Attachment 3

AVIATION SAFETY REGULATION COSTING & PRICING

Recommendations for

a Funding Strategy

December 1993

ANDERSEN CONSULTING

AVIATION SAFETY REGULATION

COSTING AND PRICING PROJECT

Recommendations for a Funding Strategy

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EXECUTIVE OVERVIEW AND SUMMARY OF RECOMMENDATIONS

Introduction

The Directorate of Aviation Safety Regulation (DASR) is the division of the Civil Aviation Authority (CAA) which has responsibility for promoting a safe aviation industry through regulation, as defined in the Civil Aviation Act.

Following the recommendations of the Independent Inquiry into Aviation Cost Recovery (the "Bosch Report"), which were to increase the level of recovery of the costs of aviation safety regulation, there has been debate between industry and the Government as to the funding arrangements for DASR. The Government's current position is that general taxation will fund 50% of the cost of standard setting and compliance to a maximum of $22.8 million (index-linked), with the balance to be recovered from industry. This decision is to be implemented by 1 July 1995, and will result in an increase in the industry's contribution from $14.5 million this financial year to $38.0 million at current costs.

Over the last two years, the CAA has proposed a number of cost recovery options to industry, including an aircraft registration levy, annual licence fees and taxation measures. Following strong opposition from industry, these proposals were withdrawn. Research into how other countries fund aviation safety regulation has not identified any solutions that can readily be applied to Australia.

In August 1993 the CAA decided to undertake a detailed project to review the costs of aviation safety regulation and identify the options available for cost recovery. The overall objective of the project was to recommend, to the management of the CAA, a long term funding strategy for aviation safety regulation.

Andersen Consulting was selected by the CAA to assist in the project, and Swedavia, a subsidiary of the Swedish Civil Aviation Administration, also gave advice on the safety impact of the different funding options. The project team was directed to focus on developing an equitable means of recovering funds from the industry without addressing the broader concerns of industry about the role and methods of DASR.

Cost Model

The first task of the project was to review the allocation of DASR's costs and build a cost model that provided fully allocated costs of the activities of regulation. The project team, with DASR management, agreed upon a definition of services* that represents the output of DASR, and a definition of how the industry was divided into industry participants and industry sectors.

The cost model, using detailed activity-based allocation methods, identified the costs of each of DASR's services and, based on management surveys, estimated the costs of regulating the groups of participants and sectors. The costings from the model are a central input to the funding decisions discussed later in the report. The costing activity has introduced additional rigour into the allocation of costs within DASR and provides a management tool to support future strategic pricing decisions.

Pricing Principles

The second stage of the project considered how to fund the different regulatory services recorded in the cost model. This required development of a set of pricing principles that link DASR's services to the beneficiaries of regulation and determine the options for funding. As an industry participant has no choice about being regulated - other than to leave the industry - DASR must be able to demonstrate that a service charge relates to both some benefit received and to the costs of service provision.

The team identified three key beneficiaries: the general public, the travelling public and the industry participants. A set of funding options was created by establishing the link between each of the beneficiaries and categories of DASR's services. In each case the services are funded by the *primary* beneficiaries subject to the subsequent tests of overall equity and the impact on safety.

The categories of services defined for DASR are safety regulation infrastructure, requested services, entry control and licensing, and compliance. The safety infrastructure regulation services are fixed costs which do not vary with industry size. Costs for the other categories vary proportionately with the number of industry participants.

** The word "services" is used here and throughout the report to refer to the outputs of safety regulation. This includes services provided in response to a request from industry and the mandatory activities, such as surveillance, which are performed at the discretion of the CAA.*

The funding options provide target cost recovery levels through the mechanisms of user charges, licence fees, industry taxation and general taxation. Industry taxation is to be raised in two ways: firstly, to reflect the benefits received by the travelling public, giving a profile of contribution linked to passenger volume, and; secondly, in relation to the amount of regulation received, which collects proportionately more from the low passenger volume sector of the industry.

Safety and Legal Considerations

The application of the pricing principles created a first iteration of the funding strategy which was then tested against some practical considerations. The most important consideration was to ensure that the method of cost recovery would not reduce safety levels within the industry and that every opportunity is taken to reinforce good safety practices. To fully explore the impact on safety, the team performed a detailed analysis of the different funding options on each of DASR's services.

The analysis identified a number of funding options which have a negative impact on safety:

- full cost recovery of some requested services (e.g. maps and charts);
- charges for surveillance, either calculated by the hour or closely linked to the surveillance visit; and
- very high prices for licences and certificates.

In addition, it was noted that effective safety regulation can only take place if the active industry participants are known and regularly monitored. The introduction of licence renewal fees would support this process.

Swedavia have reviewed the safety impact analysis and agree with the conclusions made by the project team.

The Civil Aviation Act and the Constitution impose legal constraints on the funding options that can be implemented. Overall, the pricing principles are consistent with the legal requirements and no major modification to the first iteration of the funding strategy is required.

Funding Strategy

The pricing principles provide a broad framework for the strategy, and safety considerations have resulted in some restrictions on the possible solutions. The recommended strategy is a mix of user charges, licence fees, industry taxation and general taxation that recovers the cost of aviation safety regulation in accordance with the cost of each of DASR's services. The strategy is summarised in Figure A.

Figure A
Summary of Funding Strategy

DASR Services	Cost $m	Beneficiary ($m)				
		General Public	Travelling Public	Industry Participants: Tax	Industry Participants: User Charge	Industry Participants: Licence Fee
Safety Regulation Infrastructure	17.4	17.4				
Requested Services	8.0		1.2 (a)		6.8	
Entry Control and Licensing	8.5(b)		4.3			4.2
Compliance Activities						
- Planned surveillance	12.3		9.2			3.1 (c)
- Unplanned surveillance	6.4 (d)	3.2	3.2			
- Advice on regulatory reqs	5.3 (d)	2.7		2.6		
- Prosecution and admin action	0.5	0.5				
Total	58.4	23.8	17.9	2.6	6.8	7.3
Adjustments						
- Govt contribution limit (e)		(3.7)	3.7			
- International operators contribution in lieu of fuel tax (f)			(2.5)	2.5		
- Govt's remote community subsidy (g)		0.3	(0.3)			
Funding Strategy	**58.4**	**20.4**	**18.8**	**5.1**	**6.8**	**7.3**
	Revenue $m	**General Taxation**	**Fuel Tax**	**A/C Reg Tax**	**User Charges**	**Licence Fees**
		Funding Mechanism ($m)				

Source: Team analysis

Notes:
(a) industry tax covers costs where safety issues arise
(b) 50-50 split between beneficiaries
(c) 25% of planned surveillance; limited by safety
(d) 50-50 split between beneficiaries
(e) Government's calculation limits contribution to $20.1 million
(f) by international convention, international operators do not pay fuel excise
(g) part of Government's formula announced in August 1992 statement

User charges are applied to the services contained in the requested services category, subject to the restriction that, in some circumstances, safety concerns arise if prices increase above those currently charged. In particular, the price of maps and charts introduces safety issues, and the recommendation from the safety impact analysis is that prices should be reduced slightly. A review of each service in turn has targeted an additional $0.9 million to raise the contribution of requested services from its current level of $5.9 million to $6.8 million. This equates to recovering 85% of costs, leaving $1.2 million to be collected through industry taxation as a result of safety considerations.

Overall, the fees for licences, examinations and certificates will recover half the costs of administration. The remainder of costs is to be funded by the travelling public, who are a joint beneficiary of controlling entry into the industry to maintain the required standards. In addition, where surveillance is regularly planned for a licence or certificate holder, then a proportion of the surveillance cost will be recovered through a licence renewal fee, limited by safety considerations. The combination of planned surveillance and the on-going costs of administration associated with licence holders results in the introduction of renewal fees for almost all licence and certificate holders. Based on a number of scenarios calculated by the team and by reference to the safety impact analysis, the renewal fee for Air Operator Certificates, Certificates of Approval and airport owners has been set at 25% of the total cost of planned surveillance. Cost recovery from licences and certificates is to be increased from its current level of $3.4 million to $7.3 million.

According to the pricing principles, the Government contribution through general taxation is to be set against the services included in safety regulation infrastructure, a proportion of unplanned surveillance and advice on regulatory requirements. The total cost of these activities is $23.8 million, which has to be set against the planned contribution of $20.1 million , calculated using the Government's current formula, (excluding the $0.3 million remote communities subsidy). It is proposed that the balance of $3.7 million is to be funded from industry taxation. This raises the question of whether the Government formula should be changed to reflect the conclusions drawn in the report.

The proposed method of industry taxation is a combination of a domestic fuel tax on avtur and avgas, giving a total of $18.8 million, and an aircraft registration tax, recovering $5.1 million. The fuel tax is equivalent to an surcharge of approximately 1.0 cents per litre on fuel. The fuel tax raises revenue in a profile closely related to the number of people on board an aircraft. The aircraft registration tax has been set to collect an even contribution from all sectors of industry.

Economic Impact

The Government's decision to reduce its general taxation contribution toward aviation safety regulation results in industry having to provide an additional $23.5 million (to a total of $38.0 million) in funds when the strategy is fully implemented in the 1995/96 financial year. This sum will increase the operating costs of companies and, to varying degrees, reduce their profitability to the extent that some of these costs are not recovered from their passengers or customers. It was not possible to perform a full economic analysis that estimated the resulting changes in size and composition of the industry due to lack of industry data and, by necessity, the project team's work was restricted to analysing the incidence of the funding strategy on industry participants and then drawing some high level conclusions on the broader economic impact.

Based on the economic analysis performed by the team, it is estimated that the total cost recovered from industry to fund aviation safety regulation adds between 0.2% and 1.3% to an organisation's operating costs, with small commercial organisations having the largest relative contribution. In absolute dollar terms, the high capacity air transport sector (including the passenger contribution) provides the major portion of funds amounting to over $20 million of the required industry contribution of $38.0 million, although this typically amounts to less than 0.4% of their total operating costs.

Implementation

Before the funding strategy recommended in this report can be implemented, a substantial amount of work will need to be performed by DASR and other areas of the CAA to refine the strategy and prepare for implementation. The major activities are:

- arrange for the review and approval of the recommended funding strategy by the CAA executive management, the CAA Board and the Government;
- undertake a broad based industry consultation program;
- calculate detailed charges and rates of taxation;
- formulate transition arrangements; and
- change DASR's management procedures and systems and develop support and understanding amongst DASR staff for this strategy.

The lead times associated with changes in legislation do not allow for the aircraft registration tax or licence renewal fees to be introduced in time to fully replace the reduction in Government contribution planned for 1 July 1994. Therefore, either alternative funding arrangements, for example an increase in fuel tax *beyond* that recommended in the strategy, must be made for the financial year 1994/95, or the Government will need to review its phase-in arrangements for the reduction in general taxation contribution.

SUMMARY OF RECOMMENDATIONS

A summary of recommendations contained in the funding strategy are:

	Increased Revenue $ million
• user charges to be increased where no adverse safety impact will occur	0.9
• initial issue and renewal fees to be introduced for licences and certificates to cover full costs of administration and 25% of planned surveillance	3.9
• increase safety regulation fuel tax on avtur and avgas to 1.0 cents per litre	14.9
• introduce an aircraft registration tax	5.1
Less: removal of interim measures	(1.3)
Total Increase	23.5

The increase in funding, when added to the current revenue from charges and fees and the proposed Government contribution of $20.4 million, covers the $58.4 million budgeted costs of DASR.

The report also includes a number of recommendations concerned with implementation:

- perform a broad based consultation program with industry on the funding strategy;

- review the method of calculation for the Government's contribution, consider making it consistent with the approach suggested in the funding strategy, and increase the government contribution from $20.4 million to $23.5 million;

- review the possible transition arrangements and consider altering the Government's phase-in contribution to provide an additional $4.5 million in 1994/95; and

- change DASR's administration procedures and systems to accommodate the new funding methods introduced by the strategy.

1. BACKGROUND

DASR's Objectives and Responsibilities

The objective of the Directorate of Aviation Safety Regulation (DASR), which is a division of the Civil Aviation Authority (CAA), is to provide a safe environment for all users of the aviation system. It achieves this by setting standards for the industry, and ensuring that existing licencees meet those standards by means of a surveillance program. New entrants to the industry are also required to demonstrate their ability to comply with standards prior to being licensed. In addition, DASR provides services to the industry such as distributing publications and giving expert advice.

Regulatory responsibilities and functions of DASR are set by the Civil Aviation Act, and further expressed in the Regulations under the Act. Changes to the role of DASR require amendments to the Act, which involve the approval of Parliament.

The Director of the Directorate of Aviation Safety Regulation and the management team interpret the provisions of the Act to define the methods and procedures for regulatory activities. This includes the organisation of the Directorate and the deployment of resources. Not all of the participants in the aviation industry accept the role of DASR and the way that it sets the safety standards and regulates the industry. Increased cost recovery from the industry has sharpened opposition to the current regulatory framework and it is argued by some in the industry that costs could be reduced both by greater devolution of regulatory activity to the industry and improved efficiency from DASR.

The legislative mandate given to DASR and the consequential relationships between DASR, the aviation industry and users of the aviation system, create the differing views of how safety regulation should be performed and how DASR should be funded.

Cost Recovery of Safety Regulation - A Complex Problem

Developing a strategy for the aviation industry to pay a significantly increasing share of total safety regulation costs is a complex problem. The Australian aviation industry is not homogeneous, and the question of safety regulation is made more difficult because of the seemingly conflicting expectations among the different sectors in the industry, DASR and government.

The more important specific conflicts and tensions that have a bearing on cost recovery are:

- all sectors of the aviation industry are reluctant to fund an increasing share of safety regulation costs but the Government has a long-term aim of reducing support for the CAA;
- some sectors of the aviation industry argue for increased self-regulation and a less intrusive role by DASR, but the Government and the general community have high expectations that DASR will maintain safety standards;
- the stability and financial strength of industry participants varies greatly, with some sectors marginally profitable at best;
- increased cost recovery from industry will place DASR's efficiency and approach to regulation under greater scrutiny by industry participants; and
- safety is a highly emotive issue which, for some DASR staff and industry participants, cannot be readily subjected to commercial management.

Funding and Planning Uncertainty

Until recent years, the function of regulating the aviation industry has been substantially funded by the Government. In November 1984, the Report of the Independent Inquiry into Aviation Cost Recovery (the "Bosch Report") first introduced the principle of increased cost recovery from the aviation industry, with the recommendation that the industry meet the cost of "implementing" safety standards, while standard setting and "enforcement" would continue to be funded by the Government. In terms of that recommendation, the industry was to progressively increase its funding of the costs of implementing standards over 10 years, and to achieve full cost recovery by 1 July 1995.

The Government has subsequently taken a number of different views on the funding of safety regulation. In August 1990, the Government decided that the industry would fund the *total* costs of safety regulation. This decision resulted in strong protest from industry, and in the 1992/93 Budget, the Government adopted its current position that general taxation will fund 50% of the cost of standard setting and compliance, up to a maximum of $22.8 million (index-linked), with the balance to be recovered from industry. The decrease in government funding is being phased-in from 1 July 1993 with full implementation by 1 July 1995.

The Government confirmed its decision to the CAA in August 1993 and the details are summarised in a paper from the Department of Transport and Communications contained in Appendix 1. The phasing-in arrangements are shown in Figure 1.1 below.

