



COMMONWEALTH GRANTS COMMISSION

DRAFT ASSESSMENT PAPER CGC 2003/63

DISPERSION

Prepared for the Commission's 2003 Conferences on Draft Assessments

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NOTE

Included in this paper are the results of preliminary calculations based on the methods proposed throughout the paper and using the data currently available. Those results are indicative only and should be seen as work in progress. Ongoing changes are being made to standards and factor calculations as new data come to hand. Moreover, the calculations have been done using a prototype assessment system and are subject to ongoing revision as checking processes proceed.

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INTRODUCTION

1. This paper presents a draft assessment for the Dispersion factor for the 2004 Review. It builds on staff proposals set out in *Discussion Paper CGC 2002/22 Dispersion* and State comments provided in the 2003 Rejoinder Submissions and bilateral discussions and correspondence.

THE 1999 REVIEW ASSESSMENT

2. Population distribution varies greatly within States. Generally, it costs more to provide government services to a dispersed population than to a compact urban population. The dispersion factors allow for the effects of interstate differences in population settlement patterns on the relative costs of providing services.

3. In the 1993 and 1999 Reviews, the dispersion assessment was based on a conceptual model which assumed that:

- (i) States typically used a hierarchical structure of central offices, regional offices and urban centres/localities in delivering services;
- (ii) differences in cost of providing services could arise in two ways:
 - from the location of people and their distance away from the regional centre and the capital city; and
 - from the remoteness of people rather than distance per se¹; and
- (iii) costs of providing services were related to the population in a location.

4. These assumptions implied that:

- (i) the larger the proportion of a State's population that lived away from a the regional centre and the capital city, the larger the disability;
- (ii) the greater the distance a given population lived from the regional centre and the capital city, the larger the disability; and
- (iii) the larger the proportion of a State's population that lived in remote areas, the larger the disability.

¹ In the 1999 Review, remoteness was defined by the ABS Rural, Remote and Metropolitan Area (RRMA) classification.

5. The Commission then identified the range of costs affected by the pattern of population settlement in a State. In the 1999 Review, these were essentially communication costs, freight costs, travel costs and locality allowances.

6. To measure the disability, the Commission required:

- (i) estimates of the size of each type of dispersion-affected cost² — the data were collected from the States and averaged to derive the standards;
- (ii) a cost schedule that related the level of each type of cost to distance (or remoteness) — as far as possible, these schedules were derived by reference to pricing schedules of private sector providers or an average of the observed policies of the States; and
- (iii) specific weights (called input weights) to adjust the calculation to recognise that some inputs were used more extensively in providing services in remote areas than in non-remote areas — these weights were based on judgement informed by a limited amount of data provided by some States in the 1999 Review.

Importance of assessment

7. Overall, the dispersion factors have important effects on the distribution of untied assistance. Compared with an equal per capita assessment, the 2003 Update dispersion assessment redistributed \$375.7 million of notional grants from New South Wales, Victoria, South Australia, Tasmania and the ACT to the other States³. Table 1 sets out the redistribution between States in the 2003 Update.

Table 1 EFFECT OF DISPERSION FACTORS ON GRANT DISTRIBUTION — 2003 UPDATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total ^(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Contribution to 2003 Update relativities	-124.3	-192.5	76.2	136.2	-33.0	-7.7	-18.3	163.3	375.7

(a) Total redistribution.

² The size of each dispersion-affected cost was category-specific and measured as a proportion of the category standard expenses (expense weight).

³ For the 2003 Update, the redistributed amount of \$375.7 million was calculated including interactions. For the purposes of demonstrating the impact of the dispersion assessment on grants distribution in this paper, we have calculated the redistribution effects without interactions.

ANALYSIS OF 2004 REVIEW ASSESSMENT ISSUES

8. In the 2004 Review, there has been little comment by the States on the conceptual model used for the assessment. However, there were a number of issues relating to method or scope of the assessment that required attention. They were:

- (i) the impact of technology on the assessment;
- (ii) the size of the input weights;
- (iii) the use of the Accessibility/Remoteness Index of Australia (ARIA) to define remoteness;
- (iv) the estimation of the proportions of dispersion-affected costs (expense weights);
- (v) the inclusion of a repairs and maintenance cost component;
- (vi) the scope of some cost components;
- (vii) the cost weight for unsealed roads; and
- (viii) the use of travel time rather than distance in the assessment.

The impact of technology on the assessment

9. ***Preliminary State views.*** Victoria argued that the developments in information technology, telecommunications and other approaches to service delivery should reduce the range and level of the dispersion-affected costs. It also said that the availability of modern technology and approaches to service delivery implied that States that continued to incur high levels of dispersion-affected costs did so in part because of their own policy decisions.

10. Based on a consultant's report, Victoria argued that the implication for the dispersion assessment was that the 1999 Review method overstated the distance-cost relationship for the telephone and travel components. It suggested that the Commission should discount the 1999 Review raw distance based factors for telephones by 40 per cent and for travel by 10 per cent, reduce the telephone expenditure weight by 10 per cent and reduce the input weights that allowed for the greater use of telephones in remote and very remote areas to two from three and four respectively.

11. By contrast, Queensland, Western Australia, Tasmania and the Northern Territory, argued that new technologies had not reduced dispersion-related costs. Rather, they had improved service standards and bridged the gap in service standards between the regional and metropolitan areas. These States also argued that the use of technology was not as widespread as Victoria postulated because deficiencies in infrastructure prevented them from using technology in a cost-effective and reliable manner.

