or services made available to users. Neither a date of entry into operation nor an operating life can be properly defined for most of the costs incurred for research and development. In the case of units in charge of research and development, operating expenses, the cost of studies and the cost for developing prototypes should be recorded as current expenses and added to the cost-base for the year during which they occur. Only facilities providing benefits in the field of research and development during a defined operating life should be recorded as assets, e.g. buildings, computers, and measurement equipment used for research and development purposes.

5.4 Land / Buildings

- 98 No depreciation is calculated for land in accordance with paragraph 2.3.3.6 of the Principles. Only the cost of capital employed in land should be added to the cost-base i.e. irrespective of whether facilities situated on a given piece of land are in operation or not.

99 There may be a delay between the time when a building is in operation and the time when the main equipment within the building becomes itself in operation. This situation may occur for main projects like the setting up of a new Air Traffic Control Centre or the building of Headquarters. The building may be used for some time for administrative units, for training or for trial purposes, before the main facilities hosted by the building become fully operational. Providing that the building can be used at least for significant ancillary activities and therefore can be considered as operational, the corresponding asset may be depreciated in accordance with the Principles, i.e. from the date of entry into service, prior to the date when main facilities become operational. However, the possibility of splitting this asset into items with different dates of entry into operation should also be considered.

6. TREATMENT OF INTEREST RECEIVABLE

100 The treatment of interest receivable shall be handled according to national accounting practices.

7. HIGH INFLATION

7.1 General

101 States experiencing high inflation may apply a unit rate which should remain constant (in euros) for the whole year “n + 1” (i.e. the unit rate shall not be recalculated monthly in accordance with the provision of Article 7.2. of the Conditions of Application of the route charges system) by using one of the following methods:

- a. either establish their cost-base and resulting unit rate in euros.
- b. or adopt for the forecast costs of the year “n + 1” one of the methods used in the second and third sub-paragraphs of paragraph 1.8 of the Principles. In such case they should provide proper explanation regarding the method and the exchange rate used.

7.2 Depreciation

102 States experiencing high inflation may use alternative approaches to calculating depreciation. Such approaches should be based on generally accepted accounting principles.

103 An approach which may be used by a State involves adjusting the portion which is not depreciated of the original book value of the asset concerned expressed in national currency by increasing it by a percentage based on the rate of inflation, as measured by an official index; or as reflected in the variation of the exchange rate in relation to a chosen currency, when calculating the annual depreciation charged.

104 Most non-monetary items are carried at cost or cost less depreciation; hence they are expressed at amounts current at their date of acquisition. The restated cost, or cost less depreciation, of each item is determined by applying to its historical cost and accumulated depreciation the change in a general price index from the date of acquisition to the balance sheet date. Hence, property, plant and equipment, investments, inventories of raw materials and merchandise, goodwill, patents, trademarks and similar assets are restated from the dates of their purchase. Inventories of partly finished and finished goods are restated from the dates on which the costs of purchase and of conversion were incurred.

105 Where a State has chosen to adjust the book value of its assets for inflation its depreciation would automatically be also calculated at the inflation adjusted amounts. In calculating the cost of capital the State will therefore use the net interest rate.

106 Another method would be to establish the costs directly in euros.

7.3 Net Interest

107 This interest rate is defined as follows:

In the case of a State adjusting its asset value for inflation (the first case), the cost of capital shall be calculated by using the real interest rate (deflated interest rate). In the case of a State translating their asset values to another stable currency e.g. euro (the second case), the cost of capital shall be calculated by using the interest rate in the chosen currency, i.e. the euro interest rate if the euro is the chosen currency.

7.4 Establishment of forecast costs

108 For the establishment of forecast costs, the preferred method would be for a State to convert its national costs established for year "n + 1" at constant prices in national currency (i.e. not taking account of the inflation forecast for year "n + 1") directly into euro, using the actual exchange rate at the time of calculation.

109 Another method would be for a State to convert its national costs established for year "n + 1" at current prices in national currency (i.e. taking account of the forecast inflation for year "n + 1"), into euro using the average forecast exchange rate for "n + 1". In this instance the forecast exchange rate should broadly reflect the forecast differential inflation rate for that State and the countries of the Economic and Monetary Union (EMU), for year "n + 1".

110 The forecast costs could also be determined on the basis of actual costs for year "n" in euros, updated according to available information relating to years "n" and "n + 1".

7.5 Establishment of actual costs

111 The actual costs in euros should preferably be established using an accounting system in euros, i.e. in which actual expenses and expenditures are converted into euros, using the exchange rate at the date(s) of payment.

112 Another method would be to restate all costs to the year-end general purchasing power of the national currency. In such case the year-end exchange rate would be used for the translation into euros.

113 Another method which could be used during an interim period would consist of converting the actual expenses and expenditures recorded for the year in national currency into euros, using the average exchange rate for the year. Such conversion could also be done on a monthly basis. Investment expenditures relating to previous years should be converted into euros for the calculation of investment costs, as appropriate.

7.6 Establishment of actual revenues

114 The actual revenues described in paragraph 4.1.1 of the Principles will be determined as follows:

- a. for States establishing the national cost-base in euros the revenues will be the year-end balance of the revenue account expressed in euros;
- b. for States applying second and third sub-paragraphs of paragraph 1.8, the euro revenues shall be converted into the national currency according to the method used for calculation of national costs;
- c. for States which restate their cost at the year-end general purchasing power of the national currency the year-end balance of the revenue account expressed in euros would be converted into the national currency at the year-end exchange rate;
- d. for States which do not restate their costs, the monthly billed euro amounts would be converted at the average (or end of the month) exchange rate of the flight (or billing) month.

8. APPLICATION OF CURRENT COST ACCOUNTING PRINCIPLES (CCA)

115 In the case when current cost accounting may be applied instead of historic cost accounting for the calculation of depreciation, the method shall remain constant during the duration of the depreciation. When current cost accounting is adopted comparable historic cost data shall also be provided.

116 The objective of CCA based accounts is to measure the real rate of return earned on investment and identify the funds needed for retention, for maintaining the operating capacity of the business. As such it has particular relevance to organisations, which operate in conditions of limited competition for capital and whose assets have long operating lives. This and the fact that balance sheet values based on historic cost can become increasingly ineffective as a measure of capital employed, both governments and especially economic regulators, may require rates of return to be calculated on a CCA basis.

117 A fuller description of current cost accounting, and in particular the adjustments required, is set out below.

The preparation of current cost accounts requires a number of specific adjustments to be made. These are described below.

Depreciation adjustment

118 This allows for the impact of price changes when determining the charge against revenue for the part of the fixed assets consumed in the period. Depreciation is applied to assets that reflect their value to the business. Value of the business is normally defined as the net current replacement cost or, if a permanent reduction to below net replacement cost has been recognised, the recoverable amount. Where replacement cost is difficult to identify industry specific ratios are used or in some cases ratios derived from a published retail price index.

Monetary working capital adjustment

119 Monetary working capital which, in the context of air navigation service provision, largely refers to receivables and payables is an integral part of the net operating assets of the business. The adjustment represents the amount of additional or reduced finance needed for monetary working as a result of changes in the input prices of goods and services used and financed by the organisation.

The above adjustments are the two most likely to be applied in the route charges context. However, there are two further adjustments sometimes made. These are a cost of sales adjustment and a gearing adjustment. The former allows for the impact of price changes when determining the charge against revenue for stock consumed during the period and the cost of stock charged on a historical cost basis. A gearing adjustment is sometimes made in order to reflect the proportion of net operating assets financed by net borrowing which is fixed in money terms. However, where organisations are wholly owned by States the adjustment may not be required because of the special nature of their capital structure. A State or its air navigation services provider would need to review the nature of its funding and its capital structure to see whether a gearing adjustment is appropriate.

Finally, it should be noted that one further adjustment is sometimes made. This is known as backlog depreciation. The adjustment is required because if assets are restated at net replacement cost this is a combination of gross current replacement cost and accumulated depreciation. The difference is known as backlog depreciation and transferred to a current cost reserve account.

Current cost accounting measures the amount required to maintain the present operating capability of a business represented by the present net operating assets. In relation to fixed assets it does this by charging the value to the business at the time of consumption of the proportion of the asset which is consumed. Backlog depreciation does not form part of this assumption and so is not charged in arriving at the operating result.

Current cost accounts are designed to reflect more closely the true economic position of the organisation or business concerned. They are not strictly inflation accounting although in times of high inflation they may have a similar effect. However, because the fixed assets are re-evaluated at replacement cost, users of high technology equipment may find that current cost accounts provide lower targets than those based on historic cost.

SECTION 2: QUESTIONS RELATING TO THE DETERMINATION OF COSTS BY SERVICES

1. AIR TRAFFIC MANAGEMENT

- 120 ATM is divided into air traffic services (ATS), air traffic flow management (ATFM) and airspace management (ASM), with ATS being the primary component. The functional integration between airborne and ground-based ATM system elements is not relevant in the context of this Guidance and consequently is not further described.
- 121 ATS comprises air traffic control service (area control service, approach control service, and aerodrome control service), flight information service and alerting service. Air traffic advisory service is provided within advisory airspace to ensure separation, in so far as practical, between aircraft that are operating using instrument flight rules (IFR) flight plans.
- 122 ATS facilities for en-route operations consist primarily of area control centres (ACCs), including oceanic area control centres (OACs) and flight information centres (FICs) and their associated equipment and staff. Thus included are the premises of the centres, the equipment — including, where employed, flight and radar data-processing equipment — and the air traffic services personnel used to carry out ATS functions.
- 123 ATS facilities for approach control consist either of working positions integrated in ACCs or aerodrome control towers, or of separate approach control units. ATS facilities for aerodrome control service consist exclusively of aerodrome control towers. Thus included in these facilities are their associated equipment, including any flight and radar data-processing equipment and surface movement guidance and control equipment.
- 124 ATFM is typically organized with a centralized flow management unit (CFMU) serving an extensive geographical area covering a considerable number of flight information regions (FIRs). A flow management cell (or flow management position), with dedicated equipment and personnel resources, is established in each participating ACC to coordinate ATFM measures.
- 125 ASM comprises both strategical and tactical functions. The tactical function is at some places operated from a special working position at an ACC. In other cases it may be a part of a team-leader's job.

2. COMMUNICATION

- 126 Communications facilities may broadly be classified under two main categories: aeronautical fixed service (AFS) and aeronautical mobile service (AMS). The aeronautical telecommunications service (COM) category in the traditional classification differs in scope from the communications component of CNS in that navigation aids are included in COM.
- 127 AFS is a telecommunications service between two or more fixed points for the transmission of messages provided primarily for the safety of air navigation and the regular, efficient and economical operation of air services. It comprises all facilities and personnel employed to provide this service. Examples of AFS are AFTN, the ground part of ATN and ATS direct speech.

128 AMS provides a radio communications service between aircraft and ground, or between aircraft stations. For the purposes of determining the costs of providing air navigation services, AMS is assumed to comprise all ground-based facilities and personnel engaged in air-ground communications and radiotelephony broadcasts such as ATIS and VOLMET (i.e. VHF and HF transmitting and receiving stations). Implementation of AMSS (Aeronautical Mobile Satellite Service), as well as other ATS air-ground links and other communication sub-networks of the future ATN, will add satellites or satellite transponders and associated ground earth stations and may in fact gradually replace some of the above-mentioned facilities.

3. NAVIGATION

129 Navigation services basically comprise ground-based radio navigation equipment (e.g. ILS, VOR, DME and NDB) and satellite-based systems (mainly GNSS). Implementation of GNSS will add the satellite constellations providing the standard signal positioning service and the associated augmentation systems required (e.g. satellite-based (wide-area) and ground-based (local area) augmentations), which will eventually replace most of the above-mentioned equipment.

4. SURVEILLANCE

130 The surveillance systems comprehend primary surveillance radar (PSR), secondary surveillance radar (SSR), surface movement radar (SMR) as well as systems that provide automatic dependent surveillance (ADS and ADS-B), including the supporting network and maintenance personnel.

5. SEARCH AND RESCUE

131 Search and rescue in the context of these guidelines refers to search and rescue services provided to civil aviation by any permanent establishment of facilities and personnel maintained for the purposes of providing such services. Search and rescue fixed facilities comprise rescue coordination centres (RCCs) and rescue subcentres (RSCs). Mobile facilities comprise, where available, long-, medium- and short-range aircraft, including helicopters (equipped, where possible, with droppable supplies and direction finding equipment), rescue boats and vessels, mountain rescue units and any other units or forces that may be designated primarily or exclusively to perform aeronautical search and rescue functions or made available when required.

6. AERONAUTICAL INFORMATION

132 An aeronautical information service provider is responsible, within a defined area of coverage, for the provision of aeronautical information and data necessary for the safety, regularity, and efficiency of air navigation.

7. METEOROLOGICAL SERVICES

133 Meteorological services comprise those facilities and services that provide aircraft with meteorological forecasts, briefs and observations as well as any other meteorological information and data provided by States for aeronautical use.

8. SUPERVISION COSTS

134 Supervision costs include the costs incurred by the relevant national authorities and the costs incurred by the recognised organisations.

9. OTHER STATE COSTS

135 Other costs incurred by the State e.g. costs stemming from international agreements should be reported as other state costs.

SECTION 3: QUESTIONS RELATING TO COST-ALLOCATION

1. INTRODUCTION

- 136 Although this Guidance addresses questions relating to the allocation of costs from a purely methodological angle, it could be useful to underline the main principles governing the establishment of en route costs.
- 137 In the preamble of the Multilateral Agreement, States have expressed their resolution *to operate, with due regard to the guidelines recommended by the International Civil Aviation Organisation, a uniform European route charges system accessible to as many European States as possible*. They have also expressed their conviction *that this uniformity will also facilitate consultations with users*. Therefore they have agreed to adopt a common policy in respect of charges for en route air navigation facilities and services in the airspace of the Flight Information Regions falling within their competence (Article 1 and 3 of the Multilateral Agreement). For this purpose, the enlarged Commission had the task of establishing, *inter alia*, the Principles governing the assessment of the costs (Article 3 of the Multilateral Agreement).
- 138 ICAO Council Policies emphasise that international civil aviation should not be asked to meet costs which are not properly allocable to it (ICAO Document 9082, current edition, page 15, paragraph 42 and page 16 paragraph 46). This is reinforced in paragraph 2.2.2 of the Principles where it is stated that *only facilities and services provided for civil and military traffic operating in accordance with ICAO rules and regulations can be included*.
- 139 Therefore as a starting point, all costs not attributable to aeronautical users must be excluded, i.e. only costs incurred either directly or indirectly in the provision of air navigation services can be allocated to aeronautical users. Air navigation services include air traffic management, communication, navigation, surveillance, search and rescue, aeronautical information, meteorological services, supervision costs and other State costs. Costs of basic and advanced training, costs in respect of studies, tests and trials and administrative costs shall be included in the costs of the relevant air navigation services.
- 140 Most costs incurred for the provision of ANS as defined by ICAO should be capable of being identified. However, there are areas where allocation on a statistical basis may need to be applied. This is most likely to apply to joint costs where an entity could be providing support services; for example if it is responsible for running airports as well as ANS. Joint costs could include costs of support areas such as maintenance and utilities as well as general overheads.

2. ALLOCATION BETWEEN EN ROUTE AND TERMINAL AIR NAVIGATION SERVICES

- 141 *The costs of eligible services, facilities and activities within the meaning of paragraph 2.2 of the Principles shall be allocated in a transparent way to the en route charging zones in respect of which they are actually incurred.*

Where costs are incurred across different en route charging zones, they shall be allocated in a proportional way on the basis of a transparent methodology.

The cost of en route services shall relate to the costs referred to above to the exclusion of the costs relating to the terminal services, defined as follows:

- a. *aerodrome control services, aerodrome flight information services including air traffic advisory services, and alerting services;*
- b. *air traffic services related to the approach and departure of aircraft within a certain distance of an airport on the basis of operational requirements;*
- c. *an appropriate allocation of all other air navigation services components, reflecting a proportionate attribution between en route and terminal services.*

142 Costs related to en route and terminal services should be allocated to the maximum possible extent on a statistical basis. For this purpose, the costs for facilities and services that serve both en route and terminal could be allocated on one or more of the following basis as appropriate:

- a. in proportion to the number of dedicated controller positions;
- b. in proportion to the number of dedicated sectors;
- c. in proportion to the number of flights;
- d. in proportion to the estimated time of use of the equipment;
- e. in proportion to the personnel;
- f. in proportion to the square footage of accommodation;
- g. in proportion to the number of radio channels;
- h. in proportion to the average distance flown or time spent;
- i. in accordance with the organisational structure of Air Traffic Service provision.