Figure 1.1
Sources of Safety Regulation Revenue

	1992/3 $ m	1993/4 $ m	1994/5 $ m	1995/6 $ m	Change 92/93 to 95/96 %
Industry Contribution					
Taxes	-	3.9	31.6[b]	38.0[b]	
Other	9.2	10.6			
Sub-total	9.2	14.5	31.6	38.0	+313
Government Subsidy Payment	50.9	42.2[a]	26.8[a]	20.4[a]	- 60
Other	-	1.7[c]	-	-	-
Total	**60.1**	**58.4**	**58.4**	**58.4**	

Source: *Team Analysis*
Notes: *(a)* *Based on estimates arising from Government's Budget announcements*
(b) *Tax/charge mix to be determined*
(c) *Reflects difference in costs due to timing differences between formulation of 1993/94 budget and introduction of proposed interim arrangements*

To implement the Government's decision, the CAA first proposed legislation to introduce an aircraft registration levy. In the face of industry opposition to the Government's decision on funding, this proposal was not implemented. In the first half of 1993, the CAA put another proposal to industry that annual fees on licences be introduced as a mechanism for industry to pay its increased share of compliance costs. It was envisaged that these fees, linked to the cost of scheduled surveillance, would be payable by operators (air operator certificate holders), maintenance organisations (certificate of approval holders) and aerodrome owners. Industry again strongly opposed this option and it was withdrawn.

The reduction in Government funding has already begun to be implemented this financial year (1993/4). To generate an additional $4.5 million required from industry, an interim funding arrangement is in place, combining an excise charge of 0.264 cents per litre on domestic consumption of aviation gasoline (avgas) and aviation turbine (avtur) fuel, with payment by Australian-based international operators of a special fee to cover costs associated with the regulation of internationally operated aircraft that are registered in Australia.

Overseas Experience

At the start of the project, the team contacted Civil Aviation Authorities in other countries to identify potential strategies for recovering the cost of safety regulation from the aviation industry. Summary details of arrangements in Canada, New Zealand, United Kingdom and the USA are recorded in Appendix 2.

A few countries have commenced implementation of strategies for cost recovery. New Zealand adopted a policy whereby industry pays for much of the cost of safety regulation. Initial measures, closely linked to the direct recovery from industry participants at the time of providing regulatory activities, seem to have failed. Further work is currently underway in New Zealand to establish an acceptable long-term mechanism for recovering safety regulation costs from industry. The United Kingdom CAA also recovers a substantial amount of its regulation costs from industry taxation and high licence fees. However, the smaller general aviation sector in the UK makes it inappropriate to draw conclusions for the Australian aviation industry.

Research by the project team has shown that most countries fund aviation safety regulation through taxation measures. For example, the USA uses passenger taxation and fuel excise and Transport Canada is fully funded from general taxation by the federal Canadian Government.

The review of overseas practice revealed no ready answer to the problem of the aviation industry paying an increasing share of total safety regulation costs in Australia. Indeed, many countries are watching as Australia and New Zealand pave the way in this area of cost recovery.

2. PROJECT FRAMEWORK

Requirement for the Costing and Pricing Project

In August 1993, the CAA decided to undertake a detailed study of the cost of safety regulation and of the options available for recovering this cost.

The need for this study became apparent earlier in 1993 as the CAA's management addressed a range of issues concerning the formulation and delivery of aviation safety regulation by the CAA. Included among these issues was the need to more rigorously address the funding options required to implement the Government's decision of reducing its payments to the CAA for aviation safety regulation. Previous attempts at defining methods for increased cost recovery had met with strong industry resistance and were not implemented by the Government. The unresolved issue of funding has created a degree of uncertainty within the industry and amongst DASR staff and management, particularly concerning the extent to which funding methods would have had an adverse impact on the Authority's ability to regulate the industry, and on the financial implications for the industry itself.

The Terms of Reference for the project are set out in Appendix 3.

Andersen Consulting was selected by the Authority to assist it to undertake the project. Swedavia, a subsidiary of the Swedish Civil Aviation Administration, was also asked to assist the project team with an analysis of the impact on safety of the different funding options. Appendix 4 shows the organisation of the project team.

Objectives and Assumptions

The overall purpose of the project is to recommend a long-term funding strategy for aviation safety regulation that replaces the reduction in the general taxation contribution from the Government with an increased contribution from industry. The output of the project is a set of recommendations to CAA management, who will further discuss its contents with industry participants and the Government to facilitate a decision on the future funding strategy.

The objectives, as contained in the Terms of Reference, are to:

- identify and allocate costs incurred by the CAA in undertaking safety regulation of the aviation industry;

- review and formulate options for assuring funds to cover these costs;

- assess legal considerations and the economic and safety impact of these options; and
- recommend to CAA management a long-term funding and pricing strategy for recovering total safety regulation costs.

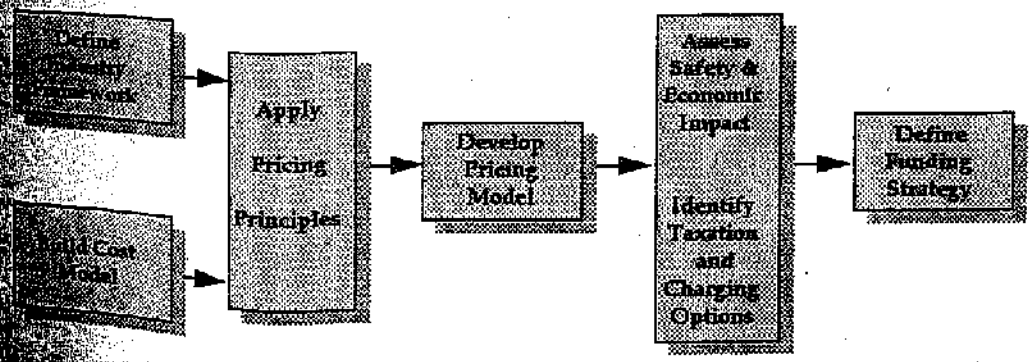
The project team has been directed to focus on developing an equitable means of recovering funds from the industry, assuming that there are no major changes to DASR's activities. The broader issues concerning the methods of aviation safety regulation and the organisation and efficiency of DASR are outside the scope of this project. The assumptions adopted by the team are:

- the Government's decision on its funding of safety regulation, as announced in its August 1992 Budget, and confirmed in the August 1993 Budget, is not open for negotiation;
- the strategy and mechanisms adopted to assure the recovery of the total costs of safety regulation will not, in themselves, change DASR's activities or the CAA's approach to undertaking its legislative mandate to regulate the industry;
- DASR's cost structure will not change significantly over the next few years; and
- the annual planning objective for CAA management is for revenue generated by the various cost recovery measures, including payment by the Government, to match forecast safety regulation costs.

Approach

The approach followed by the project team for its study is illustrated in Figure 2.1.

Figure 2.1
Project Plan



Consistent with the Terms of Reference, the first task was to build a cost model that calculated the fully allocated costs of the activities performed in aviation safety regulation. This started with a review of internal financial management information to assess the existing allocation of costs within the CAA. The review addressed the accounting treatment of cost data and did not question the efficiency or effectiveness of the operations. Based on a definition of DASR's services[1] and the structure of the aviation industry, the cost model provides a detailed assessment of how DASR's costs are expended in regulating the industry.

The second task was to determine the pricing principles that would lead to an equitable means of recovering costs from the industry. The team considered it important to address the theoretical aspects of funding to establish a defensible platform for the strategy. The pricing principles led to the first iteration of the pricing model and the creation of a number of funding options.

The nature of safety regulation required the team to assess the effects of the strategy on both the safety and economics of the industry. An overriding objective has been to ensure that the strategy does not, as a result of the charging methods, reduce aviation safety and, therefore, detailed attention was given to this part of the project. In addition, the team was also required to review possible funding options against the legal constraints contained in the Civil Aviation Act and elsewhere. This resulted in a number of constraints to the funding options being considered.

Finally, identification and analysis of the taxation and charging options led to the definition of a recommended strategy to address the funding of DASR in the long term. The strategy provides target revenues for user charges and licence fees, and defines the mechanism and level of industry taxation. The team has also defined the major activities needed to implement the strategy. Included in this are transition arrangements that will be needed until all elements of the strategy are in place.

The approach has provided a clear separation between the two streams of the project - costing and pricing. As illustrated in Figure 2.2 overleaf, costing involves the division of DASR's costs into a number of services which are supplied to the industry. The industry is defined by the participants, which includes the organisations and individuals that interact with DASR, and the sectors of the industry, which describe the different scale of operations from high capacity air transport through to private aviation.

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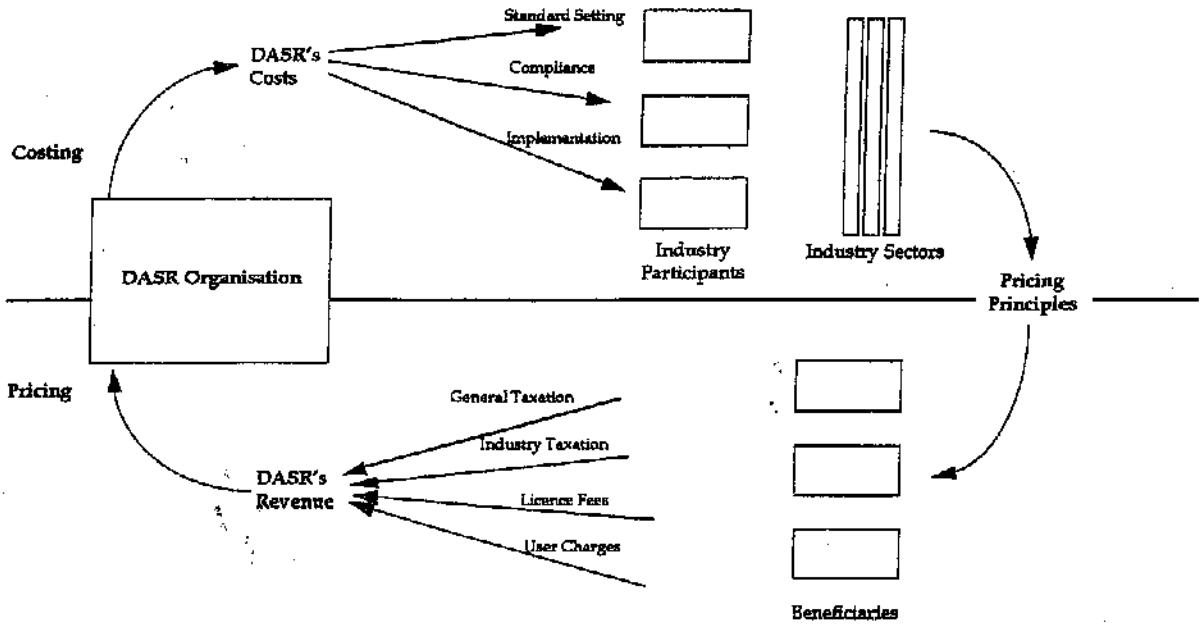
[1] *The word 'services' is used here and throughout the report to refer to the outputs of safety regulation. This includes services provided in response to a request from industry and the mandatory activities, such as surveillance, which are performed at the discretion of the Authority.*

Figure 2.2
Overview of Approach



Pricing requires recovering funds from the beneficiaries of aviation safety regulation through general taxation, industry taxation, licence fees and user charges such that the costs of DASR are fully recovered. The pricing principles, which provide the link between costs and prices, have considered a broad definition of the beneficiaries of safety regulation. It does not necessarily follow, therefore, that the costs of regulating an industry participant should be specifically funded from that participant.

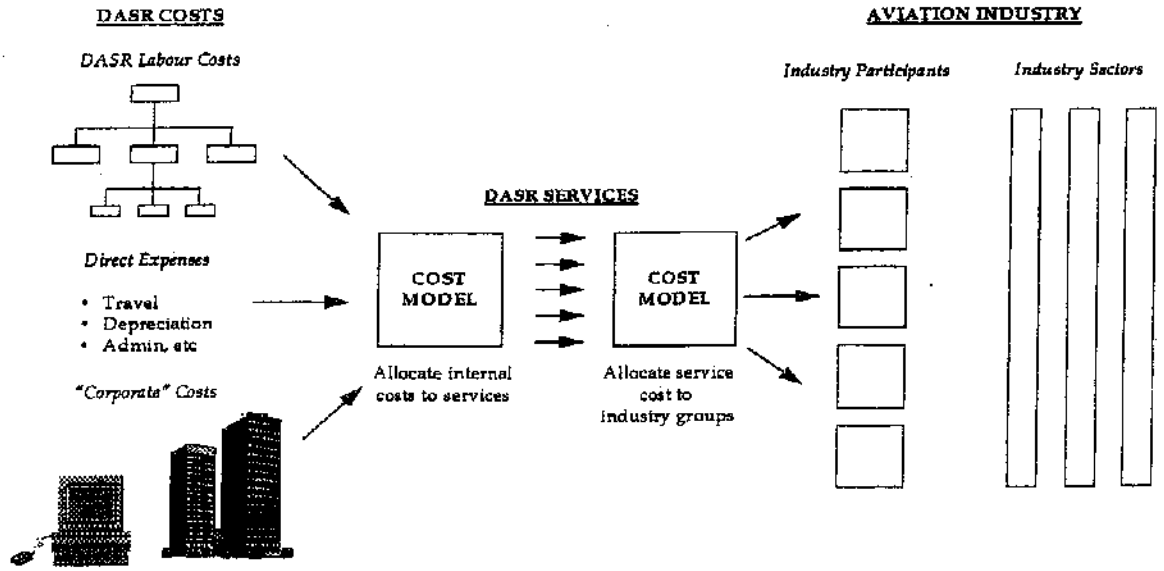
3. COST MODEL - DASR'S ACTIVITIES AND COSTS

Overview of Cost Model

The starting point for the project was to build a cost model that takes cost information from DASR's management information systems, incorporates a further review of the basis for allocating costs, and calculates the fully allocated costs of DASR's services. The costings from the model become an input to the pricing decisions discussed later in the report.

The structure of the cost model is shown in Figure 3.1. The first part of the model takes the different cost categories and, using activity-based costing methods, allocates the costs to the range of DASR's services. As a further step, the cost model, using allocation data based on surveys of DASR activity and interviews with management, provides an estimate of the costs of regulating industry participants and industry sectors.

Figure 3.1
Overview of Cost Model



Appendix 5 provides a detailed description of the cost model and includes summary spreadsheets. The full cost model, which has been submitted to the CAA's management, is bound in a separate document.

The modelling activity required matching operational information of how DASR is organised in regulating the aviation industry with financial data from the management and accounting systems. The tasks involved in building the cost model were:

- audit of internal costs identified in the budget;
- allocation of internal costs to DASR's services; and

- allocation of service costs to industry participants and sectors.

DASR's Internal Costs

The first task in building the cost model was to review the quality of the existing cost information and to examine issues such as whether the allocation of CAA corporate overhead costs to DASR was appropriate. This resulted in an audited set of internal cost data for input into the model.

DASR's costs, as recorded in the management systems, are divided into three categories:

- labour, which is the salary and other costs associated with DASR staff;
- direct expenses, which are travel, equipment and other costs that can be directly attributable to regulatory tasks; and
- overhead costs, which are management and administrative costs at both DASR and the Corporate level.

Figure 3.2 shows the breakdown of DASR's costs. Almost 55% or $32 million of total costs are labour related, making the staff costs in the organisation the largest expense by a significant margin. Of the $32 million, about half is direct labour as recorded by the management reporting systems. Other large expenses include office accommodation at $4.9 million, travel at $3.3 million, administrative expenses at $3.7 million, DASR management support costs at $2.7 million and corporate overheads at $1.9 million.

