

The Parliament of the Commonwealth of Australia

REVIEW OF THE AUDITOR-GENERAL'S EFFICIENCY AUDIT REPORT  
INTO THE INSTALLATION AND MAINTENANCE OF AIRWAY  
FACILITIES BY THE DEPARTMENT OF AVIATION

Report by the House of Representatives  
Standing Committee on Expenditure

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## CHAPTER ONE

### INTRODUCTION

#### Airways Facilities

1.1 Airways facilities provided by the Department of Aviation (DofA) comprise communication, navigation, radar and emergency services. These facilities are used to provide and operate air traffic control, flight service, operational control, aeronautical information services, search and rescue, airport rescue and firefighting services, aviation security and environmental impact control services. The DofA is responsible for the planning, research, design and provision of these facilities and services over continental Australia and its surrounding airspace.

1.2 The installation and maintenance of the airways system and the provision of the services it enables, represents a considerable investment by the Commonwealth in facilities and running costs. Assets are currently in excess of \$400M and the annual running costs of around \$250M represent about 55% of the Department of Aviation's annual budget.

#### The Efficiency Audit

1.3 The Auditor-General's Efficiency Audit into Airway Facilities was commenced in late 1981 and proved to be something of a comprehensive task, the Report being finally tabled in the Parliament in August 1984. At the Expenditure Committee meeting of 20 March 1985 it was resolved that a review be made of the efficiency audit. The Committee in its subsequent consideration

of the audit has consulted with the DoFA and inspected airways facilities in Victoria, New South Wales and the Northern Territory between April and July 1985.

1.4 The Audit had assessed how the Department of Aviation met its responsibility for providing airways facilities to approved standards at the least cost. Activities investigated were:

- (a) the basis of operational performance standards for airways facilities and review of achievement against standards;
- (b) the maintenance of facilities in relation to relevant plans and standards and efforts to improve efficiency;
- (c) the implementation of facility plans through installation programs for new and replacement equipment and facilities;
- (d) estimation of technical and professional staff requirements, technical training, recruitment of technical staff and management of staff utilisation; and
- (e) inventory management of equipment, spares, stores and other ancillary requisites required for the installation and maintenance of facilities.

1.5 Specific comments on each of the activities evaluated by the Audit Office are provided in Chapter 2.

CHAPTER TWO  
REVIEW OF THE FINDINGS

**Performance Standards for Airways Facilities:**  
2.1 The need for standards is to ensure the availability of the service to the user, for example radar services for air traffic control.

2.2 Broadly, Audit's findings concerning the Performance Standards were:

- the Standards are met but are discretionary in that they are based on Departmental judgements balancing operational requirements against engineering feasibility and cost;
- the Performance Standards give insufficient guidance to engineers in that they are based on operational requirements specified by the operational users such as air traffic control, and as such are not directly translatable into engineering performance parameters; and
- there is room to develop more precise Standards based on engineering parameters which would provide greater cost effectiveness without prejudicing safety standards.

2.3 The Department made the point that out of necessity it had led the world in the introduction of standards for airways facilities.<sup>1</sup> The Committee accepts that such standards would have to be derived empirically in the first instance but that subsequent statistical analysis should enable a more precise definition of actual facility performance. In turn this could mean economies in either maintenance practices or to the extent of back up systems deemed necessary. In practice the whole process has been evolutionary because of the continuing rapid progress of the aviation industry itself. This progress has required a continuous updating of the standards according to both the changing requirements of users as well as the performance of existing or replacement facilities.

2.4 In its submission to the Committee the Department reported making considerable progress in translating the statistical analysis into usable standards and that it had asked the Australian Bureau of Statistics for additional assistance. These latter arrangements have since fallen through and the Department has now entered into a firm liaison with the Bureau of Transport Economics which is currently undertaking the task.<sup>2</sup>

#### Maintenance of Facilities

2.5 Audit drew attention to the need for the Department to develop specific cost targets against which actual performance can be compared and also to the need for Airways Engineering Instructions (AEIs) to be both a valid and timely instrument in accomplishing effective maintenance practices. The Department is progressing these recommendations, the first through their inclusion in the draft National Airways Plan and the second through a regularly scheduled revision of AEI's making use of the Department's word processing facilities.