Where the utilisation of ATS facilities between en route services on the one hand and terminal services on the other hand cannot be allocated on a statistical basis, the said facilities shall be classified in accordance with paragraph 2.5.4 of the Principles.

143 For the purpose of allocating ATM costs between en route and terminal services the criteria listed in 142 above may be applied as appropriate, and the following points may be considered:

- a. Tower services are provided on a discrete basis. Therefore it should be relatively straightforward to identify the related costs for cost allocation purposes;
- b. For other services, air traffic controller costs can be identified according to their watch rosters and the sectors under their responsibility. This is particularly relevant since it is the sectors that are one of the key drivers for the provision of air navigation services.

144 The cost of engineering support should be allocated in accordance with the criteria listed in 142 above.

145 Allocation of the cost of equipment used for communications, navigation and surveillance should follow the guidelines detailed in paragraphs 6.45 to 6.94 of the ICAO manual. General support service costs and overheads could be allocated in proportion of direct costs. In all cases the criteria listed in 142 above may be applied as appropriate.

- 146 In addition, developments in air traffic management operations would need to be taken into consideration.
- 147 MET costs should be allocated to en route services along the guidelines given at Appendix 3 to the ICAO manual.
- 148 Neither the Principles nor the ICAO manual provide specific guidelines for allocating AIS costs between en route and aerodrome/approach control services. The nature of the information made available, i.e. its relatedness to airport phase of operation or to the en route phase, should primarily be taken into account.
- 149 Neither the Principles nor the ICAO manual provide specific guidelines for allocating SAR costs between en route and aerodrome/approach control services. The phase of operation where accidents occur does not seem to be relevant in the allocation of SAR costs. In absence of further indications, all SAR costs as defined in accordance with the Principles may be allocated to en route services.
- 150 MET costs should be allocated to en route services along the guidelines given at Appendix 3 to the ICAO manual (see paragraphs 7-10).

3. ALLOCATION BETWEEN AERONAUTICAL AND NON-AERONAUTICAL USERS

- 151 For MET and SAR facilities, only aeronautical utilisation should be allocated to the cost-base for en route services.

3.1 MET services

- 152 The Principles do not cover this question but refer to Appendix 3 to the ICAO manual. Although elements can be found in paragraphs 6.16, 6.17, 6.18, 6.56 of the manual, the entire question is dealt with at Appendix 3.
- 153 At Appendix 3 a major distinction is made between facilities and services intended exclusively to serve aeronautical requirements and core facilities and services that may serve both aeronautical and non-aeronautical requirements (see paragraph 10). An inventory is provided together with indications of their allocation between en route and airports.
- 154 The main difficulty lies with the facilities and services that may serve both aeronautical and non-aeronautical requirements, e.g. **core activities** as defined in the ICAO manual.
- 155 Principles set up in the manual in this respect are as follows:
- a. *It is important to note that national meteorological organisations, while they serve aeronautical requirements, operate to serve the non aeronautical community as a whole by providing meteorological and climatological information for maritime and other surface transport, civil protection, agriculture, fishing, hydrology, air pollution control, retailing, sports and recreation, tourism, building and construction, the press and other media, and the general public. Usually, meteorological organisations engage in general meteorological, i.e. **core activities** in fulfilment of a primary system requirement for meteorological information which is jointly used by all service recipients (Appendix 3).*

- b. *Since no single user requirement determines the level and cost of the core activities, the further allocation of core activity costs among aeronautical and non-aeronautical activities should be approached with considerable caution (Appendix 3).*
- 156 In the same appendix to the ICAO manual, paragraph 3 mentions that: *The proportion of core activities used for the benefit of air navigation that it is appropriate to attribute to the requirements of aviation will vary from State to State. Furthermore, there are States which do not allocate core costs to any specific user. In addition it should be recognised that there are core contributes which in terms of the level of sophistication, exceed the aeronautical requirements.* The manual also provides some general guidance for allocating core costs. In the absence of any provisions in the Principles, this is the only guideline available to States. The ICAO manual presents an inventory of core services and facilities as well as methods for allocating costs between aeronautical and non-aeronautical users:
- a. Core activities include *general analysis and forecasting, automated data-processing, weather radar and satellites observations, surface and upper air observations, telecommunications to collect and exchange basic data, training, research and development* (Appendix 3). This inventory is completed in paragraph 10 of Appendix 3;
- b. Methods proposed in the ICAO manual are limited to a number of parameters to serve as a basis for allocation, e.g. the estimated time of use of the computers for aeronautical and non-aeronautical purposes. In this example the difficulty would be actually to define the estimated time of use of computers for aeronautical and non-aeronautical purposes. Moreover the default method suggested in paragraph 6.c.3 of Appendix 3 might not be easy to apply, as it is based on the ratio between costs of facilities and services needed to serve exclusively aeronautical needs and costs of facilities and services to serve exclusively non aeronautical needs.
- 157 States should where possible apply to MET costs some of the provisions under paragraph 2.5.6 of the Principles (SAR costs).
- 158 States should therefore make a detailed description available of the method applied for allocating core costs to aeronautical users, including all justifications and calculations. The total costs of core activities incurred by national MET service providers as well as the costs attributable to aeronautical users and to en route services respectively should be presented together with this description at bilateral and at multilateral level, as an addition to the reporting tables.
- 159 When determining costs attributable to aeronautical users, care should be taken to exclude any costs attributable to military aviation.
- 160 Consultations on aeronautical MET services and their related costs should be held on both long-term and short-term developments. Technical/operational aspects should be dealt with together with economic/financial aspects. Consultation with users on short-term developments of aeronautical MET should be combined with consultation on air navigation services. The minimum financial information required at such consultation meetings should include: total MET costs of the State; total civil aviation MET costs; costs allocated to en route and terminal navigation for both IFR and VFR flights; costs of core items and their related proportions of total MET core costs allocated to civil aviation users.

3.2 SAR services

- 161 The ICAO manual underlines two major difficulties for allocating SAR costs to civil aviation:
- 162 The first one derives from the fact that some of the *personnel and equipment engaged in SAR operations are not assigned exclusively to SAR duties but tend to exist primarily to perform other functions and merely are seconded temporarily for SAR operations.*
- 163 This is the case for military forces and equipment, and also for police, fire-fighting and civil rescue units which are engaged in a much wider scope of public interest tasks. Given the difficulty of costing the use of such resources the ICAO Council recommends at Appendix 2 to document 9082 that *costs taken into account should be limited to the costs of any permanent civil establishment of equipment and personnel maintained for the purpose of providing SAR services.*
- 164 However the restriction to **civil** establishments has not been retained in the Principles (see paragraph 2.4.5). In this regard the Principles and the ICAO manual both stipulate that *search and rescue facilities comprise any other units, forces and facilities which are available to perform aeronautical search and rescue functions when required.*
- 165 The second difficulty is similar to the one which exists for allocating MET core costs to aeronautical users. Once identified, the costs of search and rescue facilities and services have to be allocated between aeronautical and non-aeronautical users. Guidance available is limited to a number of general principles given in paragraph 2.5.6 of the Principles.
- 166 In the absence of specific guidance in the ICAO manual and in the Principles, costs may be determined as follows:
- a. Incremental costs may be included provided that they were specifically incurred for civil aviation rescue missions which were carried-out during a given financial year. This would apply to permanent establishments and possibly to seconded resources which were engaged in these missions;
 - b. The fixed costs incurred by any permanent establishment with a view to maintaining a capability to perform SAR missions may be taken into account on the basis of the average actual use of this capability for civil aviation rescue missions. This average should be calculated for a significant period of time, e.g. the last 10 years.
- 167 The cost attributable to search and rescue missions performed for VFR flights should be accounted separately.

4. ALLOCATION BETWEEN GAT AND OAT SERVICES

- 168 *Only facilities and services provided for civil and military traffic operating in accordance with ICAO rules and regulations can be included* (paragraph 2.2.2 of the Principles).
- 169 Costs incurred for the purpose of national defence or security should not be included, with the exception of services and facilities made available to military traffic operating in GAT. The cost of exempted military flights operating in GAT should not be borne by other users.

5. ALLOCATION BETWEEN IFR AND VFR USERS

- 170 *If exemptions are granted to VFR flights in accordance with paragraph 3.6 of the Principles, the air navigation service provider shall identify the costs of en route services provided to these flights separately from the costs provided to IFR flights. These costs may be established through a marginal-cost methodology taking into account the benefits to IFR flights stemming from the services granted to VFR flights.*
- 171 Where the number of service units cannot be directly established a direct deduction of the actual costs shall be made in respect of facilities provided and/or services rendered to VFR flights. However, it has to be recognised that the vast majority of services are put in place for IFR services and the actual incremental costs involved could be negligible.
- 172 ATM/ATS costs attributable to VFR traffic relate primarily to flight information positions operated in ACCs. The incremental cost incurred for operating these positions should be taken into account.
- 173 MET costs and SAR costs attributable to VFR traffic during their en route phase of operation should also be accounted separately:
- a. MET costs attributable to VFR traffic may be any additional costs incurred for making available any MET information specifically to VFR traffic;
 - b. SAR costs should be allocated to VFR traffic depending on the beneficiaries of SAR missions for instance according to the method proposed in paragraph 166.b. above.

SECTION 4: QUESTIONS RELATING TO COST ACCOUNTING SYSTEMS

1. GENERAL GUIDANCE FOR SETTING UP COST ACCOUNTING SYSTEMS

- 174 Establishing the costing of services for the purpose of recovering those costs from users requires the setting up of a cost accounting system. This system should enable the allocation of expenses by cost centres in addition to their recording in a general accounting system.
- 175 Cost centres should be defined in accordance with the structure and organisation of the States and ANSPs. The complexity of cost accounting systems should increase with the complexity and size of the organisations, and therefore with the means which can reasonably be made available for cost accounting purposes. Conversely, even the smallest organisations should allocate resources for cost-accounting purposes, bearing in mind that simple cost accounting systems should usually be sufficient to meet their requirements.
- 176 To establish the cost of the different activities performed by a given organisation, expenses recorded in its general accounting system are also allocated to cost centres, and then further processed usually by means of allocation keys. The ICAO manual provides guidance for cost accounting in paragraphs 4.52 and subsequently. It should be underlined that cost centres should be defined specifically for each organisation and should cover all units and activities. Links should be established with the staff database and with the file of assets maintained within the organisation. Each staff and each individual asset should be assigned to one of the cost centres defined for the organisation, thus enabling the allocation of staff costs and cost of capital to cost centres and ultimately to the different activities.

2. GENERAL GUIDANCE FOR ANNUAL ACCOUNTS

- 177 In order to determine investment costs, any entity providing en route ANS needs to maintain an asset register. The asset register should contain such information as date of purchase, asset category, commission date, cost and depreciation period, method and rate of depreciation and location and type of service provided e.g. en route, approach control or aerodrome control service. The register should provide the essential link between the balance sheet of the financial accounts and the physical location of the assets. It will also provide an audit trail and a control over the depreciation charge calculated.
- 178 For States the straight line method is the only one permitted. Therefore depreciation costs result only from the following parameters: the cost of the asset, the commission date and the depreciation period determined in accordance with the expected operating life and the pertinent IAS/IFRS standards (paragraph 2.3.3.3 of the Principles). It should be noted that the cost of the asset includes any costs incurred to render the asset operational as indicated in 4.1 above (section 1) as well as taxes and/or customs duty paid (paragraph 2.3.3.1 of the Principles).
- 179 In its paragraph 6.27 the ICAO manual underlines that *the accounts of an entity providing air navigation services constitute the basic reference for determining the cost basis for air navigation services charges*. The same indent in the manual stipulates that *it may not be advisable, however, to rely only on the accounts when determining the basis for charges even when the accounts are very complete*. This is

because, *in the accounts, for example, assets may be depreciated according to government accounting standards, which may not reflect the true operating life of the assets concerned, or they may not be depreciated at all.*

- 180 Annual published accounts are prepared to meet national statutory obligations and requirements. As signatories to the Multilateral Agreement relating to Route Charges, the Contracting States are obliged to adhere to the Principles setting out the rules for establishing the cost base for en route air navigation charges and the calculation of the unit rates, even if they differ from national accounting requirements.

3. GENERAL GUIDANCE FOR THE REPORTING TABLES / SEPARATE REPORTING OF COSTS

- 181 Annexes II and III to the Principles specifically require separate reporting of costs for the charging zone and of EUROCONTROL costs. However where a State has separated its regulator and its ANSP and the regulatory body has functions the costs of which are properly recoverable through the route charges system, the State shall, in the interests of transparency, report the cost-bases of its regulator and its ANSP separately, along with a consolidated report which sets out the total national cost-base and unit rate. The consolidated report and the report on the ANSP's costs should be made in the form of Annex II / Annex III to the Principles. The report of the regulator's costs should be consistent with Annex II / Annex III and should include in the commentary a breakdown of the individual functions carried out by the regulator or national authorities, since these are likely to differ from State to State.

- 182 It is the responsibility of the State to establish the national cost-base, and States are ultimately responsible for the costs falling within their cost-bases, whether these costs relate to ANSPs, national authorities, the regulator, the EUROCONTROL Agency, or another third party.

SECTION 5: DESCRIPTION RELATING TO THE FULL-COST RECOVERY METHOD

1. REPORTING TABLES - TABLE 1 (TOTAL COSTS)

183 Actual and forecast costs are reported in Table 1 for reporting period, per charging zone. Typically costs are reported separately for the designated air navigation service provider, for the designated provider of meteorological services and for the State. State costs may include the costs incurred by the relevant national authorities (National supervisory authorities, qualified entities, CAA) and the costs stemming from international agreements, for instance the State's share of the EUROCONTROL costs. States may choose to report separately the costs of their national authorities and their share of the EUROCONTROL costs.

All costs are reported in national currency. States have to provide a consolidated table for each charging zone under their responsibility.

Each Table 1 bears the name of the charging zone as well as the year of the reported unit rate (year "n"). The table also specifies whether the data are preliminary or final. States applying the "full cost recovery method" report three years of actual data, i.e. for years "n - 4" to "n - 2", the current year "n - 1" data and five years of forecast, from year "n" to year "n + 4".

Five blocks of data are presented in sequence from top to bottom:

- I. Cost breakdown by nature (staff, other operating costs, depreciation, cost of capital, exceptional items);
- II. Cost breakdown by services, including air traffic management, communication, navigation and surveillance;
- III. Complementary information on the cost of capital and on the cost of common projects;
- IV. Complementary information on inflation and on total costs in real terms;
- V. Deduction of costs allocated to exempted VFR flights.

Each table displays yearly percentage variations for a selected number of items; total costs, staff and other operating costs, costs of ATM and CNS, total costs in real terms.

The costs are reported in nominal terms (Blocks I, II and V), taking account of forecast prices/inflation for each year of the reference period.

Member States report complementary information on the cost of capital and on common projects (Block III):

- The information on the cost of capital consists of the total average asset base and of the applied pre-tax interest rate. In accordance with paragraph 3.2.4 of the Principles, the cost of capital reported in block I is equal to the product of the total asset base for the year and of the pre-tax interest rate;
- The average asset base is the sum of the net book value of fixed assets (long term assets) in operation or under construction, of the net current assets (excluding interest bearing accounts) and of possible adjustments to total assets determined by the national supervisory authority. Each of these three items is reported in Block III;

- The pre-tax interest rate corresponds to the weighted average of the interest rate on debts and of the return on equity. The average interest rate on debts and the return on equity that is based on the actual financial risk of the service provider are reported in Block III. The weight factors or the service provider's gearing can be retrieved from the three reported rate values;
- States report their share of the determined costs of common projects in Block III. A common project is qualified as such for network-related functions that are of particular importance for the improvement of the overall performance of air traffic management and air navigation services in Europe. Different common projects may be identified. The costs of common projects, if any, are included in the costs as reported in Blocks I and II.