Figure 3.2
Budgeted Costs by Cost Type

Cost Type	Budgeted Cost $ m	Budgeted Cost as % of Total
DASR Labour Costs	32.0	55%
DASR Non-Labour Costs		
- Travel	3.3	6%
- Materials & Equipment	3.1	5%
- Services & Contracts	1.7	3%
- Administrative	3.7	6%
- Repairs & Maintenance	0.4	1%
- Occupancy	4.9	9%
- Telephone	0.9	1%
- Information Systems	3.0	5%
- Support Costs	2.7	5%
- Other	0.8	1%
Corporate Overhead	1.9	3%
Total	**58.4**	**100%**

Source: DASR budget

DASR is organised into eight branches, located in its headquarters building in Canberra, and 16 district offices at airports and aerodromes around Australia. The district offices report into the three regions of South East, North East and West. The branches undertake activities such as standard setting, certification and continuing airworthiness work that, by their nature, are centralised, and support functions such as finance and training. The district offices have the day-to-day contact with the industry and most of their time is spent on surveillance activities and the provision of regulatory services to industry. The organisation structure and costs are summarised in Figure 3.3.

During the Costing and Pricing Project both the central and regional organisations were under internal review. Clearly, if changes are made to DASR's organisation, then the cost structure will be affected and the cost model will need to be substantially reworked to take account of the new cost structure. The organisational reviews are unlikely to affect the definition of services, industry participants or industry sectors.

The largest component of DASR's costs are staff costs, and therefore identifying how people spend their time is critical to establishing accurate costs. Almost all staff complete time sheets on a fortnightly basis, allocating their time to a list of over 200 activity codes as part of a system called the Field Office and Management Information Support System (FOMISS). This data has been used as the primary method of cost allocation in the model which, for the purpose of this study, relied upon FOMISS activity data for the months of July and August 1993.

Figure 3.3
DASR Organisation, Headcount & Costs

DASR Organisation	Headcount as at 30 Nov 93	Budgeted Cost 1993/94 $m
General Manager & Staff	2	0.4
Human Resource Management	15	1.8
Financial Control Unit	8	0.6
Legislative Development	14	1.1
Standards Development	20	1.8
Personnel Licensing	42	3.3
Airworthiness & Operations	71	5.4
Quality Management Unit	11	1.0
Information & Communication Branch	50	8.0
South East Region	141	12.8
North East Region	62	4.9
West Region	70	5.9
DASR management costs and corporate overhead		13.4
Less: adjustment to budget		(2.0)
Total	**506**	**58.4**

Source: *DASR budget*

FOMISS is used to differing degrees of detail and attention in the various branches and regions in DASR. In some cases, FOMISS information is used actively to manage staff's day-to-day activities and provides an accurate assessment of how DASR staff spend their time. In other cases, FOMISS forms are filled in retrospectively with little review by management, resulting in some misrepresentation of time allocation. In addition, as FOMISS data is used for invoicing, there have been suggestions that DASR staff do not always record the full time spent on the provision of regulatory services, which are charged for on an hourly basis and, as a consequence, the data underestimates the time dedicated to regulatory services.

In the project team's assessment , FOMISS data is sufficiently accurate to be the primary allocation method of the model for direct labour cost incurred by DASR. The services defined in the model are at a high level and many of the variations or errors are averaged or disappear as the FOMISS categories are summarised. The cost model has been reviewed for accuracy by DASR management and the issues that were raised have been investigated and resolved to the degree that they have not made a material difference to the output of the model. In some cases, management estimates of how people spend their time have been used in preference to FOMISS. The final chapter of the report contains recommendations on developing the accuracy of FOMISS.

In the process of building the cost model, direct expenses and overhead categories have been researched in detail to identify how these costs are incurred and to ensure that they are apportioned correctly to the branches and regions. For example, office accommodation costs have been allocated based on rent of the different buildings and floor space used, and computer costs have been allocated based on system transactions.

DASR's Activities

To support the pricing decisions, the cost model needed to be based on an ***external*** view of DASR's activities. This required dividing DASR's activities into a small number of tasks or services that provide a full description of the role of DASR as perceived by the aviation industry.

The list of services used for the costing and pricing project and the fully allocated costs of these services are shown in Figure 3.4 on the next page, under the headings of standard setting, compliance and regulatory services.

In **standard setting** DASR defines the standard that must be met by the different industry participants to achieve the appropriate levels of safety. There is a large technical component to this work involving engineers, pilots, inspectors and other specialists. As DASR's activities are mandated by legislation, many of these standards require legal drafting to be incorporated into the Civil Aviation Act and the Civil Aviation Regulations, both of which are legal documents that can be tested in a court of law.

Compliance activities are all those tasks which DASR carries out to ensure that standards are met. The services in this category include **safety promotion and communication** to all industry members and specific **advice on regulatory requirements** to individuals or small groups. Surveillance involves the review of airlines, maintenance organisations and licensed individuals to actively ensure that standards are being adhered to. This is divided into **planned surveillance,** where an inspector will visit a company based on an overall program of visits to aviation organisations, and **unplanned surveillance, investigations and enforcement**, where the visit is prompted by a report from within DASR or a third party. Persistent failure to meet the standards results in **prosecution and administrative action**.

Figure 3.4
DASR Costs by Service

		$M		$M
Standard Setting				
1.	Standard Setting	7.8		
Compliance				
2.	Safety Promotion and Education	3.5		
3.	Advice on Regulatory Requirements	5.3		
4.	Planned Surveillance	12.3		
5.	Unplanned Surveillance, Investigations and Enforcement	6.4		
6.	Prosecution and Administrative Action	0.5		
7.	Airworthiness Analysis and Directives	4.0		
8.	Flight Manuals (a)	0.4		
Regulatory Services				
9.	Personnel Licences and Ratings	6.2	Airworthiness Examinations	0.6
			AME Licences	1.2
			Airworthiness Authorities	0.2
			Flight Crew Licences	2.7
			Flight Crew Examinations	1.3
			Instruments of Appointment	0.2
10.	Certificates	0.7	Air Operators Certificates	0.3
			Certificates of Approval	0.3
			Aerodrome Licences	0.1
11.	Aircraft Registration and Certificates	1.6	Certificate of Type Approvals	0.6
			Registration of Aircraft	0.6
			Certificates of Airworthiness	0.4
12.	Approvals and Permits	1.2	Manufacture and Maint. Approvals	0.8
			Flying Permits	0.4
13.	Publications	5.3		
14.	Expert Advice & Other Services	1.1	Expert Advice	0.3
			Other Services	0.8
15.	Aeronautical Info. Service	2.1		
		58.4		

Source: *Team Analysis*
Note: (a) Flight manuals currently have some costs recovered through user charges.

Another important part of DASR's compliance work is to ensure that aircraft or component failures are investigated and, if safety issues arise, that follow-up action is taken by operators and maintenance organisations. Included in this activity is the reporting of major defects, airworthiness analysis and the issuing of directives and other mandatory requirements, which are summarised in the task **airworthiness analysis and directives**. This activity requires close liaison with operators and maintenance organisations in Australia, and with manufacturers and regulatory authorities across the world, to ensure that safety critical incidents are promptly reported, investigated and acted upon. DASR approves **flight manuals** as part of the certification process and then approves amendments as they are subsequently made by manufacturers and operators.

DASR also issues licences, certificates and approvals and permits to organisations and individuals who can demonstrate that they meet the standards. These are divided up into: **personnel licences and ratings**, which cover flight crew and aircraft maintenance engineers; **certificates** which cover all flying operations (airlines, flying schools, etc.) and maintenance organisations; **aircraft registration and certificates** which includes various certificates issued to aircraft; and **approvals and permits** covering one-off approvals required for design modifications, maintenance and flying operations.

Other regulatory services include the provision of **publications** to the industry, which includes maps, charts, and technical documents. **Aeronautical information services** is the group that researches and documents the airspace, which eventually leads to the creation of maps. Finally, DASR provides **expert advice and other services** to the aviation industry and other organisations outside the industry, where its expertise and facilities are in particular demand. These include aviation advice and use of the materials evaluation facility laboratory.

Industry Structure

DASR performs its services, and so incurs costs, to regulate the aviation industry. In order that funding decisions can be made, it is also necessary to provide a definition of the industry regulated by DASR. The definition includes a list of industry participants who are regulated and a list of industry sectors which describe the different parts of the industry. The definition of industry participants, as used in the cost model, and the allocation of costs to these participants are shown in Figure 3.5 overleaf.

Figure 3.5
DASR Costs by Industry Participant

	$ M	%
AOC Holders	13.3	32
Maintenance & Airworthiness Organisations	9.4	23
Manufacturers and Designers	1.0	3
Airports & Aerodromes	1.6	4
Flight Crew	8.4	20
Aircraft Maintenance Engineers	3.0	7
Aircraft	2.8	7
ATS & Governments	1.5	4
Total by Participant	41.0	100
Safety Regulation Infrastructure Costs	17.4	
Total	**58.4**	

Source: DASR district office and central office survey; team analysis

A category for ATS and Government organisations has been included in the definition of industry participants as a small proportion of DASR's activities are spent on regulating Air Traffic Services and providing services to Government organisations (such as the Bureau of Air Safety Investigation) both in Australia and abroad. The services that are not provided directly to industry have not been allocated to industry participants or sectors. These services include standard setting, airworthiness analysis and directives, safety promotion and education, and aeronautical information services, and are shown under the heading of safety regulation infrastructure.

The categorisation into four sectors in Figure 3.6 overleaf has been chosen to reflect the major groups within the industry. The **high capacity air transport** sector includes all those organisations and individuals who operate, maintain, manufacture, design or are otherwise involved with air transport aircraft with a maximum passenger seating capacity of more than 38 seats. In contrast, the **low capacity air transport** sector is involved with aircraft with a maximum passenger seating capacity of less than or equal to 38 seats, and includes charter and freight operations. The **aerial work** sector comprises all involvement with commercial aircraft such as training and flying schools, agricultural operations, aerial surveying, spotting and photography, advertising, ambulance functions, etc. The **private** sector comprises sport and recreation and business/professional flying.

Definitions of industry sectors are difficult to determine with precision since many organisations, aircraft and people span the whole range of sectors. For example, maintenance organisations may operate across both the private and lower end commercial sectors of the industry. Airports and aerodromes may serve all aircraft types, from high capacity air transport through to small private aircraft. Private aircraft are often borrowed by flying schools for commercial purposes.

In order to overcome this problem of definition, so as to permit some breakdown of the industry into sectors, the project team agreed to use the highest level of licence held to allocate costs to sectors. For example, an airport which serves predominantly private and small commercial aircraft, but which has an occasional high capacity RPT landing, has been treated as a high capacity air transport airport for the purposes of cost allocation. This approach is defensible on the basis that the highest level of licence held determines the level of surveillance/regulation received by the licensee, and therefore the level of cost incurred by DASR to regulate it.

Figure 3.6
DASR Costs by Industry Sector

	$M	%
High Capacity Air Transport (>38 seats)	9.2	22
Low Capacity Air Transport (incl charter)	11.7	29
Aerial Work	9.0	22
Private and Sport	11.1	27
Total by Sector	41.0	100
Safety Regulation Infrastructure Costs	17.4	
Total	**58.4**	N/A

Source: *DASR district office and central office survey; Team Analysis*

Conclusions

By building on existing labour activity and other costing data generated by DASR, the cost model has introduced additional rigour in the allocation of costs incurred in undertaking safety regulation - firstly, by cost centre within DASR and, secondly, by an external view of DASR's services to the aviation industry. The cost model has enabled a reasonably accurate presentation of safety regulation costs, including the estimated split of these costs by industry participant and industry sector. The project team is satisfied that this work establishes a solid base for an analysis of funding options, and further work in refining the cost information is identified in the final chapter of the report.

Further, the cost model provides a management tool for DASR to make future strategic pricing decisions and to assess resource priorities. It supplements the existing management and financial accounting systems which will continue to provide operational, management and accounting information on a regular basis. As the cost drivers of DASR are long term in nature, the cost model will only need to be run on a periodic basis providing updates every six months or so.

As part of the process for finalising the detailed charges for aviation safety regulation, the cost model must be re-run to incorporate additional data gathered over an extended period of time, and after a review of the labour codes used in FOMISS. The labour codes must be changed to better align with the services undertaken and the work performed by the branches and districts. Close supervision should be provided by operational management to ensure that FOMISS inputs better reflect the actual work performed. In the assessment of the team, the new output will not materially change the allocation of costs to services but some detailed charges may be sensitive to changed cost data based on new activity information gathered over more than two months.

4. PRICING PRINCIPLES

Overview of Methodology

The second stage of the project considered how to fund the different regulatory services recorded in the cost model. This required developing a set of pricing principles that link DASR's services to the beneficiaries of regulation and determine the options for funding. The result is a first iteration of the funding strategy.

This section provides an overview of the pricing principles, identifies the primary beneficiary of each of the regulatory tasks and defines the major funding options. At this stage no consideration is made of the safety or economic impact, but these issues are addressed in the next sections.

The unique nature of the safety regulation task means that the funding strategy must incorporate some special considerations in order that DASR can justify its prices to the industry and the Government. Firstly, because DASR is a monopoly supplier, it must demonstrate that its prices are linked to the costs of service provision and are not arbitrarily set.

Secondly, because DASR's services are mandated by legislation, it must demonstrate that an industry participant who is charged for a service receives some related benefit. In many circumstances, the only way that the industry participant can avoid regulation is to leave the industry or operate illegally - extreme solutions to avoid a charge that may be perceived as unfair. The requirement to identify the true beneficiary of regulation is particularly relevant to DASR's compliance role where, for example, an inspector may perform an investigation on an organisation based on a report from a third party. To charge the company for the investigation, particularly if there is no breach of safety standards, would be inequitable and introduces the potential for abuse of the charging system.

At a broad level, there is a clear link between regulatory activity and the benefits accruing to individuals, corporations and society in general. Regulatory activity improves the standards in the industry, encourages safe practices and provides safety-related information. This, in turn, leads to fewer accidents and a safe aviation industry, which results in a greater use of the aviation system, with the associated economic and social benefits. The avoidance of an accident also has obvious benefits to those companies and individuals involved.

However, this approach cannot be used to establish the value of individual services of regulation as it raises some complex questions which are difficult to answer with precision. For example, it would need to be established what the economic and social cost of an accident was, and how regulation, in comparison to other factors, contributed to accident avoidance. Costs would need to be related to a specified level of regulation which was assessed as acceptable to the general public and participants in the industry. The relative value of the different services of DASR, as they contribute to safety, would also need to be calculated. The problems in identifying accurate answers to these and other issues renders this approach impractical for the purpose of developing a funding strategy.

An alternative approach is to consider the impact of regulatory activity at a more detailed level. By first considering the different beneficiaries of safe air travel and then identifying the categories of services that are provided primarily for their benefit, a link between the beneficiaries and DASR's services ***can*** be established. This approach narrows the possibilities for funding and creates some options that can be used for further analysis. The initial funding model created for the project is based on the pricing principles outlined below:

- there are three key beneficiaries of aviation safety regulation: the general public, the travelling public and industry participants;
- a set of funding options can be created by establishing the link between DASR's services and the ***primary*** beneficiaries of these services;
- the primary beneficiaries pay for the costs, or a proportion of the costs, of the services allocated to them, subject to subsequent tests of overall equity and the impact on safety; and
- where safety is compromised by the type or level of charge determined by the analysis of beneficiaries, then the funding of the service should be "subsidised" by industry or general taxation.

The Beneficiaries of Aviation Safety Regulation

General Public: The general public receive the economic and social benefits from a safe and viable aviation industry. Through the Civil Aviation Act, Parliament has expressed the requirement of the general public that a framework be put in place to enable the safety of the aviation industry to be monitored. The public's contribution to recovering the cost of safety regulation should be to fund the infrastructure that enables the process of regulation to take place, ie, by meeting the fixed cost of aviation safety regulation. The safety regulation infrastructure comprises all those services not delivered directly to industry participants. These include setting the standards for the industry and ensuring that safety information related to the standards is made generally available. Policing the industry, whereby unsafe organisations and individuals are prevented from operating, is also part of the public good.