2.6 Whilst these initiatives are useful adjuncts towards improved maintenance they do not, in themselves, guarantee a cost effective airways system. The introduction of new equipment and the proposed maintenance practices deemed desirable for their operations have necessitated extensive negotiation with staff associations. The Department is currently engaged in consultative proceedings in accordance with the agreed technological change guidelines<sup>3</sup> as part of the process towards securing industrial harmony for the major technological changes that lie ahead.

2.7 Additionally it is surprising to learn, something like a quarter of a century after the average Australian household adopted the transistor, that the DofA is still using obsolete valve equipment in certain of its airways facilities and, on present priorities, it will continue to do so for the next five years. The Department contends that it is saddled with the high

maintenance cost of this outdated equipment because of the constraints of budgetary allocations which limit the rate at which replacement solid state equipment can be purchased. Certainly this is an unsatisfactory situation that should be remedied as soon as possible. The Bosch Report into Aviation Cost Recovery<sup>4</sup> which was tabled in the Parliament a few months after the Auditor-General's Report (i.e. November 1984) included the following recommendation:

Modernisation of the airways system to achieve increased productivity and a reduction in attributable costs should be accelerated. The detailed airways development plan to achieve this should involve consultation with operators and staff associations and should form an integral part of the corporate plan.

2.8 The Committee is aware that the Bosch Report has been adopted by the Government and proposals are being advanced for its implementation. The Committee strongly supports the introduction of more cost effective practices for the maintenance of airways facilities, as an urgent and integral part of any new airways planning initiatives.

#### Appraisal of Capital Investment

2.9 Audit found that the procedures used for appraising the cost effectiveness of replacement or new facilities were neither rigorously nor consistently applied. The main deficiency was the failure to apply discounted cash flow techniques.

2.10 The Department reported to the Committee that it had accepted Audit's findings and had actioned the matter by calling in consultants to prepare a Project Evaluation Manual for the guidance of all departmental staff. This Manual is yet to be finalised and in the interim, Airways Division has adopted discounted cash flow techniques for its own cost/benefit analyses of major projects.

## Technical and Professional Staffing

2.11 Audit recommended that the Department should improve its staff estimating procedures since the formulae in use at the time for these purposes were considered to overstate actual staffing needs.

2.12 The Department recognised the inadequacy of the formulae and has developed in its place the Airways Workload Estimating and Monitoring System (AWEMS) which is a computer-based methodology containing all the elements identified by Audit. Implementation of this system has been somewhat protracted because of the work involved in compiling the necessary data base and the need to involve the unions in an effort to gain consensus for the changes sought.

## Inventory Management

2.13 This area was perhaps the one that attracted the most trenchant of the Auditor-General's criticisms. It has been generally accepted for many years that stock control constitutes one of the most successful applications of the computer to business administration. One of the main reasons for its cost effectiveness is that it can avoid the costly waste of capital otherwise tied up in overstocking to meet a demand that rarely eventuates.

2.14 The Department has not fared too well in inaugurating an effective system; to quote from the Auditor-General's Report:

Between 1962 and 1975 some 28 man-years were spent in systems analysis, programming and the installation of systems, many of which have been subsequently discontinued. Despite this effort supply procedures remained almost entirely manual at the time of the audit. Audit noted that the requirements of the supply function were a major factor in the Department's acquisition of an ICL 4/70 computer in 1970.