In Block IV, Member States report their total costs in real terms together with the corresponding price index:

- The costs in real terms are reported for information only. They are not used in the calculation of unit rates in Table 2.
- The price index is 100 in year "n - 3". The costs are therefore reported in real terms values at the year "n - 3" prices. Table 1 presents actual/ forecast inflation rate for each year of the reporting period. The inflation rate for a given year is equal to the percentage variation in the average price index over the previous year. The actual inflation figure for year "n - 2" should be reported as soon as it becomes available.

The total costs reported at Table 1 relate to en route services made available to airspace users in the charging zone concerned. Total costs are allocated between IFR and exempted VFR traffic (paragraph 2.5.8 of the Principles). The costs in respect of exempted VFR flights and the costs after deduction of the costs in respect of VFR flights are reported in block V of Table 1.

Actual costs are established on the basis of certified accounts. They should be reported each year no later than 1 June of the following year.

2. REPORTING TABLES - TABLE 2 (UNIT RATE CALCULATION)

184 The Reporting Table 2 details the calculation of the applicable unit rate for each year of the reporting period and for the charging zone concerned.

Calculations are presented in the consolidated Table - 2 for the charging zone.

Table 2 bears the name of the charging zone and amounts are expressed in national currency. Five blocks of data are presented in sequence from top to bottom:

1. Calculation of the national unit rate

In Block I, lines 1.1-1.11 show the final data as reported at previous November Sessions of the enlarged Committee for the calculation of the unit rates of years "n - 4" to "n - 1". Data reported in the first four columns are the final data for the year concerned:

- Costs of exempted IFR flights (Item 1.3), amounts carried over to year n (Item 1.4) and income from other sources (Item 1.5) to be deducted from the total costs;

- Items 1.7 and 1.8 show the forecast total and chargeable service unit forecasts;
- Item 1.9 shows the unit rate in national currency;
- The exchange rate of the national currency against the euro (September exchange rate of the related year) is presented in Item 1.10 and the unit rate converted in euro is reported in line 1.11.

States operating under full cost recovery present the calculation of their unit rates on the basis of chargeable service units.

The data reported in the last five columns are the preliminary or final data submitted at the current session of the enlarged Committee. Depending on the session, the exchange rate (line 1.10) will be that of April (Preliminary data – June session) or that of September (Final data – November session).

2. *Actual and Forecast total service units*

Block II presents actual total service units (Item 2.1) and actual chargeable service units (Item 2.2) for the years “n - 4” to “n - 3” and (revised) forecast data for the following years.

3. *Over (-) or Under (+) recoveries to be carried over*

Block III presents the calculation of the difference between income/revenues and chargeable costs.

Calculations for the years “n - 4” and “n - 3” were reported at previous sessions. States present the calculation for the year “n - 2” as well as an estimate for the current year “n - 1”.

- The amount of charges billed to users is reported in item 3.1. Figures are actuals for years “n - 4” to “n - 2”. Amounts reported for the following years are equal to the product of the unit rate (Item 1.9) and of the chargeable service units (Items 1.8 and 2.2);
- The net costs chargeable to users are reported in item 3.7. They are equal to the total costs prior to deduction of VFR costs (Item 3.2 as reported from Table 1) after deduction of the costs of exempted flights (cost of exempted VFR flights, Item 3.3 as reported from Table 1 and cost of exempted IFR flights, Item 3.4 calculated on a pro rata basis) and of the income from other sources (Item 3.6), plus the amounts carried over to year “n”. (Item 3.5 – corresponding to Item 4.11 calculated in Block IV).
The net costs chargeable to users are actuals for years “n - 4” to “n - 2”. Amounts reported for the following years are forecast figures. By construction they are equal to the forecast charges billed to users.
- The difference between the net actual costs chargeable to users and the charges billed to users, i.e. the balance to be carried over, is calculated in Item 3.8. A positive balance is an under-recovery (net actual costs in excess of the charges billed to users), a negative one is an over-recovery.

An appropriate cost of capital shall be applied to the amounts carried forward. States wishing to avail of the flexibility to carry forward under/over-recoveries for a longer period than “n + 1” shall inform the enlarged Committee in writing and with the appropriate justifications. Over-recoveries decrease the asset base and the cost of

capital charged to users, under-recoveries increase the asset base and the cost of capital charged to users.

4. *Carry-over of over (-) or under (+) recoveries*

Under-recovery or over-recovery as a result of the difference between income/revenue and chargeable costs for year "n" are carried over either in full to year "n + 2" or spread over a period of up to five additional years (possible anticipated carry-over to year "n + 1" and carry-over spread from year "n + 2" up to year "n + 6").

In case an amount was carried over in anticipation, the difference between the actual balance and the anticipated amount carried over has to be calculated and carried over.

Block IV presents the amounts of over (-) or under (+) recoveries coming from previous years. Amounts carried over and taken into account in the calculation of approved unit rates cannot be modified.

Item 4.11 shows the total amount carried over to year "n" (with taking into account the amount of the previous years figures, if any)

5. *Unit Cost (Total costs after deduction of VFR costs/Total Service Units – in national currency)*

In Block V, the total unit costs are calculated by dividing total cost (Item 3.2) by total service units (Item 2.1). The components of the unit costs corresponding to the reporting entities are shown in sequence at the bottom of the consolidated Table 2.

SECTION 6: DESCRIPTION RELATING TO THE DETERMINED COST METHOD

1. DESCRIPTION OF TABLES 1 AND 2

1.1 Reporting tables – Table 1 (Total costs)

185 Determined and actual costs are reported per reference period, per charging zone. Typically costs are reported separately for the designated air navigation service provider, for the designated provider of meteorological services and for the State. State costs may include the costs incurred by the relevant national authorities (National supervisory authorities, qualified entities, CAA) and the costs stemming from international agreements, for instance the State's share of the EUROCONTROL costs. States may choose to report separately the costs of their national authorities and their share of the EUROCONTROL costs.

All costs are reported in national currency. Member States have to provide a consolidated table for each charging zone under their responsibility.

Each Table 1 bears the name of the charging zone, the first and last years of the reference period and the name of the entity concerned. Determined costs and related data are displayed on the left-hand side, actual costs and related data on the right hand side.

Five Blocks of data are presented in sequence from top to bottom:

- I. Breakdown of costs by nature (staff, other operating costs, depreciation, cost of capital, exceptional items);
- II. Breakdown of costs by services, including air traffic management, communication, navigation and surveillance;
- III. Additional information on the cost of capital and on the cost of common projects;
- IV. Additional information on inflation and on total costs in real terms;
- V. Deduction of costs allocated to exempted VFR flights.

The determined costs are reported in nominal terms (Blocks I, II and V), taking account of forecast prices/inflation for each year of the reference period.

Member States report additional information on the cost of capital and on common projects (Block III):

- The information on the cost of capital consists of the total average asset base and of the applied pre-tax interest rate. In accordance with paragraph 3.2.4 of the Principles, the cost of capital reported in Block I is equal to the product of the total asset base for the year and of the pre-tax interest rate;
- The average asset base is the sum of the net book value of fixed assets (long-term assets) in operation or under construction, of the net current assets (excluding interest bearing accounts) and of possible adjustments to total assets determined by the national supervisory authority. Each of these three items is reported in Block III;

- The pre-tax interest rate corresponds to the weighted average of the interest rate on debts and of the return on equity. The average interest rate on debts and the return on equity that is based on the actual financial risk of the service provider are reported in Block III. The weight factors or the service provider's gearing can be retrieved from the three reported rate values, i.e. the pre-tax interest rate (average rate), the average interest rate on debts and the return on equity;
- States report their share of the determined costs of common projects in Block III. A common project is qualified as such for network-related functions that are of particular importance for the improvement of the overall performance of air traffic management and air navigation services in Europe. Different common projects may be identified. The costs of common projects, if any, are included in the determined costs as reported in Blocks I and II.

In Block IV, Member States report their total determined costs in real terms and data on inflation:

- The determined costs in real terms are reported for information only. They are not used in the calculation of unit rates in Table 2. The determined costs in real terms must be those of the performance plans;
- Determined costs are reported in real terms values at the year "N - 3" prices. The price index is 100 in year "N - 3" (year "N" being the first year of the reference period). For example, for the second reference period 2015-2019, the price index 100 for the year 2012.
- Table 1 presents the inflation rate forecast for each year of the reference period. The inflation rate for a given year is equal to percentage variation in the average price index over the previous year;
- Inflation rates in years "N + 2" and "N + 1" are provided in footnote for information. During the 18 months before the beginning of the reference period, States should replace the forecast inflation for year "N - 2" with the actual inflation rate when the latter becomes available.

The total determined costs reported at Table 1 relate to en route services made available to airspace users in the charging zone concerned. Total determined costs are allocated between IFR and exempted VFR traffic (paragraph 2.5.8 of the Principles). The costs in respect of exempted VFR flights and the determined costs after deduction of the costs in respect of VFR flights are reported in Block V of Table 1.

Actual costs are established on the basis of certified accounts. They should be reported each year no later than 1 June of the following year.

Member States should provide a series of total actual costs in real terms (Block IV) on the basis of the actual inflation recorded by Eurostat or an official national source for each year of the reference period. The actual inflation rate as reported in Table 1 (right-hand side) is used in Table 2 for the inflation adjustment in accordance with paragraph 3.3.1 of the Principles.

Each reporting table 1 displays yearly percentage variations for a selected number of items; total costs, staff and other operating costs, costs of ATM and CNS, total costs in real terms.

1.2 Reporting tables – Table 2 (Unit rate calculation)

186 Reporting Table 2 details the calculation of the applicable unit rate for each year of the reference period and for the charging zone concerned.

Calculations are presented separately for the designated air navigation service provider, for the designated provider of meteorological services and for the State's entities. Unit rates are expressed in national currency. Member States have to provide a consolidated table for each charging zone under their responsibility. The reporting tables have been designed to facilitate the consolidation. The applicable unit rate is reported in the consolidated table together with its components in respect of the designated service provider, the designated provider of meteorological services and the State's entities.

Each Table 2 bears the name of the charging zone, the first and last years of the reference period and the name of the entity concerned. All amounts are expressed in national currency. Five Blocks of data are presented in sequence from top to bottom:

1. *Determined costs in nominal terms and inflation adjustment*

In Block 1, Item 1.1 shows the determined costs expressed in nominal terms, after deduction of the costs in respect of exempted VFR flights, as calculated at the bottom of Table 1.

The forecast inflation used to establish the determined costs in nominal terms (Item 1.3) and the actual inflation recorded by Eurostat or a national official source (Item 1.2) are reported at the top of Table 2.

The last row in Block 1 (Item 1.4) is the inflation adjustment as foreseen in paragraph 3.3.1 of the Principles. For each year of the reference period the inflation adjustment is the cumulated impact of yearly differences between actual and forecast inflation, as further explained in Part II of the document. The inflation adjustment for a given year "n" is carried over not later than in the year "n + 2". Carry-overs are reported at lines 3.2 (carry-overs in respect of determined costs subject to traffic risk sharing) and 4.2 (carry-overs in respect of determined costs not subject to traffic risk sharing) for the calculation of the applied unit rate.

2. *Forecast and actual total service units*

Block 2 presents the forecast total service units (determined service units) as per the performance plan (Item 2.1), the actual total service units (Item 2.2) and the actual total service units divided by the forecast total service units in % (Item 2.3). Item 2.2 and the calculation at Item 2.3 are reported after each year of the reference period for the purpose of the traffic risk sharing mechanism (Part II of the document).

3. *Costs subject to traffic risk sharing (ANSP)*

Block 3 shows the determined costs subject to traffic risk sharing (Item 3.1). The costs subject to traffic risk sharing are the determined costs of the ANSPs but excluding the determined costs that they incur for providing MET services, if any. These costs are reported in the table relating to the ANSP and in the consolidation.

Block 3 presents the series of adjustments relating to the determined costs subject to traffic risk sharing, as they have been carried over to each year of the reference period (Items 3.2 to 3.8).

The sum of the determined costs (line 3.1) and of the amounts reported at lines 3.2 to 3.8 is shown at line 3.9 in view of the calculation of the applied unit rate for year “n”.

Block 3 also details some elements relating to the traffic risk sharing mechanism:

- The additional revenues (Item 3.10) or the revenue loss (Item 3.11) for year “n” to be carried over in accordance with the Principles;
- The minimum percentage of additional revenue due to actual traffic comprised between + 2% and +10% above forecast, to be returned to users no later than in year “n + 2” (Item 3.12);
- The maximum percentage of revenue loss due to actual traffic comprised between -2% and -10% below forecast, to be borne by airspace users (Item 3.13).

4. *Costs not subject to traffic risk sharing*

Block 4 shows the determined costs that are not subject to traffic risk sharing, i.e. the determined costs of MET service providers, the costs incurred by ANSPs for providing MET services and the States’ determined costs. These costs are reported in the tables relating to the entities concerned and in the consolidation.

Block 4 presents the series of adjustments relating to the determined costs not subject to traffic risk sharing, as they have been carried over to each year of the reference period (Items 4.2 to 4.5).

The sum of the determined costs (line 4.1) and of the amounts reported at lines 4.2 to 4.5 is shown at line 4.6 in view of the calculation of the applied unit rate for year “n”.

5. *Other revenues – applied unit rate (in national currency)*

In Block 5 States report revenues from other sources that are used to finance the costs of en route services in accordance with paragraph 2.2.1 of the Principles (Item 5.1).

The grand total for the calculation of the applied unit rate for year “n” (Item 5.2) is the sum of the determined costs and the adjustments for year “n” (sum of Item 3.9 and 4.6), after deduction of revenues from other sources.

The applied unit rate for year “n” (Item 5.3) is calculated by dividing the grand total (Item 5.2) by the forecast service units (Item 2.1). The components of the applied unit rate corresponding to the reporting entities, as calculated in the respective Tables 2, are reported in sequence at the bottom of the consolidated Table 2.

The unit rate as it would have been applied without revenues from other sources, if any, is shown at the bottom of Table 2 (Item 5.7).

For the determined costs (Item 3.1) subject to traffic risk sharing the en route unit rate for a given year “n” takes into account the following carry-overs, as described at Table 2 in Block 3:

- I. The carry-overs resulting from the inflation adjustment as referred to in paragraph 3.3.1 of the Principles (Item 3.2);
- II. The carry-overs resulting from the difference between actual and forecast traffic, as described hereafter (Item 3.3);

- III. The carry-overs resulting from the traffic-risk sharing, as referred to in paragraph 3.3.1 of the Principles (Items 3.4 and 3.5);
- IV. The carry-overs of uncontrollable cost, as referred to in paragraph 3.3.7 of the Principles (Item 3.6);
- V. The carry-overs resulting from bonuses or penalties relating to financial incentives, as referred to in paragraph 3.4.1 of the Principles (Item 3.7);
- VI. For the first two reference periods, the carry-overs in respect of under or over-recoveries incurred before the entry into force of the determined cost method (Item 3.8).

For the determined costs (Item 4.1) not subject to traffic risk sharing the en route unit rate for a given year n takes into account the following carry-overs, as described at Table 2 in Block 4:

- I. The carry-overs resulting from the inflation adjustment as referred to in paragraph 3.3.1 of the Principles (Item 4.2);
- II. The carry-overs resulting from the difference between actual and forecast traffic, as described hereafter (Item 4.3);
- III. The carry-overs of uncontrollable costs, as referred to in paragraph 3.3.7 of the Principles (Item 4.4);
- IV. For the first two reference periods, carry-overs in respect of under or over-recoveries incurred before the entry into force of the determined cost method (Item 4.5).

The adjustments made to the determined costs further to the above carry-overs are described in more detail in the second part of the document.

2. YEARLY ADJUSTMENTS OF DETERMINED UNIT RATES

2.1 Adjustment for inflation (Items 3.2 and 4.2)

187 In accordance with paragraph 3.3.1 of the Principles, the difference between the determined costs expressed in nominal terms and the determined costs adjusted on the basis of the actual inflation for the year shall be carried over no later than in year “n + 2”.

For each year the inflation adjustment is the cumulated impact of yearly differences between actual and forecast inflation, as shown in the example hereafter.