Travelling Public: The travelling public are primarily concerned that their journey is safe and that, whichever carrier they choose, they can be assured of a minimum level of safety. Their requirement from DASR is an assurance that airlines meet the standards. This equates to some of the compliance activities performed by DASR and, to some degree, entry control and licensing. Entry control and licensing ensures that new entrants meet the standards on entry into the industry. Compliance provides a check that industry participants are maintaining standards.

Industry Participants: Industry participants also derive benefit from their involvement in aviation whether it be for business purposes or pleasure. Their primary requirement from DASR is that the entry control and administration of on-going participation in the industry is professionally and equitably handled. They also require information, services and advice on regulation-related issues. This requirement equates to the examination and licensing activities performed by DASR, some elements of compliance directly associated with their participation and the individual services that they request from DASR.

The relationship between the beneficiaries and DASR's activities is shown in Figure 4.1 on the next page.

Figure 4.1
Beneficiaries

Beneficiary	Benefit	Requirement	DASR Activity
General Public	Economic and social benefits	Create the safety regulation infrastructure to allow the industry to operate. Police the industry.	Standard setting Provision of safety related information Removal from the industry
Travelling Public	Safe air travel	Ensure all carriers meet safety requirements.	Compliance Entry control and licensing
Industry Participants	Participation in the industry	Control entry and ongoing participation in the industry to ensure only competent and safe organisations operate. Provide information, services and advice on regulation related issues.	Entry control and licensing Compliance Requested services

Source: Team Analysis

Categorisation of DASR's Activities

The review of beneficiaries, which is summarised above, has led to a categorisation of DASR's activities as illustrated in Figure 4.2. The four categories are safety regulation infrastructure, entry control and licensing, requested services and compliance.

Figure 4.2
DASR Regulatory Activities

Regulatory Activities	Description	Cost Type
Safety Regulation Infrastructure	Creating the environment for safety regulation, including setting standards and the provision of general safety related information.	Mostly fixed
Entry Control & Licensing	Controlling the entry and ongoing participation of people and organisations to maintain standards in the industry.	Variable by number of entrants/ existing participants
Requested Services	Responding to specific requests for information, services and advice.	Variable, as requested
Compliance	Ensuring that standards are being met and taking action against those who do not meet standards.	Variable by industry size/ competence

Source: Team Analysis

The safety regulation infrastructure is a fixed cost that does not vary significantly as the size of the industry expands or contracts. The other categories are all variable depending on industry activity.

The remainder of this section considers each category of DASR's services in turn, and discusses the link between service, primary beneficiary and funding options. By matching the primary beneficiaries with the costs calculated in the cost model, the contribution of each group can be calculated to give a number of funding options. The funding options then become the subject of further analysis and the basis of the funding strategy. This discussion is illustrated in Figure 4.3.

Figure 4.3
Primary Beneficiaries

Cost Category / DASR Service	Cost $m	Primary Beneficiaries			Major Funding Options			
		General Public	Travelling Public	Industry Participant	General Taxation	Industry Taxation	Licence Fees	User Charges
Safety Regulation Infrastructure								
Standard Setting	7.8	+			+			
Airworthiness Analysis & Directives	4.0	+			+			
Safety Promotion & Education	3.5	+			+			
Aeronautical Info. Service	2.1	+			+			
Sub-Total	17.4							
Entry Control & Licensing								
Personnel Licences and Ratings	6.2		+	+		+	+	
Certificates	0.7		+	+		+	+	
Aircraft Registration & Certificates	1.6		+	+		+	+	
Sub-Total	8.5							
Requested Services								
Publications	5.3			+				+
Flight Manuals	0.4			+				+
Approvals & Permits	1.2			+				+
Expert Advice and Other Services	1.1			+				+
Sub-Total	8.0							
Compliance Activities								
Planned Surveillance	12.3		+	+		+	+	
Unplanned Surveillance	6.4	+	+		+	+		
Advice on Reg. Requirements	5.3	+		+	+			+
Prosecution and Admin. Action	0.5	+			+			
Sub-Total	24.5							
TOTAL $M	58.4							

Note: *'+' indicates primary beneficiary only.*
Source: *Team Analysis*

Safety Regulation Infrastructure

The first group of services are those that are needed to establish the infrastructure for safety regulation and allow the regular activities of surveillance and licensing to take place. Services in this group include **standard setting** and the provision of general safety-related information through the services **safety promotion and education** and **airworthiness analysis and directives**. **Aeronautical information services,** which research and map out the airspace and airport approaches, are also an infrastructure item.

The general public is the primary beneficiary of safety regulation infrastructure since it is these services that allow a safe aviation industry to develop and ultimately deliver the economic and social benefits that flow from aviation. The mechanism for the general public to contribute is through general taxation.

This pricing principle is consistent with a marginal cost pricing approach whereby general taxation pays for the fixed costs, while users of the regulatory system pay for additional safety regulation activities created by their entry and ongoing participation in the industry.

Entry Control and Licensing

A significant portion of DASR's activity is spent on ensuring that new participants in the industry meet the required standards and that continuing participants maintain the required level of experience or proficiency. Services in this category include **personnel licences and ratings, certificates** and **aircraft registration and certificates**.

There are joint beneficiaries for these services shared between the industry participant and the travelling public. The industry participant on receipt of a licence is able to take part in the aviation industry for business or recreational purposes. Entry control and licensing is critical in ensuring that everybody meets the minimum level of safety and that no-one gains a commercial benefit from operating against lower standards.

The travelling public benefit from the assurance that the aircraft they are on is fully maintained and operated by a competent organisation. They also gain more broadly from a safe aviation environment where all those associated with operating aircraft in the aviation system have the appropriate level of licence and competence.

Requested Services

Requested services are all those activities which are performed in response to demand from industry participants, comprising the distribution of **publications, approvals and permits** for safety critical activities, and providing **expert advice and other services**. In addition, the amendment and approval of **flight manuals** is included as a requested service, since industry currently pays for requested approvals. Together with licences, requested services make up regulatory services as currently defined. In these circumstances, the primary beneficiary is the industry participant who receives the services on a user-pays basis.

Compliance Activities

The final grouping of tasks is compliance activities, which include the DASR services of **planned surveillance**, **unplanned surveillance**, **advice on regulatory requirements** and **prosecution and administrative action**. Identifying the primary beneficiaries of these services is more complex and each service needs to be considered in turn.

The primary beneficiaries of **planned surveillance** are a combination of the travelling public and the industry participants. Organisations carrying (or maintaining aircraft for) fare-paying passengers are a major focus of the planned surveillance program, as DASR ensures all carriers meet the standards expected by the travelling public. Even though the low capacity air transport organisations receive a high degree of surveillance activity relative to the number of passengers carried compared with the more sophisticated high capacity organisations, the ultimate beneficiary is the travelling public, which is assured of a certain level of safety whichever airline they travel. It can also be argued that a level of planned surveillance is closely related to licensing activity in which an organisation is tested for its ability to meet standards and remain as a participant in the industry. This creates the joint primary beneficiaries of the travelling public and industry participants.

Unplanned surveillance activity is similar in content to planned surveillance but is conducted for different reasons. It is prompted by a report from within DASR or by a third party, concerning unsafe practices within the industry, and DASR conducts a review to determine whether there is any substance to the report. In this case, the industry participant is not a primary beneficiary since, if the report turns out to be false, it is difficult to see how the organisation can be charged for the surveillance. The joint primary beneficiaries are the general public and the travelling public.

Prosecution and administrative action occurs when DASR discovers that an operator or individual has not met the required standards and then applies a sanction. This is a policing role linked to standard setting and therefore the primary beneficiary is the general public.

The provision of **advice on regulatory requirements** has two primary beneficiaries. First, the general public benefits since the service involves the communication of standards and is linked to safety promotion and education which is a safety infrastructure task. Second, the industry participant gains as the advice given is usually an interpretation of the standards for the participant and enables the organisation or individual to plan how the standards can be met.

In summarising the above discussion, a set of funding options has been created. These funding options, which are listed in Figure 4.4, become the subject of subsequent analysis.

Figure 4.4
Funding Options

DASR Service	Cost $m	Funding Options	Funding Ranges			
			General Taxation	Industry Taxation	Licence Fees	User Charges
Safety Regulation Infrastructure	17.4	1. General taxation	18			
Entry Control and Licensing	8.5	2. Perpetual licences/ renewable licences		0-5	4-7	
Requested Services	8.0	3. User charges				8
Compliance - planned surveillance	12.3	4. Industry taxation/fixed fee linked to licences		6-12	0-6	
- unplanned surveillance	6.4	5. General taxation/ industry taxation	0-3	4-7		
- advice on regulatory requirements	5.3	6. General taxation/ user charge	3-5			0-3
- prosecution and admin action	0.5	7. General taxation	1			
			22-27	10-24	4-13	8-11

Source: Team Analysis

Figure 5.1
Summary of Safety Impact Analysis

Service	High Capacity Air Transport			Low Capacity Air Transport			Aerial Work			Private and Sport		
	Industry Taxation	Fixed Charge	Variable Charge	Industry Taxation	Fixed Charge	Variable Charge	Industry Taxation	Fixed Charge	Variable Charge	Industry Taxation	Fixed Charge	Variable Charge
1 Planned Surveillance	0	0/-	-	0	0/-	-	0	0/-	-	n/a	n/a	n/a
2 Unplanned Surveillance, investigns & enforcemt	0	-	-	0	-	-	0	-	-	0	-	-
3 Prosecution and Administrative Action	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a
4 Advice on Regulatory Requirements	0	-	-	0	-	-	0	-	-	0	-	-
5 Expert Advice and Other Services	0/-	n/a	0	0/-	n/a	0	0/-	n/a	0	0/-	n/a	0
6 Standard Setting	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a
7 Personnel Licences & Ratings	0	0	-	0	0	-	0	0	-	0	0	-
8 Certificates of Operation	0	+/0	+/0	0	+/0	+/0	0	+/0	+/0	n/a	n/a	n/a
9 Maintenance Approvals	0	0	0	0	0	0	0	0	0	0	0	0
10 Publications	0	0	n/a	0	0/-	n/a	0	0/-	n/a	0	0/-	n/a
11 Aeronautical Information Services	0	0	n/a	0	0/-	n/a	0	0/-	n/a	0	0/-	n/a
12 Flight Manuals	0	0	n/a	0	0	n/a	0	0/-	n/a	0	0/-	n/a
13 Manufacture Approvals	0	0	0	0	0	0	0	0	0	0	0	0
14 Airworthiness Analysis & Directives	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	n/a
15 Approvals and Permits	0	0	0	0	0	0/-	0	0	0/-	0	0	0/-
16 Exemptions	0	+/0/-	+/0/-	0	0/-	0/-	0	0/-	0/-	0	-	-
17 Safety Promotion & Education	0	-	-	0	-	-	0	-	-	0	-	-
18 Aircraft Registration & Certification	0	+/0	+/0	0	+/0	+/0	0	+/0	+/0	0	+/0	+/0
19 Design & Modification Approvals	0	0	0	0	0/-	0/-	0	0/-	0/-	0	0/-	0/-

Source: Team Analysis

5. SAFETY AND LEGAL CONSIDERATIONS

Safety Considerations

Methodology

The objective of DASR is to create a safe aviation environment and, therefore, maintaining safety standards is of paramount importance in the formulation of the funding strategy. The methods of cost recovery must be carefully selected to ensure that safety levels in the industry are not reduced and that, wherever possible, opportunities to reinforce safety practices are taken.

Swedavia, the consulting subsidiary of the Swedish Civil Aviation Administration, has worked with the team to develop the methodology for assessing the impact on safety of the various funding options, and has reviewed the outputs at several stages of the analysis to ensure that the work reflects international experience from Europe, New Zealand and elsewhere.

The methodology provides an analytical basis for assessing the safety impact of the different funding options on each of DASR's services. The output of the methodology is the safety impact analysis, which is contained in Appendix 6.

The central part of the analysis is the detailed working sheets, which take each of DASR's services in turn and provide the following information:

- a list of detailed tasks for DASR and the industry;
- impact of the different funding options on each task;
- summary of safety impact by industry sector, and;
- comments to describe the reasoning behind the conclusions.

The detailed working sheets provide a framework for the project team's thinking on safety. By breaking down each service into the tasks performed by DASR and the industry, it has been possible to identify the safety impact caused by both reduced demand for regulatory services and by the changes in relationship between DASR and the industry, which can reduce cooperation and inhibit the free flow of information. The output, which is expressed in terms of "+", "0" and "-" for a positive, neutral or negative safety impact respectively, highlights those areas of potential concern. The summary sheet from the detailed analysis, which shows the safety impact by service, industry sector and funding type is shown in Figure 5.1 opposite.

In addition to the outcomes described in the analysis, some broader effects need to be considered to fully understand how the funding options impact on safety.

Level of charges: The effect of the funding options will change depending on the level of charges applied to each service. When the charges for regulatory activities are small there will be little change in industry behaviour, and the impact on safety will be negligible. As prices increase, companies will seek to limit their involvement with DASR to save money and the effect for each service will be largely as described in the safety impact analysis in Appendix 6. In some cases, if increased charges become very significant compared to the costs of being in the industry, companies, particularly those that are not profitable, may take more extreme measures to reduce their costs. For example, they may try to disguise the nature of their operations to avoid attracting regulation and thus costs.

Changes to regulatory activity: It has been assumed for the purposes of the safety impact analysis that DASR will not change the way it regulates the industry when the funding strategy is introduced. In practice, the implementation of the new charging scheme should assist management within DASR to more effectively focus its activities, and it is likely that some regulatory activities will be modified to accommodate the new scheme and to counteract any negative behaviour on the industry side. The outcome of the analysis is therefore a conservative view of the safety impact, and before rejecting funding options on safety grounds, alternative approaches to regulation should be considered to counteract any decrease in safety standards.

Safety Implications

Applying the results of the safety impact analysis to the outcome of the pricing principles raises a number of potential safety issues. Firstly, full cost recovery of requested services will reduce demand for some services, many of which play an important role in maintaining safety in the industry. For example, out-of-date maps have been cited by a number of organisations, including BASI, as being a reason for incursions by private aircraft into controlled airspace. Higher prices would create a financial disincentive to obtaining the latest versions of maps and potentially make the problem worse. Prices for those services that are safety critical should be constrained to current levels.

Secondly, charges for surveillance either calculated by the hour or closely linked to the surveillance visit (i.e. a fee for surveillance) may result in reduced cooperation from the industry as organisations seek to reduce their interaction with DASR and hence their costs of regulation. Maintaining an effective partnership with industry and encouraging the exchange of information is an important part of effective regulation and, therefore, if fixed charges are to be applied for planned surveillance activities, they should form part of the fee charged when an applicant seeks a new licence or a renewal of a licence.

Thirdly, effective safety regulation can only take place if the active industry participants are known and regularly monitored. In the course of the project it has become apparent that where perpetual licences for flight crew, air operators and airworthiness organisations have been issued, there is no definitive record of the organisations and pilots that are active in the industry. Although DASR's field offices, through their surveillance activities and local knowledge of the industry, are aware of the status of licence holders in their area, there is the possibility that some participants may not be fully monitored, and accordingly avoid or not be covered by the appropriate level of regulation. It is a recommendation resulting from the safety impact analysis that all licences should be made renewable on a periodic basis. These will include flight crew licences, air operator certificates, certificates of approval, instruments of appointment, and approved test officers and other delegates.

Fourthly, the safety impact analysis has raised safety issues related to the charging of very high prices for licences, certificates and approvals, with the suggestion that they may discourage people or organisations from applying for the correct level of instrument, or even encourage them to operate illegally. A possible example is some aerial work organisations who may be tempted to operate a charter flight without the appropriate licence. In most circumstances, this effect can be counteracted by rigorous surveillance with prosecution of those who do not hold the correct licence.