Audit considered the lack of ADP facilities for the supply function to be the main impediment to effective inventory management procedures.<sup>5</sup>

2.15 In its response to Audit, the Department advised that:

As a result of the consultancy study of the supply system, it is envisaged that an on-line Australia-wide ADP network for the supply system will be operational by 1986. As an interim arrangement, the Department was seeking to establish a network of 6 mini-computers during 1984 which would enable the benefits available from modern ADP to be applied to the existing supply system.<sup>6</sup>

2.16 The present position is that the interim arrangement using the mini-computers is in place. The Department has acquired the first phase of its General Computing Network and is looking to introduce the on-line national supply system by 1987.

## CHAPTER THREE

### REVIEW OF THE AUDIT PROCESS

3.1 The Committee is satisfied that the audit enquiry into airways facilities was a useful initiative that has achieved worthwhile results. Our only reservation relates to the length of time it has taken. This has dispelled some of the urgency of the enquiry and administratively proved to be something of a burden for the subject department which can also claim, quite reasonably, that it would have instituted many of the reforms in this time span with or without the audit.

3.2 To be effective the audit process seems to need a combination of incisiveness and timeliness which appears to proscribe consideration of such large scale subjects as the airways system, unless appropriately large scale audit resources can be brought to bear on it with a view to an effective and early result.

3.3 Despite difficulties which may be inherent in such an approach, the Committee nevertheless favours an overall appraisal at least in the first instance to obtain an overview of management strategies and at the same time identify specific areas as suitable subjects for later investigation. In practice this is broadly the approach that the Audit Office has adopted towards efficiency audits, that is audits of particular programs or particular areas of a department, as distinct from the more routine auditing of government expenditure and the statutory authorities.

3.4 The Auditor-General in giving evidence to this Committee on 13 March 1986<sup>7</sup> explained that selection is first made of a program or area that appears to merit investigation of its administrative effectiveness. A diagnostic study is then done to see whether the area is in fact administratively effective or

if there are aspects that should be questioned. If there are, the audit team goes in and makes its specialised investigation, conferring as necessary with the auditee's senior management to produce tentative findings which in turn are developed into a formal proposed report to which the auditee has formal right of reply. Ideally this whole process should be finalised in under twelve months although in the past many efficiency audits have taken much longer - this particular one into airways facilities being a good case in point.

3.5 However it would seem that by maximising its own resources and the gradual familiarisation of client departments with its processes, Audit is hopeful of a much quicker and more effective pattern of audit operations which will achieve the desired short, sharp and ultimately, fairly regular, pattern of inquiries which should greatly improve the administration of government. The Auditor-General in his remarks<sup>8</sup>, pointed to the audit process itself as raising the consciousness of departmental executives to the need for effectiveness and efficiency in their own organisations and there are obvious advantages in inculcating such a spirit throughout the administration of the Public Service.

3.7 The Committee has also noted the manner in which the Table of Audit Recommendations in the Airways Facilities Report has been laid out with the departmental response alongside and recommends this approach wherever possible for purposes of clarity and comparison.

3.8 The audit has been completed at a time when proposals are being put forward for the large scale modernisation of the airways system following on from the recommendations made by the Bosch Report into Aviation Cost Recovery. As a result of this Efficiency Audit we can therefore be more confident that the proposals for modernisation will be soundly based.

May 1986

J.G. Mountford  
Chairman

END NOTES

1. Department of Aviation submission to Expenditure Committee dated 18 July 1985.
2. Correspondence: Bureau of Transport Economics (G.K. Reid) - Department of Aviation dated 26 March 1986.
3. Department of Aviation Procedures for the Introduction of Technological Change endorsed by Department of Aviation National Consultative Council, December 1985.
4. Report of the Independent Inquiry into Aviation Cost Recovery - AGPS Canberra November 1984.
5. Report of the Auditor-General on Efficiency Audits para 2.5.7. (page 32).
6. Ibid (page 32).
7. Standing Committee on Expenditure (Sub-committee) - 'Review of efficiency audits of the Australian Taxation Office' Hearings, Canberra, 13 May 1986 Hansard (page 212).
8. Ibid (page 213).