Unit rate calculation	2015	2016	2017	2018	2019
1. Determined costs in nominal terms and inflation adjustment					
1.1 Determined costs in nominal terms - VFR excl. - Table 1	100.0	100.0	100.0	100.0	100.0
1.2 Actual inflation rate - Table 1	2.2%	2.1%	2.0%	2.2%	2.2%
1.3 Forecast inflation rate - Table 1	1.9%	1.9%	1.9%	1.9%	1.9%
1.4 Inflation adjustment (1) : year n amount to be carried over	0.3	0.5	0.6	0.9	1.2

Table-a: Inflation Adjustment

For year 2016, the adjustment is equal to:

$$0.5 = 100 * 1.022 * 1.021 / (1.019 * 1.019) - 100$$

For year 2017, the adjustment is equal to:

$$0.6 = 100 * 1.022 * 1.021 * 1.020 / (1.019 * 1.019 * 1.019) - 100$$

The adjustment for year 2016 (under-recovery) shall be carried over no later than in 2018. Amounts carried over are reported either at line 3.2 (cost subject to traffic risk sharing) or at line 4.2 (costs not subject to traffic risk sharing).

2.2 Carry-overs due to traffic (Items 3.3 and 4.3)

188 In accordance with paragraph 3.3.3.1 of the Principles, carry-overs authorised from a previous year or reference period, bonuses or penalties resulting from incentive schemes and over- or under-recoveries resulting from traffic variations shall not be submitted to traffic risk sharing and shall be recovered irrespective of traffic evolution.

For ANSPs (determined costs subject to traffic risk sharing), amounts carried over in accordance with paragraph 3.3.3.1 are reported at line 3.3. For a given year “n”, amounts not subject to traffic risk sharing comprise:

- Item 3.2 : amounts carried over resulting from the adjustment for inflation;
- Item 3.3 : amounts carried over resulting from over- or under-recoveries due to traffic;
- Item 3.4 : additional revenue carried over in accordance with the traffic risk sharing mechanism;
- Item 3.5 : revenue loss carried over in accordance with the traffic risk sharing mechanism;
- Item 3.6 : amounts carried over in accordance with the provisions on uncontrollable costs;
- Item 3.7 : bonus and penalties resulting from incentive schemes;
- Item 3.8 : amounts carried over for under- /over-recoveries prior to the first reference period.

For other entities (costs not subject to traffic risk sharing), amounts carried over in accordance with paragraph 3.3.1 are reported at line 4.3. For a given year “n”, amounts not subject to traffic risk sharing therefore comprise:

- Item 4.1 : determined costs in nominal terms – VFR excluded;
- Item 4.2 : amounts carried over resulting from the adjustment for inflation;
- Item 4.3 : amounts carried over resulting from over- or under-recoveries due to traffic;
- Item 4.4 : amounts carried over in accordance with the provisions on uncontrollable costs;
- Item 4.5 : amounts carried over for under-over-recoveries prior to the first reference period.

The example below illustrates the application of paragraph 3.3.3.1 and the calculation of amounts reported at line 3.3.

Unit rate calculation	2015	2016	2017	2018	2019
2. Forecast and actual total service units					
2.1 Forecast total service units (performance plan)	5.00	5.10	5.20	5.31	5.41
2.2 Actual total service units	4.95	5.15	5.25	5.31	
2.3 Actual / forecast total service units (in %)	99.0%	101.0%	101.0%	100.0%	
3. Costs subject to traffic risk sharing (ANSP)					
3.1 Determined costs in nominal terms - VFR excl. (reported from Table 1)	500.00	500.00	500.00	500.00	500.00
3.2 Inflation adjustment : amount carried over to year n	0.20	0.10	1.47	2.46	2.95
3.3 Traffic : amounts carried over to year n	0.30	0.10	0.16	-0.12	-0.13
3.4 Traffic risk sharing : add. revenue carried over to year n	0.00	0.00	0.00	0.00	
3.5 Traffic risk sharing : revenues losses carried over to year n	0.00	0.00	0.00	0.00	
3.6 Uncontrollable costs : amounts carried over to year n	0.00	0.00	0.00	0.00	0.00
3.7 Bonus or penalty for performance	5.00	0.00	0.00	0.00	
3.8 Over(-) or under(+) recoveries (2) : amounts carried over to year n	10.00	12.00	11.00	6.00	5.00
3.9 Total for the calculation of year i unit rate	515.50	512.20	512.63	508.33	507.82

Table-b: Carry-overs due to traffic

188 In this example, the amounts not subject to traffic risk sharing represent a total of 15.5 in 2015, comprising 0.2 (Item 3.2 – inflation), 0.3 (Item 3.3 – carry-overs due to traffic), 5 (Item 3.7 - bonus in respect of a previous year) and 10.0 (Item 3.8 – carry-over of under-recoveries prior to the first reference period).

In 2015 the actual traffic was 1% less than forecast. 1% of the amount of 15.5, i.e. 0.155 (rounded to 0.16 in the table above) was not recovered. This amount as shown at line 3.3 is carried over to 2017 and added to the determined costs of 2017 for calculating the 2017 applied unit rate.

The amounts not subject to traffic risk sharing represent a total of 12.2 in 2016, comprising 0.1 (Item 3.2 – inflation), 0.1 (Item 3.3 – carry-overs due to traffic and 12.0 (Item 3.8 – carry-over of under-recoveries prior to the first reference period).

In 2016 the actual traffic was 1% above forecast. 1% of the amount of 12.2, i.e. 0.122 (rounded to 0.12 in the table above) was over-recovered. This amount shown at line 3.3 is carried over to 2018 and deducted from the determined costs of 2018 for the calculation of the 2018 applied unit rate.

2.3 Traffic risk sharing (Items 3.4 and 3.5)

189 With the traffic risk sharing mechanism, revenue losses resulting from less traffic than forecast and additional revenues resulting from more traffic than forecast are shared between users and ANSPs.

Only the determined costs of ANSPs, but excluding the costs of the MET services they provide to users, are subject to traffic risk sharing. In accordance with paragraph 3.3.3.1.a of the Principles, the determined costs of MUAC are subject to traffic risk sharing as costs stemming from international agreements related to cross-border service provision.

The determined costs of MET service providers, the determined costs of MET services provided by ANSPs and the determined costs of States' entities including the States' shares of EUROCONTROL costs (except MUAC costs) are not subject to

traffic risk sharing. Air navigation service providers without any equity capital or with equity capital not exceeding 5% of total liabilities as of 31 December 2011 may also be exempt of traffic risk sharing during the first reference period.

Table c below summarises the traffic risk sharing mechanism as laid down in paragraph 3.3.1 of the Principles.

Forecasts are established at the beginning of the reference period (determined total service units as recorded in the Performance Plan – Item 2.1).

Actual revenue <u>above</u> forecast	Additional revenue retained by ANSP	Additional revenue returned to users	Actual revenue <u>below</u> forecast	Revenue loss incurred by ANSP	Revenue loss borne by users
Between 0% and 2%	100%	0%	Between 0% and 2%	100%	0%
Between 2% and 10%	30% <u>max</u>	70% <u>min</u>	Between 2% and 10%	30% <u>min</u>	70% <u>max</u>
Above 10%	0%	100%	Above 10%	0%	100%

Table-c: Traffic Risk Sharing Mechanism

Where actual traffic exceeds forecast traffic:

- For the first 2%, the additional revenue is fully retained by ANSPs. ANSPs also retain 30% maximum of the additional revenue generated by an actual traffic between +2% and +10% above forecast. The additional revenue generated by an actual traffic in excess of 10% above forecast is entirely returned to users;
- The additional revenue retained by ANSPs for any year of the reference period is limited to +4.4% of the determined costs of that year (first 2% plus 30% of the following 8%), a maximum that is reached when the actual traffic exceeds 110% of the forecast;

Where actual traffic is below forecast traffic:

- For the first 2%, the revenue loss is fully borne by ANSPs. ANSPs also bear 30% minimum of the revenue loss generated by an actual traffic between -2% and -10% below forecast. The revenue loss generated by an actual traffic less than -10% below forecast is entirely carried forward and therefore finally borne by users;
- The revenue loss borne by ANSPs for any year of the reference period is limited to -4.4% of the determined costs of that year (first -2% plus 30% of the following -8%), a maximum that is reached when the actual traffic is less than 90% of the forecast.

The allocation of traffic risk, i.e. the minimum of 70% of additional revenue to be returned to users and the maximum of 70% of revenue loss borne by users (Table c) is set in advance for the entire reference period. The two percentages are reported at lines at 3.12 and 3.13 of Table 2.

For a given year “n”, the additional revenue or the revenue loss to be carried over in accordance with the traffic risk sharing mechanism is reported either at line 3.10 (additional revenue) or at line 3.11 (revenue loss). Calculations are made from the determined cost figures (Item 3.1), from the actual and forecast traffic (Item 2.3) and from the percentage allocations (Items 3.12 and 3.13).

Amounts carried over are reported either at line 3.4 (additional revenue – negative amount) or at line 3.5 (revenue loss – positive amount):

- The additional revenue for a given year “n” has to be returned to users no later than in year “n + 2”;
- The revenue loss for a given year “n” has to be returned in principle no later than in year “n + 2”, but States may decide to spread the carry-over of such loss in revenue over several years with a view to preserving the stability of the unit rate.

The two examples below illustrate the traffic risk sharing adjustment for additional revenues or losses carried over to year “n”.

Unit rate calculation	2015	2016	2017	2018	2019
2. Forecast and actual total service units					
2.1 Forecast total service units (performance plan)	100.0	100.0	100.0	115.0	115.0
2.2 Actual total service units	102.0	105.0	115.0	115.0	115.0
2.3 Actual / forecast total service units (in %)	102.0%	105.0%	115.0%	100.0%	100.0%
3. Costs subject to traffic risk sharing (ANSP)					
3.1 Determined costs in nominal terms - VFR excl. (reported from Table 1)	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
3.4 Traffic risk sharing : add. revenue carried over to year n	0.0	0.0	0.0	-21.0	-106.0
3.5 Traffic risk sharing : revenues losses carried over to year n	0.0	0.0	0.0	0.0	0.0
3.9 Total for the calculation of year i unit rate	1,000.0	1,000.0	1,000.0	979.0	894.0
3.10 Traffic risk sharing : add. rev. year n to be carried-over	0.0	21.0	106.0	0.0	0.0
3.11 Traffic risk sharing : revenue loss year n to be carried-over	0.0	0.0	0.0	0.0	0.0
Parameters for traffic risk sharing					
3.12 % additional revenue returned to users in year n+2	70%	70%	70%	70%	70%
3.13 % loss of revenue borne by airspace users	70%	70%	70%	70%	70%

Table-d: Traffic Risk Sharing Mechanism – Example 1

In Example 1 the actual traffic is in excess of forecast for each of the first three years of the period. The allocation percentages are set at 70% (Items 3.12 and 3.13):

- In 2015 the actual traffic is 2% above forecast. In accordance with paragraph 3.3.3.2 of the Principles the additional revenue is not carried over. The amount at line 3.10 is equal to zero. The amount at line 3.4 (year 2017) is also equal to zero;
- In 2016 the actual traffic is 5% above forecast. The first 2% are fully retained by the ANSP. The following 3% are partially (70%) returned to users. In accordance with paragraph 3.3.3.3 of the Principles the additional revenue to be carried over is therefore equal to $70\% \times 3\% \times 1000 = 21$. The amount at line 3.10 is equal to 21. The amount at line 3.4 (year 2018) is equal to -21 (over-recovery of 21 to be deducted from the determined costs for the calculation of the 2018 unit rate);
- In 2017 the actual traffic is 15% above forecast. The first 2% are fully retained by the ANSP. The following 8% are partially (70%) returned to users. The remaining 5% are fully returned to users. In accordance with paragraph 3.3.3.3 of the Principles the additional revenue to be carried over is therefore equal to $(70\% \times 8\% + 100\% \times 5\%) \times 1000 = 106$. The amount at line 3.10 is equal to 106. The amount at line 3.4 (year 2019) is equal to -106 (over-recovery of 106 to be deducted from the determined costs for the calculation of the 2019 unit rate).

Unit rate calculation		2015	2016	2017	2018	2019
2. Forecast and actual total service units						
2.1	Forecast total service units (performance plan)	100.0	100.0	100.0	85.0	85.0
2.2	Actual total service units	98.0	95.0	85.0	85.0	85.0
2.3	Actual / forecast total service units (in %)	98.0%	95.0%	85.0%	100.0%	100.0%
3. Costs subject to traffic risk sharing (ANSP)						
3.1	Determined costs in nominal terms - VFR excl. (reported from Table 1)	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
3.4	Traffic risk sharing : add. revenue carried over to year n	0.0	0.0	0.0	0.0	0.0
3.5	Traffic risk sharing : revenues losses carried over to year n	0.0	0.0	0.0	21.0	106.0
3.9	Total for the calculation of year i unit rate	1,000.0	1,000.0	1,000.0	1,021.0	1,106.0
3.10	Traffic risk sharing : add. rev. year n to be carried-over	0.0	0.0	0.0	0.0	0.0
3.11	Traffic risk sharing : revenue loss year n to be carried-over	0.0	-21.0	-106.0	0.0	0.0
Parameters for traffic risk sharing						
3.12	% additional revenue returned to users in year n+2	70%	70%	70%	70%	70%
3.13	% loss of revenue borne by airspace users	70%	70%	70%	70%	70%

Table-e: Traffic Risk Sharing Mechanism – Example 2

In Example 2 the actual traffic is below forecast for each of the first three years of the period. The allocation percentages are also set at 70% (Items 3.12 and 3.13):

- In 2015 the actual traffic is 2% below forecast. In accordance with paragraph 3.3.3.2 of the Principles the revenue loss is not carried over. The amount at line 3.10 is equal to zero. The amount at line 3.4 (year 2017) is also equal to zero;
- In 2016 the actual traffic is 5% below forecast. The first 2% are fully borne by the ANSP. The following 3% are partially (70%) returned to users. In accordance with paragraph 3.3.3.4 of the Principles the revenue loss to be carried over is therefore equal to $-70\% \times 3\% \times 1000 = -21$. The amount at line 3.12 is equal to -21. The amount at line 3.4 (year 2018) is equal to 21 (under-recovery of 21 to be deducted from the determined costs for the calculation of the 2018 unit rate);
- In 2017 the actual traffic is 15% below forecast. The first 2% are fully retained by the ANSP. The following 8% are partially (70%) returned to users. The remaining 5% are fully returned to users. In accordance with paragraph 3.3.3.4 of the Principles the revenue loss to be carried over is therefore equal to $-(70\% \times 8\% + 100\% \times 5\%) \times 1000 = -106$. The amount at line 3.10 is equal to -106. The amount at line 3.4 (year 2019) is equal to 106 (under-recovery of 106 to be deducted from the determined costs for the calculation of the 2019 unit rate).

2.4 Uncontrollable costs (Items 3.6 and 4.4)

190 In accordance with paragraph 3.3.3.7 of the Principles, the following shall *apply to cost risk sharing*:

- a. *where, over the whole reference period, actual costs fall below the determined costs established at the beginning of the reference period, the resulting difference shall be retained by the air navigation service provider, Contracting State or qualified entity concerned;*

- b. *where, over the whole reference period, actual costs exceed the determined costs established at the beginning of the reference period, the resulting difference shall be borne by the air navigation service provider, Contracting State or qualified entity concerned without prejudice to the activation of the alert mechanism;*
- c. *points (a) and (b) may not apply to the difference between actual and determined costs which may be deemed to be out of the control of the air navigation service providers, Contracting States and qualified entities as a result of:*
 - *unforeseen changes in national pension regulations and pension accounting regulations;*
 - *unforeseen changes to national taxation law;*
 - *unforeseen and new cost items not covered in the performance plan but required by law;*
 - *unforeseen changes in costs or revenue stemming from international agreements;*
 - *significant changes in interest rates on loans”.*

Paragraph 3.3.3.8 of the Principles defines the treatment of the difference between actual and determined costs which may be deemed to be out of control of the air navigation service providers.

The amounts carried over in accordance with paragraphs 3.3.3.7 and 3.3.3.8 are determined during the first year of the following reference period when actual figures for the last year of the period have become available. In accordance with Annex III of the Principles, the amounts carried over from the previous reference period have to be described in the additional information, by factors, i.e. for each of the items concerned from the list at Paragraph 3.3.3.8.c.