However, in discussion with DASR managers and inspectors, there is a continuing concern that introducing large increases in licence and certificate fees will have a negative effect, particularly in transition years when the industry is adapting to the new charges. It is in this period when the relationship between DASR and the industry would be adversely affected and any rationalisation of the industry would be taking place. It is difficult to be definitive about which cost level for a licence would result in lower safety standards and the precise effect it would have on the industry. The team have taken a conservative view and recommend that all licence fees should not be increased beyond a 'reasonable' price.

Swedavia assisted in the development of the safety impact analysis and have reviewed the conclusions of the project team. In a letter to the CAA, Swedavia have commented:

"Although the final outcome of the pricing project in terms of detailed figures for proposed charges has not yet been made available to us, Swedavia can make the following general statement on the principles applied to avoid any negative safety impact from the proposed charging scheme.

A very ambitious analysis has been made by the team in order to detect and evaluate every conceivable activity in which the relations between DASR and the aviation industry could be affected by the introduction of charges with negative impact on safety. Wherever the team has found a possibility for such impact by a specific type of charge, other options for cost recovery have been preferred. In our view all relevant activities have been covered by this analysis. It is also our opinion that the analysis is conservative in the meaning that it may be overestimating negative safety impacts.

With the amount of general tax funding that is still available and with the use of industry taxation as proposed by the study, the remaining direct charges to industry, either fixed or variable, are unlikely to cause negative safety impact if the detailed design of the scheme is done in a reasonable way according to the analysis. There is a slight possibility that some of the most marginal operators might show a tendency to go underground if charges are perceived as high compared to their overall economy. This should be borne in mind when defining the balance between industry taxation and direct charges. The working practices of DASR should also be adapted to counteract any negative trends in industry behaviour, especially during a transition period to new conditions."

Legal Considerations

The Civil Aviation Act ("the Act") includes a number of Clauses that affect the basis for the funding of DASR. These restrictions are further emphasised by the Constitution of Australia, which deals with charges imposed by government organisations, including government business enterprises. If the funding strategy does not fully meet the legal requirements then the proposed charges could be subject to legal challenge.

The relevant section in the Civil Aviation Act is:

Section 67: The amount or rate of a charge shall be reasonably related to the expenses incurred or to be incurred by the Authority in relation to the matters to which the charge relates and shall not be such as to amount to taxation.

The sections in the Constitution relevant to the funding strategy are:

Section 53: A proposed law shall not be taken ... to impose taxation by reason only of its containing provision for the imposition of fees for licences or fees for services; and

Section 55: Laws imposing taxation shall deal only with the imposition of taxation and shall deal with one subject of taxation only.

The primary requirement of the funding strategy is that charges must be reasonably related to the cost of service provision. This requirement is consistent with the pricing principles described earlier. The implication is that charges for licences and requested services must be equal to, or less than, the average cost for DASR to perform the relevant activities that deliver the licence or service. Clearly, the costs involved with the activities vary in individual circumstances, but provided that the costs are reasonable and based on accepted accounting principles, then a fixed charge would be legal. A degree of averaging of costs within a category of similar activities or industry participants is acceptable. Charges based on hourly rates are also appropriate if the charge relates to the time taken and the rate applied is derived from accepted accounting principles.

From earlier legal counsel provided to the CAA, it has been advised that the costs associated with the planned surveillance of a licence holder can be recovered through a fixed charge that is included in the fee for the initial issue of the licence or the fee for the licence renewal. In other words, licence fees and licence renewal fees can be increased to recover the costs of planned surveillance. Provided this component of surveillance is conducted as scheduled in most circumstances, then the method of funding is legal.

The Act and Constitution also require any taxation measures to be introduced through Government legislation that deals solely with taxation. Any form of industry taxation will therefore require a new Bill to be submitted and passed by Parliament. The only exception to this is fuel excise, for which the legislation has already been enacted. To change the level of fuel excise requires an administrative decision by the Government that does not include a requirement for new legislation.

Advice from the Department of Transport and Communications is that with the 1994/95 Budget being brought down before the end of June 1994, no other form of taxation except fuel excise could be implemented by July 1994 unless it receives a very high priority from the Government.

Summary of Safety and Legal Considerations

A summary of safety and legal considerations are shown in Figure 5.2.

Figure 5.2
Safety and Legal Considerations

	Funding Option				Safety Considerations	Legal Considerations
	General Taxation	Industry Taxation	Licence Fees	User Charges		
Safety Infrastructure Development						
Standard Setting	+				Safety sensitive activities - confirms requirement to be collected from taxation.	User charges cannot be levied for these activities
Airworthiness Analysis & Directives	+					
Safety Promotion & Education	+					
Aeronautical Info. Service	+					
Entry Control & Licensing						
Personnel Licences and Ratings		+	+		Negative safety impact if charges very high.	Charges must relate to costs.
Certificates of Operation		+	+			
Aircraft Registration & Certification		+	+		Some positive safety impact from annual charges	
Requested Services						
Publications				+	Some restrictions on type and level of charges. Hourly rates to be used only in selected circumstances.	Charges must relate to costs.
Flight Manuals				+		
Approvals & Permits				+		
Expert Advice & Other Services				+		
Compliance Activities						
Planned Surveillance		+	+		Some significant safety issues if surveillance is charged for - particularly on a variable basis.	Planned surveillance costs can be recovered through licence fees.
Unplanned Surveillance	+	+				
Advice on Reg. Requirements	+			+		
Prosecution and Admin. Action	+					

Source: Team Analysis

Safety Regulation Infrastructure: Both the safety impact analysis and the review of legal obligations require the services that fall under the category of safety regulation infrastructure to be funded from taxation.

Entry Control and Licensing: A recommendation from the safety impact analysis is that an up-to-date record of active licence and certificate holders is maintained and this is assisted by periodic confirmation of active participation through a regular fee. If licence fees become very high then this can have a negative safety impact in some circumstances as some operators are forced underground. The Civil Aviation Act requires licence fees to be reasonably related to the costs of licence administration and legal counsel have advised that the cost of planned surveillance can be included in a licence fee provided that the surveillance is performed as scheduled in most cases.

Requested Services: Prices for some requested services should be maintained at current levels as an increase in price would create a financial disincentive to receive the service or publication. Hourly rates are only to be used in limited circumstances. As with licences, the Civil Aviation Act requires that charges be reasonably related to costs.

Compliance Activities: The relationship between charges and safety is complex for compliance activities. Safety issues would be raised if planned surveillance activities were recovered through user charges linked directly to surveillance visits. This would be particularly evident if hourly rates were applied. However, both from a safety and a legal point of view, planned surveillance costs can be legitimately recovered as part of the cost of issuing or renewing a licence. Apart from planned surveillance, there are legal difficulties in charging for compliance activities.

6. FUNDING STRATEGY

Overview

The pricing principles provide the framework for the funding strategy by defining a number of options for more detailed consideration. The safety impact analysis and the review of legal requirements have further narrowed the possible solutions. The issues that remain at this point in the project team's analysis are listed below:

User charges
- *what are the required user charges needed to cover costs?*
- for which services, and at what level of charge, do safety issues become important?

Licence fees
- what level of fees for licences, certificates and examinations are required to cover relevant administration costs?
- is a licence renewal fee applicable in all circumstances?
- what level of planned surveillance costs can be recovered from licence renewal fees without raising safety concerns?
- what is the proportion of costs that are attributable to the benefit identified for the travelling public?

General taxation
- what is the cost of services allocated to the contribution from general taxation?
- how does the Government's formula for funding impact on the strategy?

Industry taxation
- what is the most appropriate method for raising industry taxation given the nature of the primary beneficiary?

User Charges

The pricing principles provide a straightforward starting point for user charges: industry participants should pay for requested services.

As discussed in Chapter 5, the safety impact analysis modifies the pricing principles for user charges to a substantial degree. Many requested services, such as maps, charts and flight manuals, play an important role in the safety of the industry and any increase in charges will limit the demand for them by the industry, resulting in reduced safety levels. Prices for those services which are safety critical should be maintained at current levels in real terms and consideration should be given to reducing the price of maps and charts. This approach

supports a marginal cost pricing outcome and reinforces the practice initiated by CAA management in 1993/94 to recover only direct costs in the case of aeronautical publications that are critical to safety. The safety impact analysis also identifies that any charge for advice on regulatory requirements will adversely impact on safety.

The legal requirement that user charges must be reasonably related to the cost of service provision is consistent with the pricing principles and places no additional constraint on the strategy.

Figure 6.1 summarises the funding strategy for user charges as they relate to requested services showing target recovery levels.

Figure 6.1
Charges for Requested Services
Target Levels of Recovery

Service	Cost $m	Estimated Volume	Current Recovery $m	Current Recovery Rate	Safety Subsidy $m	Target Revenue $m	Target Recovery Rate
Publications	5.3	250,000	4.8	91%	0.5	4.8	90%
Approvals & Permits	0.4	2,100	0.2	40%	0.1	0.3	75%
Expert Advice	0.3	1,600	0.1	31%	0.1	0.2	85%
Flight Manuals	0.4	1,100	0.1	24%	0.3	0.1	24%
Manufacture & Maintenance Approvals	0.8	5,100	0.4	46%	0.1	0.7	90%
Other Services	0.8	1,600	0.4	42%	0.1	0.7	83%
Total	**8.0**		**5.9**	**73%**	**1.2**	**6.8**	**85%**

Source: Team Analysis
Note: Volumes are in hours for all categories except publications.

Overall, the revenue target has been set at $6.8 million, an increase of $0.9 million over the current cost recovery level of $5.9 million. This compares to the fully allocated cost of providing these services of $8.0 million.

The revenue target for publications has been reduced slightly to ensure that the prices of maps and charts do not increase. Flight manual amendment approvals have been maintained at their current price levels. The revenue target for approvals and permits, expert advice, manufacture and maintenance approvals and other services has been increased to recover between 75% and 90% of costs. This increased contribution will come from a combination of an increase in fixed fees or hourly rates and also from taking a consistent approach to charging for these services.

When the strategy has been approved, further work will be required to determine the detail of the charges and establish how the revenue increase will be achieved. In its discussions with DASR management, the team obtained broad agreement that the overall revenue target is achievable within the full implementation of the team's recommended funding strategy.

Licence Fees

Based on the pricing principles, all licence and certificate holders should pay for examinations and the initial issue of a licence. They should also pay a regular fee where there are on-going costs of licence administration. The cost recovery level from licence, certificate and examination charges is limited by the identification of a joint beneficiary with the travelling public, who should contribute a proportion of the costs through taxation. If regular surveillance of licence holders is part of the audit program, a proportion of compliance costs should be recovered through an annual licence fee.

A potential safety constraint is that, if licence fees become significant in relation to operating costs, operators and individuals may attempt to avoid regulation by operating with an incorrect licence or not obtaining any licence. On the other hand, it has been identified that more effective regulation can take place if an accurate register is kept of active participants and is maintained through a system of licence renewal.

Legally, fees for licences, whether perpetual or annual, must relate to the administration activity involved. The fees can include planned surveillance costs associated with the licence holder and be averaged within categories of similar industry participants.

The travelling public have been identified in the pricing principles as receiving benefits as a result of licence and certificate holders achieving the required standards. An assurance that a passenger-carrying aircraft is fully maintained and that the flying operation procedures are up to standard is of direct benefit to the travelling public. There is also a benefit accruing to the travelling public resulting from the CAA ensuring that operators of non-passenger carrying aircraft do not jeopardise safety in airspace used by passenger carrying aircraft.

The team have allocated 50% of the costs of licensing and entry control against the benefit received by the travelling public. This allocation was made on the basis of an even split between the two joint beneficiaries and after discussion with DASR management on the objectives of the licensing activity. Management emphasised that a major purpose of licensing is to ensure that participants meet the required standards so that the aviation system is safe for all users. In other words, the licensing activity maintains the competency level of pilots and engineers so that they do not endanger the lives of others, particularly the high volume carriers where accidents can result in heavy loss of lives.

The pricing principles also identified that a proportion of planned surveillance should be recovered from licence and certificate holders to which the activity applies. The relevant organisations are holders of air operator certificates, certificates of approval and aerodrome licences. With reference to the safety impact analysis, it was decided that 25% of planned surveillance could be recovered from renewal fee for these licence categories without introducing safety issues.

It is not possible to be definitive as to what level of charge results in reduced safety, but the level chosen provides a conservative fee for the initial implementation of the strategy. The fee will be charged annually and administered centrally to ensure that the fee is not associated with the surveillance visits in any way. This avoids a potential concern raised in the safety impact analysis, which was to distance day-to-day surveillance at the district office level from the cost recovery measures.

The total cost of planned surveillance of the industry, which is strongly focussed on passenger-carrying transportation, is $12.3 million. Therefore, at 25% of costs, renewal fees will raise $3.1 million.

The costs of performing activities associated with entry control and licensing are $8.5 million. Half these costs, $4.3 million, are to be collected from the travelling public, but an additional $3.1 million is added to selected licences to cover the costs of planned surveillance. Overall, this results in a requirement to recover $7.3 million from licences and certificates which is a significant increase over the existing revenue of $3.4 million.

Under the present arrangements all licences are perpetual except for licensed aircraft maintenance engineers ("LAMEs") and some time-limited concessions. However, many of the costs associated with licences and certificates are as a result of the administration of on-going participation in the industry. For example, flight crew have medical information reviewed and stored, and AOC holders are included in the active program of planned surveillance.

The review of activities, as part of the cost model, has confirmed that these are substantial costs which in almost all cases warrant the introduction of a licence renewal fee. These fees will be collected from all active participants on a regular basis, usually annually, as a condition of retaining the licence. There will be no change in technical or operational requirements for the licence.

Figure 6.2 shows the proposed strategy for charges to licence and certificate holders, and shows the target levels for recovery from the different licence categories. The target revenue levels have been calculated with reference to DASR's costs incurred in administering the licensing processes. The revenues are shown as targets, as there are a number of uncertainties that need further investigation before individual fees can be defined. The uncertainties are:

- the total number of active licence and certificate holders is not known as there is no central record of industry participants in many licence categories and a renewal charge, when introduced, may result in an unquantified reduction in the number of licences,

- there may be some individual circumstances where special conditions apply which have not been identified during the review, in particular that relate to safety, which may emerge during consultation, and;

- more detailed investigation is required to identify how the contribution from industry taxation will affect the groups of licence holders.

Figure 6.2
Licence, Certificate and Exam Fees
Target Revenue

	Initial Issues Charge		Renewal Charge		Current Revenue	Target Revenue from Initial Issues and Renewal
	Now	Proposed	Now	Proposed	$M	$M Target
Flight Crew Licences	Yes	Yes	No	Yes	0.55	1.0
Flight Crew Exams	Yes	Yes	N/A	N/A	0.68	0.7
LAME Licences	Yes	Yes	Yes	Yes	0.40	0.5
LAME Exams	Yes	Yes	N/A	N/A	0.95	1.0
Other Licences	Yes	Yes	No	Yes	0.05	0.1
Total Personnel Licence					2.63	3.3
Air Operators Certificate	Yes	Yes	No	Yes	0.19	2.0 (a)
Certificate of Approval	Yes	Yes	No	Yes	0.10	1.2 (a)
Aerodrome Licences	Yes	Yes	No	Yes	0.02	0.2 (a)
Total Organisation Certificates					0.31	3.4 (a)
Aircraft Registration	Yes	Yes	No	Yes b)	0.45	0.6
				TOTAL	3.4	7.3

Source: Team Analysis
Note: a) Includes recovery of planned surveillance costs
b) As part of industry taxation proposal

The revenue targets for flight crew and LAME licences and exams have been set based on thecosts calculated by the cost model for these activities, reduced by an amount to reflect the benefit associated with the travelling public.

The contribution from air operator certificates, certificates of approval and aerodrome licences have been calculated from an assessment of the planned surveillance involved with these organisations. This has been done by reflecting existing surveillance programs and the project called Aviation Safety Surveillance Program (ASSP), which is developing DASR's future approach to surveillance. Based on these calculations, AOC, Certificate of Approval and Aerodrome Licence holders will contribute a total annual amount calculated to be $2.0 million, $1.2 million and $0.2 million respectively.

Initial issue of air operator certificates, certificates of approval and airport licences will continue to be on an hourly rate basis to achieve 100% cost recovery.

For all licences and certificate fees the team have developed a number of scenarios (not shownhere) to identify some possible prices for individual licence and certificates. The scenarios provided an assurance that no significant safety issues are raised at this level of strategic analysis and they can be used as the basis of the consultation program to be conducted after the review is complete. Further work by the CAA and input from the consultation program will result in the definition of individual fees for each category of licence.

Overall, the total amount generated from entry control and licensing is $7.3 million, up from revenue of $3.4 million in 1993/94.

General Taxation

The pricing principles define that all safety regulation infrastructure services and prosecution and administrative action should be funded from general taxation. A proportion of unplanned surveillance and advice on regulatory requirements should also be funded from general taxation.

There are no safety or legal constraints that relate to general taxation.

Figure 6.3 on the next page, shows the approach used to calculate the contribution from general taxation and provides a comparison to the Government's existing formula of 50% of standard setting and compliance. The safety regulation infrastructure costs to be funded from general taxation total $17.9 million. In addition, the pricing principles show that unplanned surveillance and advice on regulatory requirements are jointly funded by general taxation and other forms of revenue collection. In practice it is difficult to identify the precise split between the joint primary beneficiaries for these services. In reviewing the activities involved in advice on regulatory requirements and identifying the cost drivers, the team came to the view that the relative benefits to the general taxpayer was approximately half and therefore a 50% split was appropriate.

In the case of unplanned surveillance, the split between the broad surveillance activities and the more focussed investigations and enforcements is difficult to define, since there is no clear delineation between these activities. The cost model shows the division between the four sectors of the industry to be approximately even, with half the effort expended on the air transport sector which are largely passenger carrying. Again the team has taken the view that the cost should be split evenly between the two joint beneficiaries and 50% set against general taxation.

Figure 6.3
General Taxation

General Taxation derived from Pricing Principles		**Government Budget Statement**	
	$M		$M
Standard setting	7.8	Standard setting	7.8
Airworthiness analysis and directives	4.0	Total compliance activities	32.4
Safety promotion and education	3.5		
Aeronautical information services	2.1		40.2
Prosecution and administrative action	0.5		
Total Safety Regulation Infrastructure	**17.9**		
50% unplanned surveillance	3.2	Government's contribution at 50%	**20.1**
50% advice on regulatory requirements	2.7		
		Public beneficiary costs not funded	
Total	**23.8**	by Government	**3.7**

Source: Cost model, team analysis, DTC
Note: Excludes remote community subsidy of $300,000

Using the Government's existing formula, its contribution is $20.1 million based on the costs calculated in the cost model, excluding the subsidy for remote communities of $300,000. Thisis $3.7 million short of the amount calculated as the public benefit. This difference will have to be funded elsewhere, and next broadest form of taxation is the travelling public tax where revenue is generated from the industry according to the use of the aviation system including fare-paying passengers and others travelling by air. It is a recommendation of the project team that CAA management ask the Government to review its method of calculating the amount to be contributed by the general taxpayer and consider adopting the approach outlined in this report.

Industry Taxation

The pricing principles show that the travelling public are joint beneficiaries for entry control and licensing, for planned and unplanned surveillance, and that industry taxation is to partially fund advice on regulatory requirements and fully fund the cost of requested services not recovered from user charges. In addition, industry taxation must include the proportion assigned to general taxation but not met by the Government's contribution as discussed above.

There are no safety or legal constraints that relate to industry taxation.

The pricing principles suggest two streams of industry specific taxation: first, a tax associated with the travelling public and; second, a tax directed at the industry generally, and linked to those regulatory activities of DASR which are of primary benefit to industry participants. Figure 6.4 shows the cost to be recovered from each taxation method.

The two tax streams have a very different profile of recovery from the industry. Ninety six percent (96%) of passenger volume is associated with the high capacity air transport sector, while the aerial work and private/sport sectors, have almost no passengers. On the other hand, the cost of regulating the industry overall, as shown by the cost model, is almost distributed evenly between the four industry sectors.

Figure 6.4
Contribution from Industry Taxation

DASR Service	$ Million
Related to travelling public beneficiary:	
75% planned surveillance	9.2
50% unplanned surveillance	3.2
50% entry control and licensing	4.3
Safety subsidy for requested services	1.2
Costs not funded by Government	3.7
Less remote communities subsidy	(0.3) (a)
Sub Total	21.3
Related to DASR's regulating activity:	
50% advice on regulatory requirements	2.6
Industry Tax Total	**23.9**

Source: *Team analysis*
Note: *(a) Government's existing formula includes payment of remote communities subsidy from general taxation.*

Travelling Public Tax

The travelling public, as a beneficiary of aviation safety regulation, contributes to a broad range of services, as a major focus of DASR's activities is to provide a safe aviation environment for all users of the aviation system. Whether flying as a pilot, a non-paying passenger or a commercial passenger there is a high expectation that DASR provides the full set of regulatory activities that assures safe air travel.

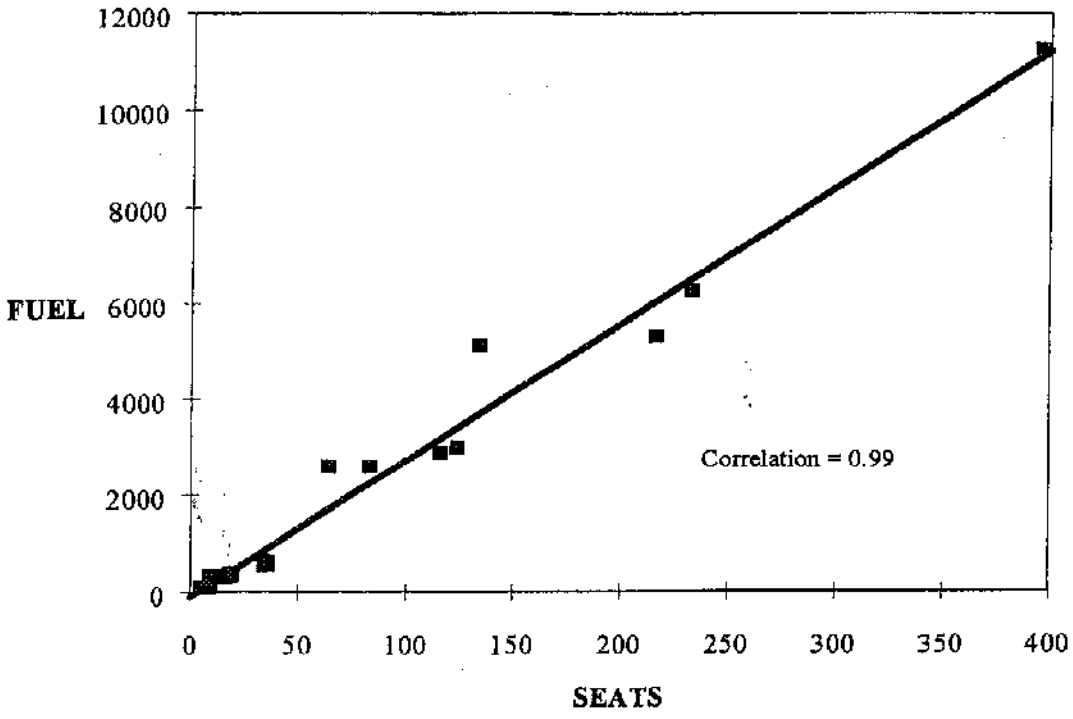
As discussed in the section on general taxation, a 50% split has been chosen for unplanned surveillance. For planned surveillance, 25% of the costs have been recovered from licence renewal fees and, as planned surveillance is not actively performed on the private/sport sector, the majority of the remaining 75% is mainly attributable to ensuring all airlines and charter operations (including their associated maintenance organisations) meet the required standards.

A review of the surveillance program shows that the majority of time is spent on low capacity airlines, with the major carriers receiving less attention in comparison to the number of passengers they carry. However, the project team has taken the view that, as the beneficiary is the travelling public and as passengers expect minimum acceptable levels of safety whichever carrier they fly, each passenger should contribute equally whichever airline they choose.

As discussed in an earlier section, the travelling public also receive benefit through an assurance that all licence and certificate holders are monitored and tested. Although the costs of licence administration for passenger-carrying organisations are a small proportion of the total, the travelling public benefit from high skill levels in all aviation organisations and sectors such that even private pilots do not jeopardise safety in controlled airspace. The team have allocated 50% of licensing and entry control costs against the benefit received by the travelling public.

The choice of a tax associated with the travelling public narrows down to taxing either fuel or passengers. The incidence of either tax is generally the same. Figure 6.5 on the next page sets out the result of an analysis of the statistical relationship between available seats on board, as currently configured by the operators of a range of Australian-registered passenger aircraft, and the reported average fuel burn of those aircraft when operated at cruising levels in flight. The almost "one to one" relationship between seats and fuel consumption for passenger aircraft indicates that a tax on either passengers or fuel would equally target the travelling public.

Figure 6.5
Relationship between Fuel Consumption and Available Seats on Board



Source: CAA analysis
Note: Fuel consumption calculated in litres/hour on cruise.

This analysis does not take account of the range of commercial aircraft that do not carry passengers. Overall, these aircraft are few in number and, in this sense, do not materially affect the choice between a tax on passengers or fuel. But the team acknowledges the specific impact of either tax on non-passenger aircraft needs to be borne in mind when the choice between these two taxes is made.

Given the above analysis, the choice rests on administrative and other considerations such as:

- a passenger tax is complex to administer and would generate additional costs for passenger carrying operators, as well as for government agencies collecting the tax. The most expensive method of collection would be to collect the tax at the point of sale. "Bulk" methods of collection, such as relying on statistical returns by airlines, introduce a notion of "self-billing" by airlines on behalf of passengers, which, in turn, would have to be audited from time to time;

- a fuel tax can build on existing procedures to collect the current rates of excise on avgas and avtur fuels, with minimal additional collection costs;

- passenger taxes are more likely to be paid by the travelling public; airlines may for their own reasons elect to absorb some or all of a fuel tax, which transfers this contribution for safety regulation costs from the travelling public to the owners of the airlines; and

- fuel tax cannot be levied on fuel uplifted in Australia by Australian registered aircraft operating internationally without a change in customs legislation. Further, it is accepted international convention not to tax fuel used in international operations.

On balance, the project team recommends a fuel tax as the most efficient method of obtaining the travelling public's contribution towards the cost of safety regulation. Since this tax will not apply to fuel used by Australian registered aircraft operating internationally, equity considerations require that some other form of contribution be made by operators of these aircraft.

Figure 6.6 shows the fuel tax required to generate the required level of contributions assuming that international operators provide $2.5 million from another source. The level of fuel tax has been shown as a range depending on the final decision on allocation of all elements of industry taxation. The required tax on avtur and avgas is 1.0 cents per litre.

Figure 6.6
Industry Taxation - Fuel Tax

	Existing 1993/94 Fuel Tax (cents per litre)	**Proposed Fuel Tax (cents per litre)**	**Volume m litres/yr**	**Proposed Revenue Generated $ million**
Avtur	0.264	1.0 (a)	1800(b)	17.8
Avgas	0.264	1.0(a)	100	1.0
			Total Domestic Fuel Tax	18.8
			Plus International Contribution	2.5 (c)
			Total Travelling Public Contribution	21.3

Source: Team analysis

Note: *(a)* *Fuel for domestic aircraft only*
(b) *Subject to review on the basis of statistical returns from the Australian Customs Service*
(c) *By international convention, international operators do not pay fuel excise; Australian international operators to contribute through other forms of taxation*

Industry Participant Tax

The second component of industry tax is required to collect funds more closely linked to the distribution of DASR's activities across the different industry sectors. This tax is to contribute to 50% of the cost of giving advice on regulatory requirements. Considered in the range of taxes were:

- an aircraft registration tax, which can be designed to impact equitably on all aircraft;

- a tax surcharge on Air Traffic Service charges, which directly links industry activity and safety regulation cost recovery. However, such a charge only falls on those aircraft operators which use CAA facilities;

- a licence renewal tax and/or licence renewal fee, which can be equitably targeted at specific groups in the industry. In fact a licence fee mechanism has been recommended earlier in this chapter for recovery of entry costs and ongoing costs of licence administration;

- an insurance levy, which, although likely to be difficult to administer through insurance companies, is considered equitable across aircraft owners but perceived as more expensive to collect;

- a departure tax, which would only target the international operators, and would therefore be discriminatory; and

- a sales tax on spare parts for all aircraft serviced through the maintenance organisations, which may encourage the use of non-approved spares.

The project team recommends that an aircraft registration tax be formulated to cover the services described above and achieve an even contribution from the different sectors of the industry. Reasons for recommending the aircraft registration tax include:

- equity, in that the tax can be designed around various weight categories thereby treating each segment of the industry reasonably fairly;

- a low to medium cost of administration, with payment of renewals possibly occurring by instalment throughout a twelve month period;

- a potentially low level of bad debts if de-registration is used as a sanction against the aircraft owner.

The rate of this tax can be set by category of aircraft weight, defined so that industry sectors
contribute broadly in accordance with their respective share of the costs of DASR's regulatory activities. The tax levels will vary by aircraft size based on the ranges set out in Figure 6.7.

In the case of Australian registered aircraft which are operated internationally, the rate of aircraft registration tax is calculated to include $2.5 million in lieu of the contribution that would have been made by the travelling public using these aircraft.

Figure 6.7
Industry Taxation - Aircraft Registration

Sector	Number of Aircraft	Tax per Aircraft (a)	Target Revenue $ m
Large International	56	$40,000 - $50,000 (b)	2.5
Large Commercial	132	$3,000 - $6,000	0.6
Medium Commercial	211	$700 - $1,300	0.2
Small	9,001	$180 - $230	1.8
Total	**9,400**		**5.1**

Source: Team Analysis and CAA data
Note: (a) Ranges based on aircraft weight to give equal contribution between sectors.
(b) Includes contribution from international passengers in lieu of fuel tax.

Summary of Funding Strategy

Figure 6.8 on the next page summarises the recommended funding strategy. General taxation provides $20.4 million as calculated using the Government's formula, including the remote community subsidy of $0.3 million. An adjustment of $3.7 million has been made to account for the difference between the Government's calculated contribution and the general taxation level suggested in the approach taken by the project team. The $3.7 million will be recovered from the fuel tax as it is the next broadest form of taxation.

The contribution from fuel tax is $18.8 million and aircraft registration tax provides $5.1 million as shown in the diagram. The aircraft registration tax includes a $2.5 million contribution from international aircraft in lieu of a fuel levy.

Licence, certificate and examination fees bring in $7.3 million to cover administration and planned surveillance costs. User charges contribute $6.8 million and together the five revenue sources cover DASR's costs of $58.4 million.