The amounts carried over are reported in Table 2 at Item 3.6.

2.5 Bonuses and penalties (Item 3.7)

191 The provisions relating to financial incentives for the achievement of performance targets by air navigation service providers are laid down in Paragraph 3.4.1 of the Principles. Paragraph 3.4.1 stipulates that the unit rate may be adjusted to provide for a bonus or penalty according to the actual performance level of the air navigation service provider against the relevant target. Such bonuses or penalties shall only be activated where performance variations have a substantive impact on users. The applicable level of bonuses and penalties shall be commensurate with the targets to be reached and the performance achieved. The performance variation levels and the applicable level of bonuses and penalties shall be determined following the offer to consult referred to in Paragraph 1.5 and set by the performance plan.

Incentives applied to air navigation service providers have to be described and explained in the additional information to reporting table 2.

Bonuses and penalties give rise to adjustments to the determined costs. Adjustments are reported at line 3.7.

The example at Table b shows a bonus of 5 in respect of one of the years of the previous reference period. This bonus is taken into account in the calculation of the applied unit rate for the year 2015.

2.6 Carry-overs of under-/over-recoveries incurred before the first reference period (Items 3.8 and 4.5)

192 In accordance with paragraph 3.3.1 of the Principles, over- and under-recoveries incurred before the first reference period may be carried over to each year of the first two reference period. Over- and under-recoveries are calculated and carried over in accordance with the full cost recovery method.

Under the full cost recovery method, over- and under-recoveries are calculated as a difference between charges billed to users and actual chargeable costs. Unit rates are calculated by dividing the forecast cost chargeable to users (minus amounts carried over) by the chargeable service units. Owing to this convention and to the different convention used for calculating unit rates under the determined cost method, i.e. by dividing total costs by total service units, over or under-recoveries incurred by Contracting States before the application of the determined costs method have to be adjusted. This adjustment should be made on the basis of the total number of service units divided by the number of chargeable service units. The most recent actual figures may be used for that purpose. The adjustment should be documented in the additional information to reporting table 2.

Amounts carried over in respect of under/over-recoveries incurred before the first reference period are reported at line 3.8 (ANSPs) or at line 4.5 (entities not subject to traffic risk sharing).

SECTION 7: FINANCIAL INCENTIVES FOR AIRSPACE USERS AND FOR AIR NAVIGATION SERVICE PROVIDERS

- 193 In accordance with paragraph 3.1.2 of the Principles Contracting States may establish incentive schemes on a non-discriminatory and transparent basis to promote the safe, efficient and effective provision of air navigation services and encourage air navigation service providers and airspace users to support improvements in air traffic service flow management such as increased capacity and reduction of delays, while maintaining an optimum safety level.
- 194 Incentives schemes should be designed for an implementation on a regional basis wide enough to be effective and to provide sufficient benefits to airspace users.
- 195 Cost incurred by States and air navigation service providers in respect of any incentive scheme for users of air navigation services should be chargeable to the users and should be taken into account in the calculation of the en route unit rate.
- 196 Incentive schemes should be subject to regular reviews involving airspace users and/or their representatives. If a scheme is not meeting its stated objectives, it should be removed as soon as possible.

IFRS AND EUROCONTROL PRINCIPLES

CLARIFICATION OF THE (POSSIBLE) IMPACT OF
THE INTERNATIONAL ACCOUNTING STANDARDS (IAS) /
INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)
ON THE EUROCONTROL PRINCIPLES FOR ESTABLISHING
THE COST BASE FOR EN ROUTE CHARGES

TABLE OF CONTENTS

	<i>Page</i>
INTRODUCTION.....	60
1 SCOPE AND PURPOSE OF THE REPORT	61
2 REGULATORY ENVIRONMENT.....	62
2.1 Publication of financial accounts in compliance with IAS/IFRS.....	62
2.2 Establishment of costs under IAS/IFRS.....	62
3 CHANGES UNDER IFRS AND THEIR (POSSIBLE) IMPACT ON THE COST BASE	62
3.1 Introduction to IFRS guidance.....	62
3.2 Property, plant and equipment	63
3.2.1 Component approach.....	64
3.2.2 Borrowing costs.....	65
3.2.3 Fair value, impairment and revaluation	66
3.2.4 Leasing.....	66
3.2.5 Intangible assets and development costs	67
3.2.6 (Possible) impact on the cost base	67
3.2.7 Finance leases	69
3.2.8 Operating leases	70
3.3 Employee benefits and post-employment benefits	70
3.3.1 Defined contribution plans.....	71
3.3.2 Defined benefit plans	73
3.3.3 Corridor approach	73
3.3.4 Impact of defined benefit plan on the P & L	73
3.3.5 (Possible) impact on the cost base	73
3.4 Other provisions	74
3.5 Financial instruments	74
3.5.1 Impact of financial instruments on P & L.....	75
3.5.2 (Possible) impact on the cost base	75
3.6 Over- and under-recovery	75
3.7 Deferred tax liabilities and deferred tax assets.....	75
3.8 Land.....	76
3.9 Goodwill.....	77
3.10 Contingent liabilities and contingent assets.....	77
3.11 Single European Sky related issues	77
3.11.1 ATM Master Plan (SESAR).....	77
3.11.2 Joint Venture	77
3.12 Segmental reporting	78
3.13 Incentives.....	78
3.14 Government grants	78
3.15 Research and development	78

4	TRANSITION FROM NATIONAL GAAP TO IFRS.....	79
5	FUTURE ISSUES.....	80
6	CONCLUSION	80

INTRODUCTION

The International Accounting Standards Board (IASB), is based in London and began operations in 2001 is the main accounting body setting world-wide accounting and auditing standards. The International Financial Reporting Standards (IFRS) are the successors to the International Accounting standards (IAS) set up to 2005. The IASB is made up of 14 Board Members (12 of whom are full-time members) from nine countries. Since the Norwalk Agreement of 2002 and the 2006 Memorandum of Understanding the US Financial Accounting Standards Board (FASB) and the IASB have been working increasingly to align the Generally Accepted Accounting Practice (GAAP) of USA with the IFRS. The IFRS is now widely accepted world-wide in Europe, Asia, Africa, Australia and increasingly in the USA. Since 2005 therefore it is widely accepted that all listed companies quoted on the stock exchange should fully comply with International Financial Reporting Standards (IFRS) and produce Consolidated Accounts fully conforming to these financial reporting standards. Due to the world-wide acceptance of these Standards, many if not most ANSPs would probably be preparing their published accounts in conformity with the IFRS.

Therefore the position of Published Accounts of Listed Companies vis-à-vis IFRS is quite clear. It is also clear that the application of IFRS would create valuations of assets and liabilities, which could be different from the accounts prior to application of IFRS compliant financial reporting. This is partly because earlier reporting standards are primarily based on the Historic Cost concept, while IFRS valuations are often based of the Fair Value concept.

Fair Value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. The latter means that the parties are independent and on equal footing. The concept of Fair Value will be explained more in detail in Section 3.2.3.

Most of the differences due to changed valuations however, will disappear over time because the valuation at Fair Value would also mean adjustments to depreciation, assuming that the useful life of the asset remains the same.

IFRS requires frequent revaluations and concepts such as "Recognition" and "Fair Value" which are not familiar concepts for preparation of cost bases. These valuations would bring into effect concepts such as "impairment". Although application of such reporting requirements would certainly make accounts transparent and comparable, there could be a substantial transitional effect. This is the reason the EUROCONTROL Principles allow a maximum period of 15 years for equalisation of the effects of these adjustments (paragraph 2.2.6).

It is true that cost bases are prepared substantially based on published accounts or statutory accounts produced by Air Navigation Service Providers. Hence if the accounts are prepared to meet the IFRS requirements, cost bases will be affected. The question is of materiality, fairness and appropriateness. Changes to cost bases should only be accepted where the changes are material in terms of the overall costs, fair in terms of their net effect on the cost base and appropriate where there is a reasoned argument for including these changes.

The question arises whether the purpose of the two different exercises are the same. Cost bases are intended to provide purchasers of ATM services (the Users) with the cost of provision of those services. Such costs should have some continuity from one period to another and be based on actual costs of the assets and liabilities based on historic figures and not necessarily the Fair Value of those assets and liabilities.

IFRS compliant accounts on the other hand are intended to provide investors and other interested parties with the value based on a going concern assumption or alternatively the break up value.

Therefore, IFRS are valuable for financing and funding whereas cost bases are based on cost accounting and are for pricing of services provided by ATM service providers.

Differences between IFRS compliant accounts and cost bases are particularly important where the necessary assets for provision of services have been fully paid or substantially paid through past revenue.

Land and Buildings are good examples. Buildings may have been paid through depreciation charged to date but could be revalued, without incurring any additional expenditure, to higher values resulting in an increase of capital employed (also called: average operating capital). While the nature and use of the land may not change, its valuation may change substantially.

On the other hand under current practices (Historic cost concept) purchasers of services should be aware that where and when these assets come to be replaced, they should be prepared to pay for the high costs of replacement through higher financing costs and depreciation charges.

To summarise, good judgement has to be used to decide whether the IFRS compliant accounts figures should apply fully and where these may need to be adjusted based on the fairness and appropriateness within the context of the cost base calculations. For example IFRS could require that "Fair Value" be applied where future additional or new streams of income would be generated from an asset.

In the case of land, already in use to provide ATM services, it is clear that revaluing land, which does not incur additional expenditure, would not generate any genuine income stream but would inflate the capital employed, thus generating higher cost of capital.

Therefore it is recommended that cost bases continue to be calculated according to the EUROCONTROL Principles and the guidelines set out in the Guidance Manual.

Where IFRS compliant accounts figures are included these should be justified with supporting documents to clearly demonstrate additional costs incurred or investments made. Moreover the relevance of those figures to the provision of ATM services has to be explained.

Hence, the IFRS paper should be treated as an additional Annex providing guidance on the subject. The paper shows the particular requirements of IFRS, which could have important effects on the cost base. However, any inclusion of figures directly from the (IFRS compliant) Accounts into the cost base has to be explained and justified in full.

1 SCOPE AND PURPOSE OF THE REPORT

As explained above the EUROCONTROL Principles and IAS/IFRS have different scope and applicability. The former are the expression of the Member States' common policy for establishing the costs of en route services with a view of their recovery from airspace users. The common rules for calculating costs (Principles) have been set up for Air Navigation Service Providers (hereafter called: ANSPs). The focus is on the establishment of costs at Historic Value. IFRS are financial reporting standards primarily developed to allow exchange-listed companies to provide "current" information, often based on market values, to investors. IFRS focuses on Fair Value. As compared with national Generally Accepted Accounting Practices (GAAP), IFRS introduced a new vision on financial reporting and valuation methods.

Since cost bases are derived substantially from Statutory Accounts established in accordance with IAS/IFRS, the principle purpose of this report is to clarify the (possible) impact of IAS/IFRS on the EUROCONTROL Principles. It should however be noted that despite all IFRS subjects that will be discussed in this report, the major part of the costs in the cost base of ANSPs is not going to be influenced by IFRS. This is because they relate to operational costs such as staff costs and other operating costs. The accounting treatment of these costs in IAS/IFRS is in principle not different from any national GAAP.

This report should further provide enlarged Committee Members who may not be accountants or financial experts with a brief survey of the main features of IAS/IFRS as compared with national GAAPs where relevant. The report therefore includes definitions and outlines of concepts that would be useful to non-accountants dealing with route charge policy.

2 REGULATORY ENVIRONMENT

2.1 Publication of financial accounts in compliance with IAS/IFRS

In accordance with the EUROCONTROL Principles (§ 2.1.1), ANSPs shall - whatever their system of ownership or legal form - publish their financial accounts either in full compliance with the IAS/IFRS or to the maximum possible extent where, owing to their legal status, full compliance with IAS/IFRS is not possible.

Valuation of assets and liabilities according to IFRS is also possible in the public sector. Typically there is no equity in public sector units but this does not prevent the production of accounts applying IFRS.

2.2 Establishment of costs under IAS/IFRS

Two modifications have been made to the EUROCONTROL Principles to apply IFRS where applicable:

- 1) the Principles (§2.2.6) provide that the non-recurring effects resulting from the introduction of IAS may be spread over a period not exceeding 15 years. The transition from national GAAP to IAS is treated in Chapter 4 of this report.
- 2) The Principles also stipulate that percentages to be applied in calculating the depreciation of investment expenditure are determined in accordance with the expected operating life and the pertinent IAS/IFRS standards (§ 2.3.3.3). This specific issue will be dealt in Chapter 3.

In consistency with the SES, the EUROCONTROL Principles pursue the objective of reaching a high level of comparability between the cost bases for charges of the different ANSPs within Europe. States adhering to the multilateral agreement are expected to be included within this common goal. The high level of comparability is to be achieved by financial reporting based on the same IFRS standards accepted world-wide.

The overriding objectives of enacting IFRS as the common standard for ANSPs are a high degree of transparency and comparability of the cost bases. Implementing IFRS in all ANSPs, at least to the extent possible where applicable, represents an important step in reaching these objectives.

It should also be kept in mind that stakeholders have advocated over the past at several occasions the preference to maintain "stability" of unit rates in order to facilitate planning by Airspace Users beyond the short term. It is expected that application of IFRS might lead to more volatile valuations of assets and liabilities, and as result more volatile (Profit & Loss) results. In exercising options under IFRS the overall aim of maintenance of unit rate stability should therefore be borne in mind.

3 CHANGES UNDER IFRS AND THEIR (POSSIBLE) IMPACT ON THE COST BASE

3.1 Introduction to IFRS guidance

The EUROCONTROL cost categories (staff, other operating costs, depreciation, cost of capital and exceptional items) as specified in Reporting Table 1 of the Principles remain unchanged. The cost figures of these categories may differ as result of applying IFRS instead of national GAAP. The definitions given in the Principles and the supplementary explanations contained in the Guidance Manual however, do not change.

As said earlier most of the costs such as staff costs and other operating costs will be allocated to the (same) cost categories mentioned above. No change is expected here as result of IFRS accounting. However, IFRS may account differently some assets and liabilities of ANSPs and their related costs. This could affect all of the cost categories mentioned.

For that reason the following sections of this chapter will examine what assets and liabilities under IFRS are, when they should be placed in or off the balance sheet and against which value. IFRS requires reviewing regularly the value of the assets and liabilities. IFRS requires further that differences between this value and the carrying amount (the amount in the books) will be reported. Finally it will be determined whether this should have an influence on the cost base.

When considering the rest of this chapter it should be borne in mind that IFRS uses two underlying assumptions:

- Going concern (assumption that the financial statements are prepared assuming that the entity will continue in operation for the foreseeable future) and
- Accrual basis which means that transactions or events are recognised when they occur, not necessarily when money is received or paid.

Important concepts of IFRS are (Initial) "Recognition", derecognition and impairment of assets and liabilities.

(Initial) Recognition of assets is a process of recognising on the balance sheet an item that meets the definition of an asset and satisfies the following recognition criteria for assets:

- (a) it is possible that any future economic benefit associated with the item will flow to the entity⁴; and
- (b) the item has a cost or value that can be measured with reliability.

An asset under IFRS is defined as:

- (a) controlled by an entity as a result of past events; and
- (b) from which future economic benefits are expected to flow to the entity.

Derecognition is the opposite of recognition. A derecognised asset is removed from the balance sheet.

Liabilities are further discussed in sections 3.3 - 3.7 and 3.10.

The measurement basis used to test impairment will depend on the type of asset involved. These tests may lead to positive or negative adaptations of the last recorded value or the value of the (initial) recognition. If an item is recognised or derecognised in accordance with IFRS, then in principle, it could also be recognised or derecognised in the cost base. This is not an automatism for impaired assets, because in the long run positive and negative adaptations in time will fade away.

As will be explained in the following sections, different values in the two sets of accounts (national GAAP and IFRS) are essentially caused by timing differences. Therefore it is most likely that they will even out in the long run. This is even so for costs of post-employment benefits in the very long run, although the short- and medium-term effects of costs of post-employment benefits may be significant (e.g. caused by interest rate changes).

The remaining sections of Chapter 3 will deal with the ongoing IFRS compliant reporting for items of the Balance Sheet and Income Statement, once a company has started its operations fully complying with IFRS or once the transition from national GAAP to IFRS has been completed. Chapter 4 will deal with the non-recurring transition effects from reporting under national GAAP towards reporting in accordance with IFRS. The report will restrict itself to the main aspects possibly affecting the cost base.

3.2 Property, plant and equipment

The following IAS/IFRS Standards and Interpretations are applicable when accounting for property, plant and equipment, and intangible assets:

⁴ "Entity" is the IAS/IFRS terminology for a company or organisation.

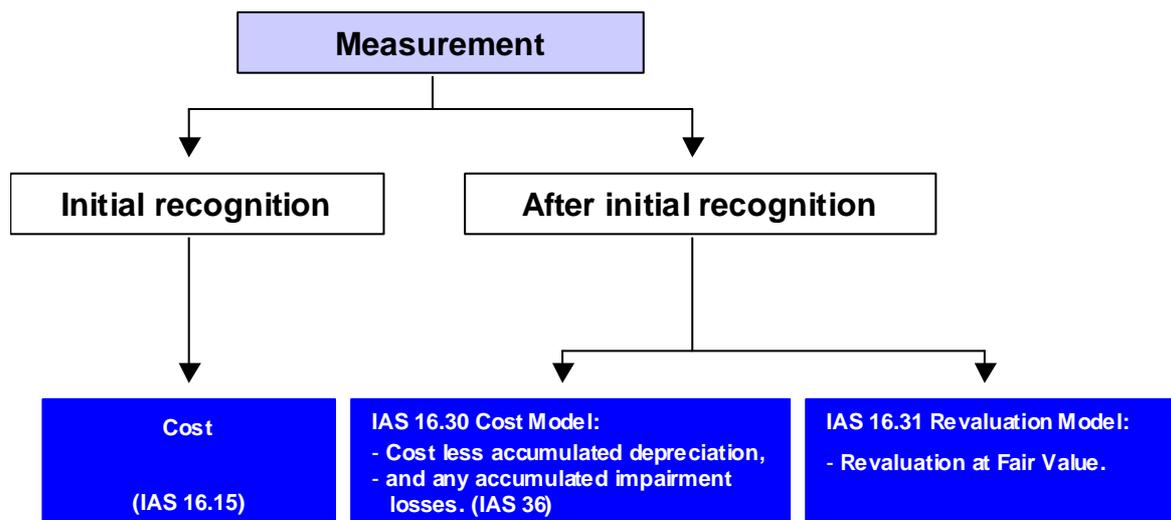
- IAS 16: Property Plant and Equipment
- IAS 17: Leases
- IAS 36: Impairment of Assets
- IAS 38: Intangible Assets
- IAS 40: Investment Property
- IFRS 5: Non-current Assets Held for Sale and Discontinued Operations
- IFRIC 1: Changes in Existing Decommissioning, Restoration and Similar Liabilities

Property, plant and equipment are tangible assets that:

- are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
- are expected to be used during more than one period.

For the valuation (measurement) of property plant and equipment one has to distinguish between valuation at initial recognition and valuation after initial recognition. The different valuation or measurement “models” are defined graphically below. Initial valuations, in principle, are at cost. Generally, at the time of initial recognition costs would be the same as market value at time of procurement. Later valuations could be either at the depreciated value or at a Fair Value. The following graph shows the measurement of property, plant and equipment.

Property, Plant and Equipment Measurement



In the sub-sections below particular aspects of valuation according to IFRS are described which are not typically found in national GAAPs. In sub-section 3.2.6 the (possible) impact on the cost base is explained.

3.2.1 Component approach

IFRS requires that items of property, plant and equipment shall be separated into their significant components (or parts) and shall be depreciated per component. Revaluations at Fair Value will be calculated per component. This is called the component approach.

Each significant component (or part) of an item of property, plant and equipment is upon initial recognition to be:

- individually recorded and
- individually measured and depreciated in subsequent periods.

In identifying significant components, different useful lives are not the only criteria to be considered. References for the identification of significant components may include regular individual maintenance plans and regular intervals for replacing parts of components. When a part of a component is replaced, the carrying amount of the replaced part is derecognised and the new part of the component is (initially) recognised (read: capitalised). Components, which are not significant may be grouped together and depreciated over the average useful life.

All items of property, plant and equipment have to be analysed to decide whether these items have to be separated into components or not. For buildings the significant components could be:

- bearing structure
- cladding
- interior fittings
- heating, ventilation, water installations
- electricity

An allocation of historic costs on transaction level and therewith to the individual components may be extremely difficult and time-consuming, or even impossible.

Therefore, a pragmatic solution has to be chosen to allocate the historic costs to the different significant components. In the case of buildings, one possibility could be to identify different types of buildings and to identify for each building type the different significant components. For each building type the weight factor and useful life of the components should be determined. Table 1 below presents an example:

Table 1 : Property, Plant and Equipment - Example of the Component Approach

Building component / Building type	% Bearing structure	Useful life (in years)	% Cladding	Useful life (in years)	% Interior fitting	Useful life (in years)	% Heating, ventilation and water	Useful life (in years)	% Electricity	Useful life (in years)
Control Center	20	40	20	30	20	25	25	15	15	15
Tower	25	40	15	30	20	25	25	15	15	15
Administrative building	20	40	20	30	20	25	25	15	15	15
Branch office	30	40	10	30	20	25	25	15	15	15
R&D center	20	40	15	30	30	25	20	15	15	15
Energy center	20	40	0	-	10	25	30	25	40	25
Parking garage	95	40	0	-	0	-	0	-	5	15
Radar building (SUR)	40	40	0	-	10	25	20	15	30	15

3.2.2 *Borrowing costs*

IAS/IFRS “generally require the immediate expensing of borrowing costs”. However, contrary to some GAAP, IAS 23 “permits, as an allowed alternative treatment, the capitalisation of borrowing cost that are directly attributable to the acquisition, construction or production of a qualifying asset”.

Eligible borrowing costs should be capitalised as part of the investment of the respective asset. This is substantially in line with the current concepts of the cost base principles.

According to IAS 23.20, “the capitalisation of borrowing costs as part of the cost of a qualifying asset should commence when:

- (a) Expenditures for the asset are being incurred;
- (b) Borrowing costs are being incurred; and
- (c) Activities that are necessary to prepare the asset for its intended use or sale are in progress.”

According to IAS 23.29, “the financial statements should disclose:

- (a) The accounting policy adopted for borrowing costs;
- (b) The amount of borrowing costs capitalised during the period; and
- (c) The capitalisation rate used to determine the amount of borrowing costs eligible for capitalisation.”

Once a choice has been made, a consistent application of the selected treatment to all qualifying assets has to be assured. A qualifying asset is an asset that necessarily takes a substantial period of time to get ready for its intended use or sale.

3.2.3 *Fair value, impairment and revaluation*

IFRS uses the concept of Fair Value⁵. Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. In simple terms explained, Fair Value could often be regarded as the market value under the assumption that the market does “function”. In the absence of a regular market, the price on a secondary market (less regular market values are here established) could be taken. In the absence of any market, the Fair Value could be estimated by the Historical (Purchase) Value reduced by the cumulative depreciations, or alternatively the Net Present Value of the future income (cash flows).

IFRS requires testing of most long-term assets for impairment. Impairment occurs when the Fair Value is lower than the carrying value. In such case the difference will be recorded as a loss. In most cases testing will be triggered “on indication”, i.e. when the “market” provides signals that impairment could have occurred. For goodwill it is also required to test once a year (on the same date as initially was chosen). IAS 36 (Impairment of assets) applies in particular to the revaluation model shown in the figure above (see IAS 16.31). Identifying whether an asset may be impaired depends on the basis used to determine its Fair Value as described in detail in IAS 36. The valuation of land is dealt with in section 3.8 as a special case.

The opposite of an impairment of a long-term asset is the revaluation of a long-term asset. In that case the Fair Value exceeds the carrying value and the difference will be recorded as a profit⁶.

Identifying whether an asset may be impaired depends on the basis used to determine its Fair Value as described in detail in IAS 36. The valuation of land is dealt with in section 3.8 as a special case.

3.2.4 *Leasing*

Finance leases are to be capitalised by the lessee. A lease is classified as a finance lease in IFRS 17.4 if it “transfers substantially all the risks and rewards incidental to ownership of an asset.” If a lease is a finance lease by substance of the contract then the leased asset is treated like an owned fixed asset. Further consideration to leasing in general is given in a separate section below.

⁵ For the record: IFRS does not require a full Fair Value concept, meaning that not in all instances valuation at Fair Value is required.

⁶ In practice any (positive or negative) difference between Fair Value and carrying value of an asset is often called impairment.

3.2.5 *Intangible assets and development costs*

An intangible asset is an identifiable non-monetary asset without physical substance. Brand names, software, goodwill and Intellectual Property Rights are examples of intangible assets.

An intangible asset is identifiable when it:

- (a) is separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, asset or liability; or
- (b) arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations" (IAS 38.12).
- (c) will generate a stream of future income.

Intangible assets can be acquired or internally generated. Typical intangible assets of ANSPs are ATM software systems that can be purchased or developed internally. Development costs of intangible assets can only be capitalised when specific criteria are cumulatively fulfilled. IFRS prescribes that all other development costs shall be taken as costs in the P & L account. Valuation principles are those for property plant and equipment.

Goodwill is a specific intangible asset that will be discussed in section 3.9.

3.2.6 *(Possible) impact on the cost base*

ANSPs have typically tangible and intangible assets such as ATM system software and related hardware. For these "unique" assets no market value is established. A next best estimate of the Fair Value of these assets could be the Historical (Purchase) Value reduced by the cumulative depreciations. Alternatively, the Net Present Value of future income could be taken. The valuation of these ANSP's typical assets at Fair Value (IFRS) does not differ much from the Historical (Purchase) Value (as valued under most national GAAPs). However, other non-typical assets of ANSPs may under IFRS be valued differently, against Fair Value but now approaching the market value.

The (possible) impact of IFRS accounting for property, plant and equipment and intangible assets on the cost base results from (possible) differences caused to the costs and the capital employed for these items. Contrary to some national GAAPs, capital employed for property, plant and equipment as well as intangible assets may differ because of, in particular, the component approach, the capitalisation of borrowing costs, development costs, financial leases as well as revaluation and impairment losses. This may lead, essentially, to different depreciation charges and cost of capital. As clearly worded in the text above, it is not an automatism that IFRS accounting has an impact on the cost base, however it could have an impact. The word "possible" explicitly highlights this.

An important consideration is the treatment of the effects of revaluation at Fair Value of an asset.

If as shown in Table 2 below, an asset is re-valued by 100% to double its value, depreciation will double for the remaining useful life of the asset (example: revaluation of an asset from 100.000 € to 200.000 €; remaining useful life is 10 years; depreciation increases from 10.000 € to 20.000 € per year). On the other hand, the revaluation amount has to be credited to retained earnings or, if appropriate, another category of equity. In this case it is suggested to credit it to a revaluation reserve (in the example: 100.000 €). This amount will also have to be credited to the cost base. In order not to create disparities, this credit should also be spread over the remaining life of the asset (in this example 10.000 € per year). As a result, the net depreciation amount being the increased depreciation amount less the annual freefall of the revaluation credit will be equal to the old depreciation amount (in the example 20.000 € less 10.000 € is 10.000 €). The conclusion is that revaluation at Fair Value may not have any effect on the net depreciation if the revaluation credit is spread over the remaining useful life of the asset.

However, revaluation at Fair Value could have an effect on the total capital employed and thus on the cost of capital (in the example: the value of property, plant and equipment increases by 100.000 € and so does total capital employed) with a corresponding increase of the charges cost base as result of increased cost of capital.

(Remaining useful life: 10 years; no taxes are considered; Return on Capital rate is 5%)				
Before revaluation				
	Year-begin			
.. Balance Sheet	Fixed Assets	100.000 €	Equity	50.000 €
			Liabilities	50.000 €
	Year-end			
.. Balance Sheet	Fixed Assets	90.000 €	Equity	50.000 €
	depreciation	10.000 €	Liabilities	50.000 €
	costs receivable from users			
.. P & L	Depreciation	10.000 €		
	ROCE*	5.000 €	= 5% x 100.000 €	
.. Cost Base (incl.ROCE)		15.000 €		
After revaluation				
	Year-begin			
.. Balance Sheet	Fixed Assets	200.000 €	Equity	50.000 €
			Reval. Reserve	100.000 €
			Liabilities	50.000 €
	Year-end			
.. Balance Sheet	Fixed Assets	180.000 €	Equity	60.000 €
	depreciation	20.000 €	Reval. Reserve	90.000 €
	costs receivable from users		Liabilities	50.000 €
.. P & L	Depreciation	20.000 €		
	Reval. Reserve	- 10.000 €		
	ROCE*	10.000 €	= 5% x 200.000 €	
.. Cost Base (incl.ROCE)		20.000 €		

* ROCE = return on capital employed

The key-question however is whether it is justifiable that as result of a revaluation of an asset, the cost base (as result of an increased cost of capital) should increase; in particular because in this example the ANSP did not incur additional costs. The CRCO advocates that only significant revaluations of assets as result of additional incurred costs by the ANSP could lead to an increase of the cost base (with also an increased cost of capital as result).

The opposite of a revaluation of an asset would be the devaluation of an asset. In case of an extraordinary write-off as a result of an impairment of an item of property, plant and equipment, the extraordinary write-off could, in principle, be charged to the cost base.

Non-charging of an impairment to the cost base however, could also be a valid option when the impairment is not very significant and stability of unit rates over time would be preferred.

The possible impact of re- and de-valuation of assets is recapitulated. In case of revaluation of assets the net amount of recoverable depreciation costs (increased depreciation minus the freefall of the revaluation reserve) remains the same while the cost of capital could increase.

In case of devaluation of assets the speed of recovery of depreciation costs increases, while the cost of capital decreases.

It is obvious that while some assets may be revalued, other assets may be devalued and that the net-impact might be negligible. Jo-jo effects of net-impacts over time should be avoided as a certain stability of unit rates is preferred.

Both revaluation and devaluation of assets require adequate justifications and in principle only a significant net-impact could be considered for inclusion in the cost base, provided that adequate transparency is given. A very significant net-impact could be considered for spreading over a number of years.

3.2.7 *Finance leases*

Finance leases are to be capitalised by the lessee (referred is to IAS 17.20 to 32.). A lease is classified as a finance lease if it “transfers substantially all the risks and rewards incidental to ownership of an asset.” If a lease is a finance lease by substance of the contract, then the leased asset is treated as an owned fixed asset.

Finance leases have to be shown as assets and liabilities on the lessee's⁷ balance sheet “at amounts equal to the Fair Value of the leased property or, if lower, the Present Value of the minimum lease payments, each determined at the inception of the lease”. Minimum lease payments are the payments over the lease term that the lessee is or can be required to make, excluding contingent rent, costs for services and taxes to be paid by and reimbursed to the lessor together with:

- (a) for a lessee, any amounts guaranteed by the lessee or by a part related to the or :
- (b) for a lessor, any residual value guaranteed to the lessor by:
 - (i) the lessee;
 - (ii) a party related to the lessee;
 - (iii) a third party unrelated to the lessor that is financially capable of discharging the obligations under guarantee to the lessee.

The “interest rate” implicit in the lease agreement should be used to calculate the Present Value of the minimum lease payments. If the implicit interest rate cannot be determined for lack of information provided by the lessor, the lessee's incremental borrowing rate can be used as an alternative. The lease payments have to be split into the interest part and the part that constitutes repayment of the principal (liability). The finance charge shall be calculated on the basis of the annuity method (“constant periodic rate of interest on the remaining balance of the liability”). The sum of the depreciation of the asset and the interest for any year is rarely the same as the lease payments payable for the same year. Therefore, the lease payments cannot be simply taken as the expense of the operating lease. As a consequence, the asset and the related liability values are unlikely to be the same after the beginning of the lease term. This could have a significant impact on the balance sheet of an ANSP (e.g. when there is a requirement to capitalise assets by the State or airports for ANS purposes).

Table 3 on the next page contains an example for the calculation of the financial lease values.