Figure 6.8
Summary of Funding Strategy

DASR Services	Cost $m	Beneficiary ($m)				
		General Public	Travelling Public	Industry Participants Tax	User Charge	Licence Fee
Safety Regulation Infrastructure	17.4	17.4				
Requested Services	8.0		1.2 (a)		6.8	
Entry Control and Licensing	8.5 (b)		4.3			4.2
Compliance Activities						
- Planned surveillance	12.3		9.2			3.1 (c)
- Unplanned surveillance	6.4 (d)	3.2	3.2			
- Advice on regulatory reqs	5.3 (d)	2.7		2.6		
- Prosecution and admin action	0.5	0.5				
Total	58.4	23.8	17.9	2.6	6.8	7.3
Adjustments						
- Govt contribution limit (e)		(3.7)	3.7			
- International operators contribution in lieu of fuel tax (f)			(2.5)	2.5		
- Govt's remote community subsidy (g)		0.3	(0.3)			
Funding Strategy	58.4	20.4	18.8	5.1	6.8	7.3
	Revenue $m	General Taxation	Fuel Tax	A/C Reg Tax	User Charges	Licence Fees
		Funding Mechanism ($m)				

Source: Team analysis

Note:
(a) industry tax covers costs where safety issues arise
(b) 50-50 split between beneficiaries
(c) 25% of planned surveillance; limited by safety
(d) 50-50 split between beneficiaries
(e) Government's calculation limits contribution to $20.1 million
(f) by international convention, international operators do not pay fuel excise
(g) part of Government's formula announced in August 1992 statement

The primary recommendations from the project are listed below:

User Charges:

- safety-critical requested services should be maintained at current price levels
- non-safety critical requested services should be recovered in full
- fixed charges rather than hourly rates should be used wherever possible.

Licence Fees:

- all participants will be required to pay a regular renewal fee for a license
- license fees will recover 50% of the relevant administration costs
- AOC, C of A and some other licenses will include compliance costs equivalent to 25% of planned surveillance.

General Taxation:

- the Government's contribution will be set against:
  - safety regulation infrastructure services
  - 50% unplanned surveillance (shared with industry taxation)
  - 50% of advice on regulatory requirements (shared with industry taxation).

Industry Taxation:

- industry tax related to passenger activity funds the costs of:
  - 75% planned surveillance (balance not funded from licence fees)
  - 50% unplanned surveillance (shared with general taxation)
  - 50% entry control and licensing
  - safety subsidy for requested services
  - costs not funded by Government
- industry tax related to regulatory activity funds the costs of:
  - 50% of advice on regulatory requirements (shared with general taxation)
  - contribution from Australian owned international aircraft in lieu of fuel tax

Feedback from Industry

Towards the end of the project, a substantial number of meetings were held with industry operators and associations to discuss the emerging strategy. In discussion with the project team, representatives of the smaller operators and the private sector have questioned the need for the existing level of regulation and do not accept the Government's position on increased funding from industry. They also point to the broader beneficiaries of a thriving general aviation sector, including a supporting role to the high capacity sector and the business benefit

to the community. At the other end of the industry, the high capacity air transport sector also questioned the need for the level of regulation received from DASR and argue that, through their passengers, they will pay more than their fair share of regulation costs.

The comments made by the industry concerning the Government's contribution and the level of regulation provided by DASR are outside the scope of the project. In response to queries about the allocation of beneficiaries, the team have made the following points in discussion with the industry:

- the contribution from each sector through user charges, licence fees and aircraft registration levy is less than costs of regulating these sectors;

- the travelling public are a major focus of DASR's activities and have a high expectation of the regulator's role in ensuring all airlines reach required safety standards. This group is a beneficiary of safe aviation in its own right beyond that of its carriers. If the airlines are unable to pass on the costs to their passengers, then consideration should be given to a form of ticket tax whereby the passengers contributed directly; and

- any additional support to the general aviation industry should be addressed as part of broader aviation policy rather than only through the allocation of costs of safety regulation.

Despite the strong opposition to earlier attempts by DASR to introduce cost-recovery from industry, this round of discussion with industry representatives has provided positive feedback to the approach and indicated a degree of support for the pricing principles referred to in Chapter 4. The project team recommends that a full broad-based consultation program be conducted with industry prior to finalising the decision on the strategy, with the objective of discussing the options in more depth and identifying the full implications of the strategy on the industry.

7. ECONOMIC IMPACT

Economic Analysis

The Government's decision to reduce its general taxation contribution toward aviation safety regulation results in industry having to provide an additional $23.5 million (to a total of $38 million) in funds when the strategy is fully implemented in the 1995/96 financial year. This sum will increase the operating costs of companies and, to varying degrees, reduce their profitability. Determining the precise effect is complex, as the aviation industry is a diverse mix of groups and there are a number of uncertainties such as the ability of companies to pass costs on to their customers.

The Terms of Reference of the project required the team to assess the economic impact of the funding strategy and, clearly, it is important that the effect of the strategy on industry participants is established before the level and type of charges are finalised.

The project team originally interpreted the requirement to perform an economic analysis as first identifying the financial impact of the recommended strategy on the different groups of industry participants and second, estimating the resulting changes in the size and composition of the industry. However, comprehensive economic data on the Australian aviation industry is not available and, within the timeframe of the project, it was not possible to undertake primary surveys to collect the required information. By necessity, the work was therefore restricted to analysing the incidence of how the recommended charges and taxes would fall on the industry and then drawing some high level conclusions on the broader economic impact.

The team issued a short questionnaire to a small number of industry associations and companies to obtain financial and operational data from at least one company in each major industry segment. In addition, information was sourced from annual reports, CAA records, the Bureau of Transport and Communications Economics (BTCE) and other published data.

The economic analysis performed by the team was:

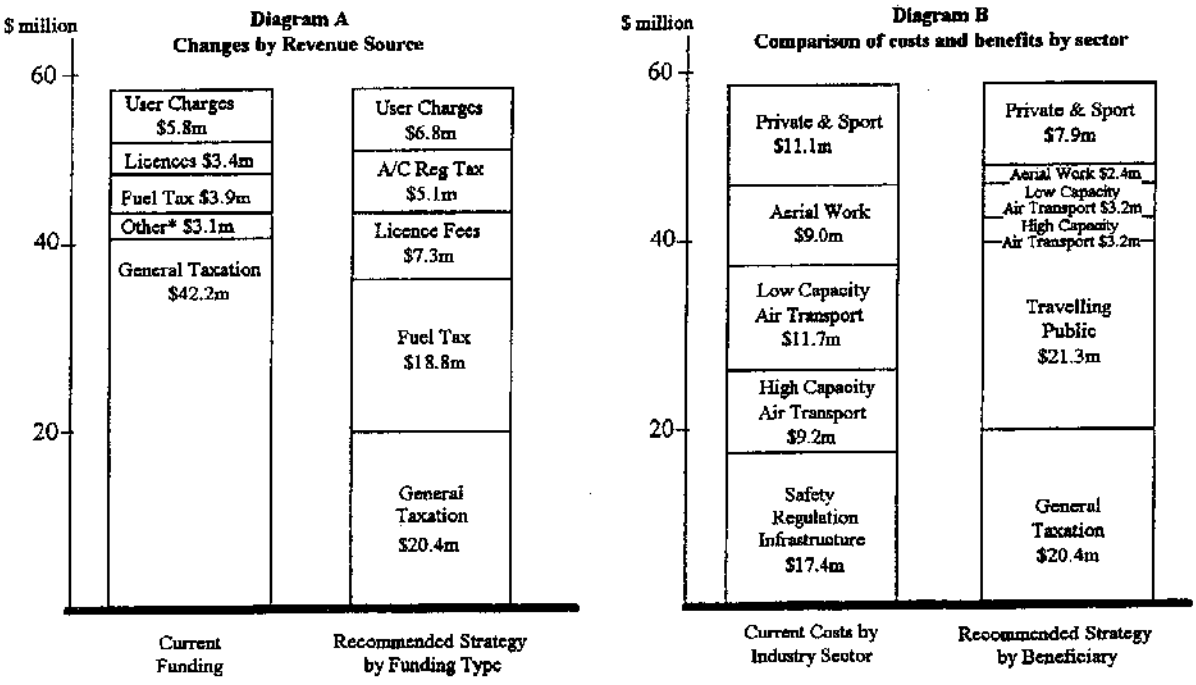
Industry sector analysis	-	comparing safety regulation costs generated by the CAA to the funding contribution for each industry sector.
Company impact analysis	-	recording the additional safety regulation costs to be met by example companies and individuals in the industry.
International comparisons	-	comparing the recommended charges and taxes to the funding arrangements in other countries.

BTCE is proposing to conduct a survey to collect detailed industry economic data, but the earliest completion date will be in 1995. The availability of this data would have greatly assisted the project, and the team, in the interest of good decision making in future years, records its support for this survey.

Industry Impact

Figure 7.1 shows the broad effect of the funding strategy on industry. Diagram A shows how the mix of user charges, licence fees and taxes changes with the recommended strategy. Diagram B compares the costs of regulating the industry sectors as calculated by the cost model with the revenue received from the different groups of beneficiaries as proposed in the recommended funding strategy. The general public contributes $20.4 million through general taxation and the travelling public provides $21.3 million from a combination of fuel tax for domestic operators and an aircraft registration tax on large aircraft that are typically used for international operations. As described in the previous chapter, this arrangement of charging the operators is in lieu of more direct measures such as a passenger tax.

Figure 7.1
Comparisons of Cost and Revenue



Source: Team Analysis
Note: includes special fee on Australia's international operators and timing differences.*

The industry participants pay between $16.7 million through user charges and license fees, with the split between the industry sectors shown in the diagram. In all cases the cost of regulating each sector is greater than the funds contributed to safety regulation.

Figure 7.4
Financial Impact on Selected Industry Participants

Industry Participant	Operational Information - Selected Case Study Examples					Proposed Changes (a)					
	Fuel Costs	Total Opg Costs	No. of Aircraft	Hours Flown (000s)	No. of Staff	Licence Entry Fee	Licence Renewal Fee	Fuel Tax	A/c Rego Tax	Total Charges	Total Charges as a % of Operating Costs
Airline- International Operations	$325m	$3,858m	54	190	17,800	Hourly Rate	$40k - $130k	Nil	$2.2 - $2.7m	$2.2 - $2.8m	0.05 - 0.07
Airline - Domestic Operations	$300m	$1,580m	40	128	9,000	Hourly Rate	$40k - $130k	$8.5 - 9.0m	$0.2 - 0.4	$8.7 - $9.5m	0.5 - 0.6
Airline - Regional Operations	$3.6m	$30m	15	12	170	Hourly Rate	$4.0k - $15k	$15 - 25k	$12 - 23k	$66 - $128k	0.2 - 0.4
Charter Operator & Flying School - Large	$1.25m	$7m	11	8.5	19	Hourly Rate	$1.0k - $2.0k	$1.0 - 2.5k	$6.6 - 8.5k	$18 - $31k	0.2 - 0.4
Charter Operator & Flying School - Small	$128k	$497k	2	1.1	5	Hourly Rate	$1.0k - $2.0k	$1.0 - 2.5k	$300 - 600k	$2.3 - $5.1k	0.5 - 1.0
Training/Flying School - Large	$150k	$924k	7	5.4	6	Hourly Rate	$800 - $1.5k	$1.0 - 2.0k	$3.0 - 7.0k	$4.8 - $11k	0.5 - 1.2
Training/Flying School - Small	$88k	$461k	4	1	5	Hourly Rate	$800 - $1.0k	$1.0 - 2.5k	$600k - $1m	$2.4 - $4k	0.5 - 0.9
Agricultural Operator	$96k	$237k	2	0.6	4	Hourly Rate	$600 - $800	$1.0 - 2.5k	$300 - 600k	$1.9 - $3.9k	0.8 - 1.6
Maintenance Organisation - Class A	-	$110m	-	-	-	Hourly Rate	$2.0k - $40k	Nil	Nil	$9.0k - $50k	0.02 - 0.04
Maintenance Organisation - Class B	-	$450k	-	-	9	Hourly Rate	$400 - $600	Nil	Nil	$0.5k - $0.8k	0.1 - 0.2
Aircraft Component Overhaul/Manufacturer	-	$280m	-	-	2,700	Hourly Rate	$300 - $20k	Nil	Nil	$10k - $20k	0.00 - 0.01

The total operating costs of the aviation industry have been estimated by the team, based on published data and BTCE analysis, at over $8 billion. This figure includes the costs of the airlines, airworthiness organisations, estimates of the relevant aircraft manufacturers, designers and maintenance organisations and costs associated with private aviation activities. A high level estimate of the segmentation by industry sectors indicates that the high capacity air transport sector accounts for $7.5 billion of these costs, with low capacity air transport, aerial work and the private sector accounting for an estimated $350 million, $250 million and $100 million respectively.

Figure 7.2 shows the costs of aviation safety regulation to be recovered from beneficiaries including a breakdown of the industry by the four sectors described earlier. Setting this level of cost recovery against the estimates of total sector operating costs shows that the relative impact of the funding strategy by sector varies from 0.04% of total operating costs for high capacity air transport to approximately 7.9% of total operating costs for the private sector.

Figure 7.2
Costs and Revenue by Sector

Beneficiary/ Source of Funds	Estimated Industry Operating Costs ($million)	Contribution to Funding $million	% of Operating Costs
High Capacity Air Transport	7,500	3.2	0.04
Low Capacity Air Transport	350	3.2	1.0
Aerial Work	250	2.4	1.0
Private and Sport	100	7.9	7.9

Source: Team Analysis

Company Impact

Figure 7.3 overleaf summarises how the strategy will impact on categories of companies and individuals in the industry. As recommended by this report, licence renewal fees will be introduced in almost all circumstances and the aircraft registration tax is also new. The fuel levy which already contributes toward safety regulation cost recovery as part of the 1993/94 interim increases substantially.

Figure 7.3
Licence Fees, Charges and Industry Taxation

Industry Participant	User Charges	Licence Renewal Fee	Entry Licence Fee	Fuel Tax	Aircraft Registration Tax
Aerodrome	○	●	○		
Airline	○	●	⊙	⊙	●
Charter Operation	○	●	⊙	⊙	●
Freight Operation	○	●	○	⊙	●
Flying School	○	●	⊙	⊙	●
Agricultural Operation	○	●	○	⊙	●
Private Operations			○	⊙	●
Maintenance Organisation	○	●	○		
Pilot	○	●	⊙		
LAME	○	○	⊙		
Approved Persons	○	●	○		

Source: Team analysis

Key: ○ continuing charge or small increase
⊙ significant increase in charge
● new charge

Figure 7.4 opposite provides examples of the additional costs that would be met by industry participants under the new strategy. To provide context, some financial and operational data is shown against each example participant. This data has been provided by industry associations or taken from published data.

Some of the proposed charges have been calculated for the different organisations. These are indicative costs only and are subject to change as the detailed user charges and licence fees are calculated in more detail during the implementation phase. It is estimated that on an individual company basis the total cost recovered from industry organisations adds between 0.05% and 1.6% to their operating costs, with small commercial organisations having the largest relative contribution. In absolute dollar terms, the high capacity air transport sector, including the contribution from their passengers, provide the major portion of funds, amounting to over $20 million of the required industry contribution of $38 million.

International Comparisons

The project team performed research to compare these charges with the practices adopted in other countries. The charges levied by other countries for aviation safety regulation vary substantially and the recommended funding strategy for Australia typically falls between the two extremes. Appendix 2 provides a detailed description of the approaches to cost recovery for aviation safety regulation used in these different countries. The results of this analysis are shown in Figure 7.5 on the next page.