The upper part of the Table shows the accounting for the assets side. Depreciation is calculated on a linear basis over the useful life of the asset. The cost of capital of 6% is applied to the average amount outstanding in a year: (Opening balance + Closing balance) / 2. The lower part of the Table shows the accounting for the liability side. The total annual lease payment is split between the repayment of the principal (liability) and an implicit interest rate of 5% applied to the outstanding balance.

⁷ Lessee is the part of a lease agreement that leases against regular payments a property from the lessor who is the owner.

Table 3: Financial Lease						
(Annual Lease Payments of 10.000 € over 10 years; implicit interest 5%; Present Value of minimum lease payments is 77.217,35 € Cost of Capital is 6%)						
Asset Account	Year	Start. Amount	Depreciation (Cost Base)	Interest	End Amount	Cost of Capit. (Cost Base)
	1	77.217,35 €	7.721,74 €	- €	69.495,62 €	4.401,39 €
	2	69.495,62 €	7.721,74 €	- €	61.773,88 €	3.938,08 €
	3	61.773,88 €	7.721,74 €	- €	54.052,15 €	3.474,78 €
	4	54.052,15 €	7.721,74 €	- €	46.330,41 €	3.011,48 €
	5	46.330,41 €	7.721,74 €	- €	38.608,68 €	2.548,17 €
	6	38.608,68 €	7.721,74 €	- €	30.886,94 €	2.084,87 €
	7	30.886,94 €	7.721,74 €	- €	23.165,21 €	1.621,56 €
	8	23.165,21 €	7.721,74 €	- €	15.443,47 €	1.158,26 €
	9	15.443,47 €	7.721,74 €	- €	7.721,74 €	694,96 €
	10	7.721,74 €	7.721,74 €	- €	- €	231,65 €
Total			77.217,35 €			23.165,21 €
Payment of Lease (Liability)	Year	Start. Amount	Total Annual Payment	Repayment of Principal	Implicit Interest	End Amount
	1	77.217,35 €	10.000,00 €	6.139,13 €	3.860,87 €	71.078,22 €
	2	71.078,22 €	10.000,00 €	6.446,09 €	3.553,91 €	64.632,13 €
	3	64.632,13 €	10.000,00 €	6.768,39 €	3.231,61 €	57.863,73 €
	4	57.863,73 €	10.000,00 €	7.106,81 €	2.893,19 €	50.756,92 €
	5	50.756,92 €	10.000,00 €	7.462,15 €	2.537,85 €	43.294,77 €
	6	43.294,77 €	10.000,00 €	7.835,26 €	2.164,74 €	35.459,51 €
	7	35.459,51 €	10.000,00 €	8.227,02 €	1.772,98 €	27.232,48 €
	8	27.232,48 €	10.000,00 €	8.638,38 €	1.361,62 €	18.594,11 €
	9	18.594,11 €	10.000,00 €	9.070,29 €	929,71 €	9.523,81 €
	10	9.523,81 €	10.000,00 €	9.523,81 €	476,19 €	0,00 €
Total			100.000,00 €	77.217,35 €	22.782,65 €	

This example shows that the total repayment of the principle is the same; the timing of the repayments however differs. The differences between costs of capital and the interests paid are relatively small. Differences however could be significant when the interest rates show a wider variation.

3.2.8 Operating leases

With regard to operating leases there should be no significant difference to the treatment usually foreseen for leases in GAAP of most States and to the treatment according to the Principles. The payments for operating leases are other operating expense according to the Principles.

3.3 Employee benefits and post-employment benefits

Employee benefits are all forms of consideration given by an entity in exchange for service rendered by employees. IAS 19 addresses the accounting and disclosure for employee benefits⁸. A company ("entity" in IAS/IFRS terms) has to recognise:

- (a) a liability when an employee has provided service in exchange for employee benefits to be paid in the future;

⁸ With the exception of a special type of employee benefits, the "Share-based payments". These are regulated in IFRS 2. As it is not likely that they will occur in ANSPs, we will not further discuss them.

- (b) an expense when the entity consumes the economic benefit arising from service provided by an employee in exchange for employee benefits.

IAS 19 differentiates four types of employee benefits:

- Short-term employee benefits (less than 12 months);
- Post-employee benefits (among them: pensions);
- Other long-term benefits (not falling within 12 months, neither post-employment nor termination benefits);
- Termination benefits (termination employment before the normal retirement date or employee's acceptance of voluntary redundancy).

Short-term employee benefits such as salaries are financially seen as an important part of the employee benefits. The post-employee benefits (among them: pensions) are another important type of employee benefits.

Post-employment benefits are employee benefits (other than termination benefits) which are payable after the completion of employment. They include pensions, other retirement benefits, post-employment life insurance and post-employment medical care. Post-employment benefit plans are classified as either defined contribution plans or defined benefit plans. The following sections describe a general description of the major aspects of the post-employment benefit plans. For further detailed information reference is made to IAS 19. Post-employment benefits are recognised when Management formally agrees to the benefits through a labour agreement or a form of contract.

3.3.1 *Defined contribution plans*

Under defined contribution plans a company's legal or constructive obligation is limited to the amount that it agrees to contribute to the plan, which is managed by an external fund. The periodic contribution paid is expensed in the same period and there is no record in the balance sheet since all of the company's obligations are fulfilled with the payment of the contribution. Actuarial risk (benefits less than expected, e.g. life expectancy tables higher than anticipated) and investment risk (assets invested yielded less than expected) fall in principle on the employee. When the entity's contributions made are less than required in the period according to actuarial valuations, a provision for the payment of the outstanding contributions has to be created. When the entity's contributions made are more, a deferred asset has to be recorded. For a defined contribution plan, in principle, the periodic contribution is the cost to be charged to the cost base.

In some countries (such as Germany) there may be direct contribution plans with a residual liability of the company in case of failure of the external fund. In cases where a company is still taking risks linked to biometric developments, investment of plan assets or other factors, the plan has to be treated like a defined benefit plan.

3.3.2 *Defined benefit plans*

Defined benefit plans are all those that do not fulfil the criteria of defined contribution plans (IAS 19.6.). Define benefit plans may be unfunded, partly or wholly funded. Under defined benefit plans:

- (a) the entity's obligation is to provide the agreed benefits to current and former employees; and
(b) actuarial and investment risk fall, in substance, to the entity.

Accounting by an entity for defined benefit plans requires in a nutshell the following actions:

- applying actuarial techniques to determine reliable estimates of benefits that employees have earned in the current and prior periods (actuarial assumptions about demographic and financial variables are needed for the determination of this estimate);
- discounting the benefit using the Projected Unit Credit Method to determine the Present Value of the Defined Benefit Obligation (DBO) and the current service cost;
- determine the Fair Value of the plan assets;

- determine the total actuarial gains and losses and the amount to be recognised;
- determine the resulting past service costs and/or resulting gain or loss when a plan has changed;
- in case of more than one defined benefit plans, the actions will be applied for each material plan separately.

For the sake of comprehension the rest of this section will explain the actions abovementioned more descriptively.

A company's grant of a post-employment defined benefits involves risks and obligations that extend beyond one accounting period. The difference between the Fair Value of the plan assets and the Defined Benefit Obligations (DBO) has to be shown in the balance sheet as a provision (Fair Value plan assets less than DBO) or as an asset (Fair Value plan assets exceeds DBO).

"Past Service Costs" is the Present Value of all benefits attributed to past service (part of the total DBO). Future salary increase, future increase in medical costs, employee turnover and mortality tables are considered. Projected benefits are discounted using rates based on high quality corporate bonds at the balance sheet date. Plan assets are assets set aside in a long-term employee benefit fund or qualified insurance policy specially to pay employee benefits. Such assets are valued at Fair Value.

If dedicated and qualified plan assets exist, only the balance between DBO and the Fair Value of the plan assets needs to be disclosed. On an international level external funding of defined benefit plans is the rule but there are exceptions in some States where internal funding is also possible. Plan assets are only qualified if they are exclusively dedicated to the payment of post-employment benefits, if they are definitely out of reach of the company and protected against insolvency. Externally funded plans are usually managed by legally independent pension funds. For internally funded plans the requirements of dedicated and qualified plan assets can be fulfilled by a contractual trust agreement.

Contrary to defined contribution plans the annual expense of a defined benefit plan is not known in advance but has to be calculated each year based on expected Present Value of contractual obligations (DBO) that requires many assumptions.

According to IAS 19 the income approach is used to determine the DBO in the balance sheet, i.e. the pension expense as the determining parameter is estimated at the beginning of the year on the basis of expected values. The amount of the pension expense is determined in particular by two factors:

- The expected change of the Present Value of the pension obligations (DBO) with its two components of "current service cost" and "interest cost", and
- The expected return on plans assets. If return on plan assets and interest cost were the same, the pension expense would be equal to the current service cost in the case of a fully funded plan, i.e. if the amount of DBO and plan assets were the same (Note that this will rarely be the case).

"Current Service Cost" is the Present Value of all benefits resulting from employee service in the current period (another part of the total DBO).

"Interest Cost" represents the change during a period in the Present Value of a DBO that arises because the benefits are one period closer to settlement.

In addition to the pension expense, the expected pension payments are also estimated at the beginning of the year so that the expected values for the DBO and the pension provision at the end of the year can be calculated. When looking back at year-end, the estimates that were made at the beginning of the year, will normally differ due to actuarial gains or losses and, if applicable, past service costs. Actuarial gains or losses come about by unexpected actual developments with regard to current service cost, interest rate, actual pension payments and the actual return on plan assets. Past service costs would occur if post-employment benefit plans have been changed during the year or if a retroactive grant of new defined benefit plans was introduced.

3.3.3 *Corridor approach*

Actuarial gains or losses and past service cost have also to be taken into account when looking at the pension expenses of a particular year. In order to avoid an undesirable volatility of results, IAS foresees a mechanism of “delayed recognition” and “corridor approach” as an option.

The corridor approach permits that the effects

- of irregularities in the development of the risk pattern of the pension obligations;
- of changes of other actuarial calculation parameters (particularly interest rates and salary and benefit increases);
- of unexpected gains or losses of plan assets.

The effects do not need to be posted to the Profit and Loss (P & L) as long, as the cumulative and not yet amortised gains and losses do not exceed a maximum 10% of the Present Value of the DBO or 10% of the Fair Value of any plan assets, whichever is the higher.

The portion of actuarial gains and losses to be recognised (in the P & L) for each defined benefit plan is the excess that fell outside the 10% “corridor” at the previous reporting date, divided by the expected average remaining working lives of the employees participating in that plan. . It is allowed, however, to debit or credit higher amounts, i.e. a method could be chosen to speed up the amortisation; even an amortisation of the complete amount is permitted. A method once chosen should be maintained for reasons of continuity (IAS 19.93). It is obvious that an immediate amortisation of actuarial gains and losses could lead to significant ups and downs of the pension costs with an undesirable volatility of results as a consequence.

3.3.4 *Impact of defined benefit plan on the P & L*

The expense of a defined benefit plan is therefore:

- The current service cost;
- The net interest cost (interest cost less return on plan assets);
- Amortisation of past service cost and of actuarial gains or losses in case the limits of the corridor are passed.

IAS allows two alternative accounting treatments in the Profit and Loss (P & L) account:

- The current service cost plus net interest cost is disclosed as staff cost, or
- The current service cost alone is disclosed as staff cost while the net interest cost is disclosed as cost of financing.

3.3.5 *(Possible) impact on the cost base*

With regard to the cost base it seems that the last accounting treatment is the most appropriate one since the net interest cost should normally be part of the calculation of the cost of capital.

To summarize the impact of the cost of post-employment benefit plan(s) on the cost base:

- In defined contribution plans, the annual contribution or premium paid to a pension fund, insurance company or other appropriate institution, constitutes the expense to be accounted for as staff cost in the cost base.
- In defined benefit plans, the past service cost and the current service cost plus amortisation of actuarial gains or losses, if any, should be disclosed in the cost base as staff cost and the net interest cost as cost of financing.

(Note: There have been considerations whether or not to disallow the corridor method in future. Should the International Accounting Standards Board (IASB) decide to change this, it could result in a high volatility of costs of post-employment benefit plans.)

The CRCO advocates, in view of a possible volatility of results (P & L) as result of the effects of the defined benefit plans and its (possible) impact on the cost base, to limit its effects in order to maintain the preferred stability of unit rates as much as possible.

Each significant impact of each material defined benefit plan should be completed with adequate justifications and disclosures.

In other words: the CRCO advocates to spread the amortisation of the impact of the past service cost and of actuarial gains or losses in case the limits of the corridor are passed, over a period not exceeding the maximum period IFRS permits.

3.4 Other provisions

A provision is defined in IAS 37 as “a liability of uncertain timing or amount”. A provision should be recognised when and only when:

- (a) an entity has a present obligation (legal or constructive) as a result of a past event;
- (b) it is probable (i.e. more than likely than not) that an outflow of resources embodying economic benefits will be required to settle the obligation; and
- (c) a reliable estimate can be made of the amount of the obligation.

Looking at most national GAAPs, the IFRS definition of a provision is likely to be narrower so that - as a trend statement - fewer provisions can be set up under IFRS than under most GAAP. Compared to the past this means that fewer costs can possibly be accounted for before the actual settlement occurs since a legal or constructive obligation must have developed. Should there be any national GAAP that are stricter than IFRS than the opposite would hold true. As a rule, the impact on the cost base is only a timing difference.

3.5 Financial instruments

Any Contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity is a “Financial Instrument”. Some examples are loans, debtors, options, SWAPS, investments, deferred tax assets or deferred tax liabilities. Financial instruments after initial recognition would mean that the valuation is at (real) costs or Fair Value plus transaction costs. It may help to define “Financial Assets” and “Financial Liabilities” to provide a clearer understanding.

Financial asset represents any asset that is:

- (a) cash;
- (b) an equity instrument of another entity;
- (c) a contractual right:
 - (i) to receive cash or another financial asset from another entity; or
 - (ii) to exchange financial assets or financial liabilities with another entity under condition that are potentially favourable to the entity; or
- (d) a contract that will or may be settled in the entity’s own equity instruments and is:
 - (i) a non-derivative for which the entity is or may be obliged to receive a variable number of the equity’s own equity instrument; or
 - (ii) a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset or a fixed number of the entity’s own equity instruments. For this purpose the entity’s own equity instruments do not include instruments that are themselves contracts for the future delivery or receipt of the entity’s own equity instruments.

Financial liability represents any liability that is:

- (a) a contractual obligation:
 - (i) to deliver cash or another financial asset to another entity; or
 - (ii) to exchange financial assets or financial liabilities with another entity under condition that are potentially unfavourable to the entity; or
- (b) a contract that will or may be settled in the entity's own equity instruments and is:
 - (i) a non-derivative for which the entity is or may be obliged to deliver a variable number of the equity's own equity instrument; or
 - (ii) a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments. For this purpose the entity's own equity instruments do not include instruments that are themselves contracts for the future receipt or delivery of the entity's own equity instruments.

Since financial instruments represent a complex issue and since ANSPs do not typically deal with complex financial instruments the following considerations are limited to a minimum.

3.5.1 *Impact of financial instruments on P & L*

The most important aspect of financial instruments in IFRS is disclosure. The objective of IFRS is to show losses and gains at the date of reporting/disclosure, even if they are not realised. Corresponding provisions are to be set up in the balance sheet and in certain cases unrealised gains and losses have to be shown in the income statement. (Note: The amendments to IAS 39 and IFRS 7 published by the International Accounting Standards Board in October 2008 following the crisis of world financial markets in 2008 may lead to a mitigation of these effects in future.).

The level of detail of reporting is significantly higher and documentation requirements are significantly more important than under GAAP.

3.5.2 *(Possible) impact on the cost base*

Though it was explained in the previous section that financial instruments according to IFRS may lead to realised (or unrealised) gains and losses and inclusion into the income statement (P & L) seems inevitable, this does however not necessarily lead to an (identical) impact on the cost base. Only costs and revenues as result of the use of financial instruments directly attributable to the provision of air navigation services might be included in the cost base. Proper justification has to be provided and case-by-case, the appropriateness of justifications needs to be investigated. It is beyond saying that all financial instruments with any "speculative" nature fall outside the scope of inclusion into the cost base.

3.6 **Over- and under-recovery**

Under the GAAP of most EUROCONTROL States over-recoveries could be accounted for as a liability but under-recoveries could not be recognised as a deferred asset. The same holds true for the IFRS accounts so that no change is expected in the States referred to above.

For those States where either both or none of them can be recognised in the balance sheet, there will be a change in their public accounts but obviously not in the cost base.

3.7 **Deferred tax liabilities and deferred tax assets**

Accounting for deferred taxes is only relevant for taxable ANSPs. Deferred taxes are recognised in accordance with IAS 12. Deferred tax balances arise from temporary differences between the tax base of assets and liabilities and their carrying amounts in the balance sheet prepared in accordance with IFRS.

A deductible temporary difference is recorded as a deferred tax asset in the following circumstances:

- Assets have a lower value in the IFRS accounts than in the tax accounts (e.g. as a result of inventory adjustments that are not tax deductible);
- Liabilities have a higher value in the IFRS accounts than in the tax accounts (e.g. as is the case for provisions of post-employment benefits).

Since at the point in time a difference arises between the values according to IFRS and tax accounts in the above-mentioned cases, the actual taxable income is higher than the income before taxes in the IFRS accounts, a fictive decrease of the actual tax expense is created by the capitalisation of a deferred tax asset. Upon reversal of the differences the deferred tax assets are dissolved and the actual tax expense (which is then too low in the IFRS accounts) is increased.

A deductible temporary difference is recorded as a tax liability in the opposite circumstances:

- Assets have a higher value in the IFRS accounts than in the tax accounts (e.g. capitalised development costs are recorded in the IFRS accounts);
- Liabilities have a lower value in the IFRS accounts than in the tax accounts (e.g. provisions for maintenance to be undertaken within three months from the closing date can be recognised in the tax accounts but not in the IFRS accounts).

In the above cases the actually taxable income is lower than the income before taxes in the IFRS accounts, a fictive increase of the actual tax expense is created by recording a deferred tax liability. Upon reversal of the differences the deferred tax liability is dissolved and the actual tax expense, which is then too high in the IFRS accounts, is decreased.

Taxes on corporate income do not impact the cost base directly. However through their impact on the average capital employed deferred tax liabilities and deferred tax assets have an impact on total capital employed and therewith on the absolute amount of the cost of capital. Therefore indirectly taxes on corporate income do have an impact on the cost base.

3.8 Land

Land is an item of property, plant and equipment and accordingly the Standards and Interpretations quoted under 3.2 apply.

Land is a particular asset that is not “consumed” as a resource in the process of production or providing services. For this reason land is not depreciated. As its Fair Value may vary, impairments can occur. Paragraphs 39 and 40 of IAS 16 regulate the accounting for increases and decreases in the carrying values of property, plant and equipment. Increases shall be credited directly to equity (revaluation reserve). However, the increase shall be recognised in the income statement to the extent that it reverses an earlier revaluation decrease of the same asset previously recognised in the income statement. Decreases shall be recognised in the income statement unless there is a credit balance in the revaluation reserve.

Acquisitions of land to provide air navigation services are long-term investments. Therefore it is most unlikely that in the long run a devaluation of land will occur. Though the users do not pay the acquisition of land, the cost of financing the acquired land is paid by the users by means of inclusion of its cost of capital into the cost base.

Just like for the other long-term assets (see 3.2.6), it is the view of the CRCO that in case of revaluation of land whereby no additional costs occurred to the ANSP, no additional costs should be charged to the cost base. If additional costs do incur, for instance due to the cleaning of polluted ground which could trigger a revaluation of land, an increase of costs of capital (and therefore an increased charge to the cost base) might be justified. Full disclosure and clear justifications remain of fundamental importance.

3.9 Goodwill

Contrary to other intangible assets, which must be identifiable (cf. 3.2.5 above), goodwill represents an asset from which future economic benefits are arising but which cannot be identified individually and recognised separately (IFRS 3.52).

Goodwill can be acquired or can be generated internally. Internally generated goodwill shall not be recognised as an asset.

According to IFRS goodwill shall not be amortised (depreciated) but it must be tested for impairment annually or at indication (IFRS 3.55 and IAS 36). Annually testing should always occur on the same date. Any impairment loss of goodwill shall be recognised in the P & L (IAS 36.60). Impairment losses recognised for goodwill shall not be reversed in subsequent periods (IAS 36.104).

Goodwill has an impact on the cost base. Though like land, goodwill shall not be amortised (depreciated), goodwill is part of the capital employed and constitutes as such, a cost of capital. Impacts on the cost base of newly recognised, re- or de-valued existing goodwill need to be disclosed and justified in full.

3.10 Contingent liabilities and contingent assets

“The term “contingent” is used for liabilities and assets that are not recognised because their existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise” (IAS 37.12). This is different from provisions that are recognised as a liability. Consequently, contingent liabilities and assets are not to be recognised (IAS 37.27 and 37.31). However a short description is to be provided in the notes for all contingent liabilities for which any outflow in settlement is not remote and – where practical – an estimate of its financial effect, an indication of the amount and timing of any potential outflow as well as the possibility of any reimbursement should be provided.

Since there is no recognition in the balance sheet and the P & L, there is no impact on the cost base.

3.11 Single European Sky related issues

This section deals with some issues that do not necessarily lead to a different treatment under IFRS than under national GAAP. Nor will they have a special impact on the Principles. The following sub-sections serve just to raise a flag on issues that might develop into ones to be considered differently under present GAAP and IFRS and that might have an impact on the cost base for charges according to the Principles.

3.11.1 *ATM Master Plan (SESAR)*

The ATM Master Plan is going to set out targets of future pan European ATM operations. In the first phase, the future technologies and methodologies will be developed under the supervision of the SESAR Joint Undertaking (SJU) funded by the European Union, EUROCONTROL and other stakeholders.

As was seen in sub-section 3.2.5 certain development costs of intangible assets can be capitalised when specific criteria are met. IFRS prescribes that all other development costs and all research costs shall be taken as costs in the P & L account.

3.11.2 *Joint Venture*

One of the pillars of the SES initiatives is the creation of Functional Airspace Blocks (FABs). These would be Airspaces without necessarily strict national boundaries and overlapping airspace controlled by one or more ANSPs.

These FABs could be “controlled” by Joint Ventures formed between different ANSPs. IAS 31 is the standard to be applied in accounting for interests in joint ventures and reporting of joint venture assets, liabilities, income and expenses in financial statements. The application of IAS 31 could have some effect on the cost bases as one FAB could have one or more common charging zones with a common cost base and single Unit Rate.

3.12 Segmental reporting

A certain limited level of “segmental reporting” for Air Navigation Services is thus required. For non-Air Navigation Services, only “consolidated accounts” need to be provided.

In case entities (read: ANSPs) have equity or debt securities that are publicly traded (or entities that are in the process of issuing such financial instruments) IFRS 8 “Operating Segments” has to be applied. IFRS 8 requires an entity to report financial and descriptive information about its reportable segments. Reportable segments are operating segments meeting specific criteria (equal or exceeding 10% of the reported revenues or reported profit or loss or combined assets, etc.). Further detailed segmental may be required, depending on the internal organisational structure and internal reporting system. IFRS 8 requires segmental disclosure of operating segments, types of products and services, assets, liabilities, costs, income and result for each identified operating segment of significance.

3.13 Incentives

The ATM Master Plan (SESAR) also anticipates implementation of incentive schemes. The treatment of these schemes would be similar to government grants as outlined in the next section.

3.14 Government grants

Government grants are not recognised until there is reasonable assurance that the enterprise will comply with the conditions attached to them, and that the grants will be received. This applies also to non-monetary grants at Fair Value (IAS 20.7).

Government grants are usually awarded to a class of beneficiaries for expenses or losses that they engage in for designated purposes. In some circumstances, a government grant may be provided to an entity as immediate financial support, rather than as an incentive to undertake specific expenditures. In both cases government grants are to be recognised as income of the period in which they are received (IAS 20.20-21).

In line with paragraphs 24 to 31 of IAS 20, government grants are accounted for in the balance sheet and P & L in two possible ways:

- Balance sheet:
 - the grant is recognised as deferred income, or
 - it is deducted from the asset it relates to.
- Income statement:
 - it is recognised as other income, or
 - it is deducted from related costs.

If an ANSP, e.g., gets a grant from the EU to undertake R&D work that cannot be capitalised, the amount of the grant would be deducted from the related R&D costs.

In case government grants are repayable, the provisions of IAS 20.32 have to be followed.

The P & L effects of government grants are directly included in the cost base.

3.15 Research and development

The accounting and reporting treatment of Research & Development programs such as the SESAR Joint Undertaking have been discussed in sub-section 3.11.1.

4 TRANSITION FROM NATIONAL GAAP TO IFRS

A company's (or entity) first annual financial statements in which it adopts IFRS, can occur when:

- A company (or entity) makes a transition from national GAAP to IFRS, or
- A company starts its activities and has to adopt IFRS from the start. This is the case for air navigation service providers that were corporatised and have become members of EUROCONTROL on or after 01.01.2005).

A company that makes the transition from national GAAP to IFRS has to establish at the date of transition an opening balance sheet in accordance with IFRS. This is the starting point for IFRS accounting (IFRS 1.6).

The example in Table 4 below illustrates the differences when making the transition from national GAAP to IFRS and the reconciliation between accounts according to national GAAP and IFRS, respectively. This table shows an example of the transition effects from National GAAP to IFRS.

Table 4: Example of transition effects from National GAAP to IFRS

Reconciliation as of 31st Dec. 2007
Thousands of EUR

	Assets	Liabilities	Equity
National GAAP	300.000	230.000	70.000
Post-employment benefits	- 80.000	60.000	- 140.000
Provisions for pre-retirement		1.000	- 1.000
Capitalisation of development costs	7.000		7.000
Component approach, depreciation	2.000		2.000
Financial leases, towers	12.000	17.000	- 5.000
Financial leases, others	-	-	-
Capitalisation of financing costs	7.000		7.000
Financial instruments		1.000	- 1.000
Bond valuation		1.000	1.000
Securities	1.000		1.000
Other provisions		- 4.000	4.000
Deferred taxes	3.000		3.000
Reclassification	1.000	1.000	
IFRS	253.000	305.000	- 52.000

The example shows the effects of transition from national GAAP to IFRS for a number of balance sheet items and its net-impact on equity. E.g. as result of the transition the assets of item "Post-employment benefits" were devalued with 80 million EUR and the liabilities of that same item were revalued (read: increased) by 60 million EUR. The net-impact of this item shows a decrease of equity by 140 million EUR. The net-effect of all items on equity is shown in the last row of the table.

The total equity under national GAAP accounting would have amounted plus 70 million EUR. Under IFRS accounting the total equity amounts minus 52 million EUR. The total net-effect of the transition to IFRS on equity is a decrease of 122 million EUR. It should be noted that the underlying balance sheet items did not change; only the accounting and reporting changed.

It is obvious that transaction effects have an impact on the cost base, though it should be highlighted that an automatic inclusion of the effects in the cost base is not advocated. Again, adequate disclosure and justification have to be provided before any effect can be included in the cost base.

It is important to know that one-event (or non-recurring) effects on the cost base as result of the introduction of IFRS can be spread over a period not exceeding 15 years (paragraph 2.2.6 of the Principles). This helps the preferred stability of the unit rates.

5 FUTURE ISSUES

The IFRS are “living standards”, continuously under development and under revision. Some future revisions have already been announced, such as the questioning of the difference between operating and financial leases, the accounting for financial instruments, certain aspects of the accounting for post-employment benefits (corridor method, defined contribution plans granted to employees to be recognised at Fair Value, valuation of options to choose the higher of a defined benefit or a defined contribution plan).

6 CONCLUSION

Depending on the specific situation of ANSPs with regard to their currently applicable GAAP or the GAAP applicable prior to their change to IFRS, there may be substantial effects with some impact on the cost base.

The above representations highlight some important areas. However, they cannot cover all possible issues that may appear in dealing with the impact of IFRS accounting on the cost base. The issues dealt with in this paper should provide however, sufficient guidelines how to deal with issues possibly coming up in future or in the case of some ANSPs that have not been covered specifically.

As stated in the introduction to this paper, it is important to bear in mind that any substantial changes to cost base calculations resulting directly from the introduction of IFRS Compliant Statutory Annual Accounts have to be carefully disclosed, considered and justified. Changes, which may be justified, have to be introduced carefully and smoothly, avoiding sudden increases as far as possible and over maximum fifteen years where necessary.

**LIST OF IFRS PARTICULARLY APPLICABLE
TO ATM SERVICE PROVIDERS**

IFRS 1 *	First-time adoption of IFRS
IFRS 2	Share-based Payment
IFRS 3	Business combinations
IFRS 4	Insurance Contracts
IFRS 5	Non-current assets held for sale and discontinued operations
IFRS 6	Exploration for and evaluation of mineral resources
IFRS 7 *	Financial Instruments: Disclosure
IFRS 8	Operating Segments
IFRS 9 *	Financial Instruments
IFRS 10 *	Consolidated Financial statements
IFRS 11 *	Joint Arrangements
IFRS 12 *	Disclosure of interests in other entities
IFRS 13	Fair Value Measurement
IAS 1	Presentation of financial statements
IAS 2	Inventories
IAS 7	Statement of cash flows
IAS 8	Accounting policies, changes in accounting estimates and errors
IAS 10	Events after Reporting period
IAS 11	Construction contracts
IAS 12 *	Income Taxes
IAS 16	Property, Plant & Equipment
IAS 17	Leases
IAS 18	Revenue
IAS 19 *	Employee benefits

IAS 20	Accounting for Government grants and disclosure of government assistance
IAS 21	The effect of changes in foreign exchange rates
IAS 23	Borrowing costs
IAS 24	Related party disclosure
IAS 26	Accounting and reporting by retirement benefit plans
IAS 27 *	Separate Financial Statements
IAS 28 *	Investment in Associates and Joint ventures
IAS 29	Financial reporting in hyperinflationary economies
IAS 31	Interest in joint ventures
IAS 32	Financial instruments presentation
IAS 33	Earnings per share
IAS 34	Interim financial reporting
IAS 36	Impairment of assets
IAS 37	Provisions, contingent liabilities and contingent assets
IAS 38	Intangible assets
IAS 39	Financial instruments: recognition and measurement
IAS 40	Investment property

There are currently 41 standards, of which 26 (in bold) are applicable to ATM domain. For items marked with an asterisk (*), all updates and revisions are pending.

DEFINITION OF CAPITAL EMPLOYED

Capital employed may be defined in terms of the capital invested in the air navigation services organisation or of its assets. The alternatives are:	
Capital Definition	Asset Definition
<p>Total Capital:</p> <p>share capital reserves long-term liabilities current liabilities</p>	<p>fixed assets</p> <p>current assets</p>
<p>Long-term Capital:</p> <p>share capital reserves long-term liabilities</p>	<p>fixed assets</p> <p>net current assets (i.e. current assets minus current liabilities)*</p>
<p>Equity Capital:</p> <p>share capital reserves</p>	<p>fixed and net current assets minus long-term debt</p>

* In some cases the total cost of fixed and current assets can be reduced by non-interest bearing liabilities.

REFERENCE LIST*

- a. Amended Convention, signed in Brussels on 12 February 1981, currently in force, supplemented by the Decisions of the Permanent Commission on the "early implementation of certain provisions in the revised Convention" (Decisions Nos. 71, 72 and 73, dated 9 December 1997).
- b. Revised Convention, signed in Brussels on 27 June 1997 (ratification at national level is in process).
- c. Multilateral Agreement relating to Route Charges, signed in Brussels on 12 February 1981.
- d. Principles for establishing the cost-base for en route charges and the Calculation of the unit rates (Document No. 11.60.01, printed October 2011).
- e. Conditions of Application of the route charges system and Conditions of Payment (Document No. 11.60.02, printed May 2011).
- f. ICAO's Policies on Charges for Airports and Air Navigation Services (ICAO Document 9082, current edition).
- g. ICAO manual on Air Navigation Services Economics (ICAO Document 9161, current edition).
- h. CRCO brochure (The EUROCONTROL route charges system).
- i. Annual Reports on the Operation of the route charges system.
- j. CRCO web site (<http://www.eurocontrol.int/content/route-charges>).

* All these documents are available on request at CRCO or DR/CS/SEC.