Figure 7.5
Charges In Other Countries

Proposed Funding Mechanism	Australia Likely Impact Current	Australia Likely Impact Future	Current Charges (A$) (a) UK	Sweden	USA
Aerodrome license renewal (HC RPT)	No charge	500 - 900	2,900	50,000	-
Initial issues of pilot's license					
- Private	15	45-55	310	40	0
- Commercial	62	145-170	300	115	0
- Air Transport	57	145-175	450	115	0
Issue of aircraft endorsement on pilot's license	10	15 - 20	195	-	0
Initial issue of LAME license	160	200 - 300	190	85	0
LAME license renewal (p.a.)	16	60 - 120	50	85	0

Source: *Team Analysis*
Notes: *(a) The following exchange rates were assumed: GBP 0.45 = AUD 1.00; USD 0.65 = AUD 1.00; and SWK 5.50 = AUD 1.00*

Conclusions

With the aviation industry comprising such a diverse group of companies and individuals, it is possible, at this stage, to comment only upon the broad impact of the funding strategy.

All companies and individuals will incur a substantial increase in their contribution to the costs of aviation safety regulation, although often this will come from a low base. It is likely that some of the increase in a company's costs resulting from safety regulation charges would ultimately be recovered from customers or passengers. In the general aviation sector, where many aviation businesses are marginally profitable at best, the additional cost of aviation safety regulation will have a significant economic effect.

Given the lack of economic data for the aviation industry, any further assessment of economic impact must be performed as part of the consultation process. The incidence of fees set out in this section provide information that enables companies and individuals to assess, at a broad level, the financial implications of the recommended funding strategy.

8. IMPLEMENTATION

Overview of Implementation

Before the funding strategy recommended in this report can be implemented, a substantial amount of work will need to be performed by DASR, and other areas of the CAA and Government, to refine the strategy and prepare for implementation.

This section outlines the major activities that are required to take the funding strategy through implementation. The target dates for additional funding measures are 1 July 1994 and 1 July 1995 as the Government reduces its funding of safety regulation. As 1 July 1994 is only six months away, it is likely that not all measures will be able to be finalised by this date and interim transition arrangements will be required.

The following activities are required to implement the recommended funding strategy:

- arrange for the review and approval of the recommended funding strategy by the CAA executive management, the CAA Board and the Government;
- undertake a broad-based industry consultation program to inform industry of the recommended funding strategy and to receive feedback;
- calculate detailed charges and rates of taxation to recover the forecast cost of safety regulation in 1994/95 and 1995/96 as the reduction in government funding takes effect, and draft the required legislation to implement new taxes as approved by government;
- formulate transition arrangements until all measures can be implemented; and
- change DASR's management procedures and systems to support the funding mechanisms in the strategy.

Review and Approval of Strategy

The CAA Executive and the CAA Board will need to review the funding strategy recommended in this report in the light of other change programs and the broader policy direction of the CAA. Management will need to be satisfied that the funding strategy will be flexible enough to cope with any likely changes in the nature of safety regulation and the way that it is undertaken.

The next step will be for the CAA Board to submit its recommendation to the Minister for Transport and Communications for consideration by the Government, particularly those measures involving taxation. Presumably, Government will test the recommended strategy, as endorsed by the CAA Board, against the broader needs of its aviation policies and, in particular, will consider whether the recommended mix of industry specific taxes are acceptable and when such taxes can be enacted. Review of the formula which currently determines the level of funding by the general taxpayer, and of the rate at which that funding is being reduced, so that the Government's existing funding decision is implemented on 1 July 1995, are also matters to be decided by Government and not the CAA.

Consultation Program

Since the funding strategy includes charges and industry taxes which will affect all industry participants, it is recommended that the CAA conduct a broad-based consultation program with the aviation industry. The need for such a consultation program is driven by industry's close interest in safety regulation cost recovery. To successfully implement a funding strategy, it will be necessary to fully inform all industry sectors of the measures to be used, receive feedback on detailed measures and identify any specific case where the funding strategy results in an inequitable or inefficient outcome. A program of consultation should be structured so that:

- all industry participants have the opportunity to be informed of the funding strategy recommended by the CAA;

- industry participants receive written explanatory material and, where ever possible, have the opportunity to attend a briefing conducted by CAA staff;

- CAA prepare a written record of its consultation with industry participants for both its executive management and its Board, and for the Government; and

- both the CAA and the Government should be prepared to adjust the funding strategy, should this be warranted, for issues arising from consultation with industry participants.

The output of the consultation program will be a better understanding of how the proposed funding strategy will impact the industry. This may result in changes being made to take account of special cases or to refine some of the allocations that have been defined between joint beneficiaries. The project team consulted with DASR's internal group responsible for industry communication. The advice received was that it must involve face-to-face discussions with all sectors of industry in all regions of Australia. This type of consultation

takes up to 16 weeks to complete. Since the funding package requires decisions by the Government in order to implement taxation measures, it will be necessary to inform Government and obtain its agreement for a consultation program to commence ahead of the Government completing its consideration of the funding package.

Calculation of Charges and Taxes

Additional work is needed to determine the detail of the recommended funding strategy. It is important that sufficient detail is available to explain the strategy to industry ahead of the consultation program and, in due course, to fully document the strategy before final decisions are taken by the CAA Board and the Government.

This work includes the requirement to:

- define how the contribution from taxes will affect individual licence fees;
- create a detailed schedule of prices for requested services, including defined fixed prices wherever possible;
- forecast the number of active industry participants that will contribute through a renewable licence or certificate;
- calculate the licence, certificate and exam fees to cover all circumstances;
- finalise the level of fuel excise, including the extent to which different rates of excise are to be applied to avtur and avgas fuels;
- finalise the categories and rates for the recommended aircraft registration tax; and
- re-run the cost model so that charges and taxes can be finalised on cost data reflecting additional labour activity information.

The team did not address in detail existing arrangements whereby some industry sectors, such as sport aviation, receive subsidy payments from the CAA to offset the cost of safety regulation undertaken on the CAA's behalf. Arguably, such payments should be funded by Government, rather than other industry participants, if they are to continue in the future. The team recommends that, in the light of the overall funding strategy adopted by the CAA and the Government following this report, DASR review the basis for this type of subsidy payment.

Transition Arrangements

There are long lead times required to implement elements of the recommended funding strategy. Specific legislation is required to implement new taxation measures. Even if preparation for legislative changes and other consequential administrative decisions commenced concurrently with a program of consultation with industry, and ahead of decisions by the CAA and Government on the funding strategy, recommended licence fees and new taxation measures could not be put in place from 1 July 1994. It is likely that 1 July 1995 is the earliest date at which annual licence fees and the proposed aircraft registration tax can be fully implemented.

Changes to the Civil Aviation Regulations and the Civil Aviation Act are required to fully implement a renewal fee for licences and certificates, and before the proposed new taxes can be approved by the Minister and be put to Parliament, the CAA Board must review the strategy. Elements of the strategy involving increases in charges and licence fees must also be submitted to the Prices Surveillance Authority.

The likely position, therefore, is that only the proposed increase in excise on fuel (which requires an administrative decision by the Government and no change to existing legislation) and, possibly, increases in direct charges for requested services could be put in place from 1 July 1994. Even in these cases, careful thought needs to be given to implementing such measures before a broad-based consultation program with industry on all recommended funding measures is completed.

As illustrated in Figure 8.1 (on the following page), working papers supporting the Government's decision to reduce funding imply that the Government's payment to the CAA for aviation safety regulation will be reduced by $15.4 million (from $42.2 million to $26.8 million in 1994/95). Full implementation of the increase in fuel excise, as part of the project team's recommended funding strategy, would generate a total of $18.8 million in 1994/95. Little additional revenue can be expected from other sources from 1 July 1994.

Figure 8.1
Transition Arrangements

	1993/94 $ million	1994/95 $ million	1995/96 $ million
Government Contribution	42.2	26.8	20.4[a]
Requested Service	10.6	10.6	6.8
Licence Fees			7.3
Fuel Tax	3.9[b]	18.8[c]	18.8[c]
Aircraft Registration Tax	-	-	5.1
Other	1.7		
Funding Requirement	58.4	58.4	58.4
Funding Shortfall	-	2.2[c]	-

Note: a) Assumes Government's funding calculation does not change.
b) Fuel tax plus contribution from international operations.
c) Assumes that shortfall in Government contribution is funded from fuel tax.

Source: Government; team analysis

On these figures it is likely that the total revenue from even the maximum recommended increase in fuel excise will not fully offset the currently planned reduction in general taxpayer funding and a funding shortfall of $2.2 million will exist in 1994/95.

Changes to DASR's Management Procedures and Systems

Depending on the final strategy determined by decisions of the CAA Board and the Government, DASR will need to change some of its procedures and systems and train staff to administer new cost recovery measures. The costing and pricing project team has not reviewed this aspect of implementation in detail, but notes that:

- appropriate computer systems need to be developed or acquired to track details of licence holders and to administer a regular cycle of renewals and payment of fees and taxes;

- labour activity recording systems, corporate financial systems and the cost model may need to be further reviewed to maximise system efficiency;

- resources required to implement and administer the recommended funding strategy need to be determined; and

- communication and education for DASR staff will be needed to explain the new funding methods and ensure a consistent approach to charging.

Although existing databases may provide a foundation for developing the new procedures and systems needed to administer new licences and taxes, the tasks of testing and implementing such procedures and validating data will take a substantial period of time. For example, it may take up to six months to develop, test and implement the software needed to administer an aircraft registration tax. Accordingly, such activities, and the lead times required to complete them, need to be incorporated into the implementation of the funding strategy.

As regards labour activity recording, FOMISS needs to be further examined. The project team reached the view that this system generates sufficiently accurate information for the purposes of calculating prices and rates of taxation, but has noted that:

- some codes and activity descriptions need to be reviewed;

- the overall purpose and focus of FOMISS as a management tool needs to be reviewed; and

- DASR management should revalidate and endorse the role and status of FOMISS.

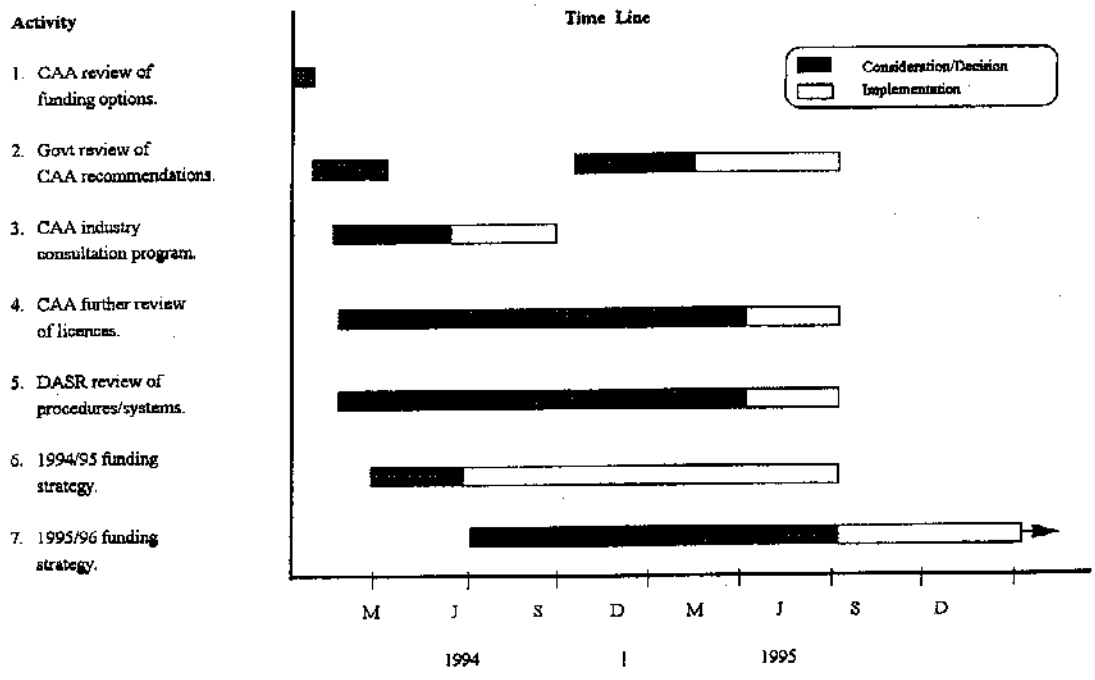
The project team considers that resources required to administer its recommended funding strategy will be modest and, assuming that the additional tasks generated by the strategy cannot be handled by existing staff, would lead to only a small increase in resources (both staff and systems). Existing resources, possibly with external short-term assistance, will be required to detail and develop arrangements for the recommended aircraft registration tax and licence renewal fees. Preliminary discussions with DASR management suggest that, once in place, personnel licensing might require additional staff. The resources required to administer licence renewal fees for AOC, C of A and Aerodrome Licences has yet to be addressed. The possible workload implications for the invoicing and debt recovery functions of the accounts receivable area in Corporate Finance has also not been determined.

According to Swedavia, the proposed direct charges are unlikely to cause a negative safety impact if the detailed design of the scheme is done in a reasonable way. There is a possibility that some of the most marginal operators may go underground if charges are perceived to be high compared to their overall economy. The working practices of DASR should be adapted to counteract any negative trends in industry behaviour, especially during the transition period.

Implementation Timetable

To provide a starting point, the costing and pricing project team provides its initial assessment of the timetable that will be required to implement the recommended funding strategy in Figure 8.2.

Figure 8.2
Implementation Plan for the Recommended Funding Strategy



Source: Team Analysis

The costing and pricing project team is aware that two other projects have been established to address the detail of introducing licence renewal fees and to develop and manage a broad-based consultation program on future safety regulation cost recovery. Both of these projects need to be re-activated ahead of decisions on the future funding of safety regulation. By addressing the issues raised in this chapter, both projects are vital to the successful implementation of the future funding strategy.

GLOSSARY OF TERMS

AOC	Air Operators Certificate.
Avgas	Aviation gasoline. This fuel is used by aircraft with reciprocating engines.
Avtur	Aviation turbine fuel.
BASI	Bureau of Air Safety Investigation.
Bosch Report	1984 Report of the Independent Inquiry into Aviation Cost Recovery. The Inquiry was chaired by Henry Bosch.
C of A	Certificate of Approval. This certificate is issued to airworthiness organisations in the industry which meet relevant standards of maintenance and related activities.
Civil Aviation Act 1988	Provides the legislative authority for the establishment and operation of the Civil Aviation Authority.
CAA	Civil Aviation Authority Australia.
Compliance	These activities undertaken by the CAA and include planned and unplanned surveillance, prosecution and administrative action and industry education.
Costing and Pricing Project	This project was initiated following the report of the Steering Committee established to consider the recommendations of the Terrell Review.
DASR	Directorate of Air Safety Regulation. DASR is a division within the CAA reporting to the Chief Executive Officer.
Entry Costs	These are the costs required to be incurred for licences, examinations, etc if an individual or organisation wishes to participate in the aviation industry.

FOMISS	Field Office and Management Information Support System. This is an activity based time recording system used throughout DASR.
General Ledger	This primarily records the corporate financial transactions of the CAA.
Implementation of Standards	The terminology used by the Bosch Report to define requested services including licensing.
Licence	Document issues to personnel and organisations in the aviation industry reflecting the fact that certain levels of competency have been attained.
Planned Surveillance	This is the annual program of surveillance developed by DASR.
Regulatory Services	These are the services and activities required to be undertaken by DASR to ensure standards are met.
Requested Services	These are those regulatory services apart from licensing and other entry functions.
Safety Impact Analysis	This analysis was undertaken on the safety impact of charging for each of the activities defined in the service categories.
Safety Regulation & Standards Division	Immediate predecessor of DASR. DASR came into being in April 1993.
Surveillance	This is the program of planned and unplanned activity undertaken to ensure that the industry is maintaining safety standards.
Swedavia	The consulting arm of Sweden's Civil Aviation Administration. This group was engaged to provide independent comment on the safety impact analysis.

Unplanned Surveillance	This is the spot checking of participants in the industry to ensure safety standards are being met. It also includes any visits required following planned surveillance.

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