12. **Staff proposals.** In *Discussion Paper CGC2002/22*, staff proposed updating recent State data on the cost-distance relationships using the latest price schedules and proportions of dispersion-affected costs using recent data on State expenses. It was considered that this action would result in the assessment capturing some, if not all, effects of technology. Staff also proposed to undertake a study to quantify the availability and costs of using technology in service delivery across States. The study would be aimed at informing the Commission on whether further adjustments to the assessment were needed for the impact of technology.

13. **Further State views.** Victoria repeated its arguments that the increased availability and use of technology had reduced the costs of providing services in remote areas and that the 1999 Review method overstated the distance-cost relationship for the telephone and travel components.

14. Victoria said that it had provided the Commission with extensive evidence demonstrating the uptake and use of Information Communication Technology (ICT) across States⁴. It also said it had provided evidence demonstrating that all States had undertaken (or were committed to) similar kinds of ICT initiatives in the health, education and administration of justice sectors. It said that these developments had significantly reduced the costs of service delivery.

15. Victoria also argued that the Commission should not undertake the research proposed in the *Discussion Paper CGC 2002/7 Developments in Technology and Public Administration-Implication for Assessments*. Rather, the Commission should make adjustments to the current assessment using data published by independent, verifiable sources such as Telstra.

16. Queensland repeated its argument that the use of ICT had not reduced the cost of providing government services, but in many cases, increased the quality of services and the demand for new services. This added to costs. For example, the current focus of telehealth services in Queensland has been enhancing services and providing better access for remote Queenslanders.

17. Queensland was also highly critical of Victoria for generalising the findings of the Booz, Allen & Hamilton report⁵ to the Queensland telehealth services State-wide. According to Queensland, the findings of that report were based on:

- inaccurate and incomplete information derived from a website;
- results of ‘isolated clinical trials’, focussing on proving clinical accuracy and feasibility; and
- cost-benefit studies that considered only recurrent variable costs and ignored the ‘whole of life costs’ associated with developing, implementing, supporting and maintaining the ICT investment.

⁴ Victoria is referring to the Booz, Allen and Hamilton report which was with its main submission.

⁵ Booz, Allen , Hamilton, *The effect of the take-up of new technology on delivery of essential public services by State governments in Australia*, Sydney, March 2002 in Victorian Main Submission, April 2002 Volume 2.

18. Queensland said that ICT technology might not be as widespread as Victoria had argued, for two reasons:

- (i) Queensland had substantial areas of its population which were not serviced by Telstra; and
- (ii) the majority of Internet subscribers were based in the city (Brisbane and Moreton Statistical Division).

19. The Northern Territory said that the introduction of new technology had generally improved the level and quality of services in the remote areas, and had not reduced the costs of providing services.

20. Tasmania argued that while the use of technology could improve the quality of services to remote areas, the overall cost of service delivery was not lowered. The cost of establishing and operating technology was met through the head office and was likely to be reflected in scale-related delivery cost factors rather than dispersion.

21. **Analysis.** The arguments of the States present a strong conceptual case that the growing use of technology has affected the services the States provide and the cost of them. Consequently, the Commission accepts that its assessments should aim to capture the current effects of ICT on the relative costs of providing services. However, the States have presented different views on how ICT has affected services and on the direction and size of its effect on costs.

22. The Commission decided that it should examine the various arguments. *Discussion Paper CGC 2003/8 Impact of Technology on Assessments* outlines the work that has been done and the conclusions of that work. The work examined the availability of technology across Australia, the issues that affect the use of technology and the different impacts of technology on the various costs States incur in providing services. It concluded that most of the effects of ICT could be captured in the dispersion assessment.

23. The discussion paper argued that conceptually the availability of technology changed the mix of inputs used to provide services. This would impact on the cost of providing a unit of service broadly in two ways.

- (i) The availability of ICT allows substitution of ICT for other more expensive inputs, which can reduce costs.
- (ii) The availability of ICT allows increases in the demand for and quality of services, which implies more of all inputs.

24. Based on the information provided by the States, the discussion paper concluded that these two effects materialised differently across States and regions, depending on the access to, cost, and use of the technology. Since the dispersion assessment allows for regional differences in costs, the paper concluded that most effects of ICT on State budgets could be included in the dispersion factor, either implicitly by updating the data on the level of dispersion-affected expenses and the prices of some inputs used in providing State services, or explicitly by making specific technology-based

adjustments to the scope and methods of the assessment. The paper also noted that some small effects would be reflected in the 2004 Review administrative scale assessment.

25. The discussion paper also concluded that the effects of technology on the dispersion assessment were not large. This result was consistent with the view that the growing use of technology had many effects which moved in different directions. Those effects include:

- (i) the use of more expensive voice communication has declined in most regions but relatively more so in urban and regional areas;
- (ii) increasing non-voice communication has led to relatively higher costs in urban areas;
- (iii) reductions in inter-regional travel have been greatest in more remote areas;
- (iv) extra freight, repair and support costs have been greatest in more remote regions.

26. Finally, the discussion paper concluded that technology would not have a large effect on State grant distribution until it had a substantial effect on labour-related costs such as locality allowances and other on-costs associated with staffing remote areas.

27. ***Implicitly reflecting the effects of technology.*** The Commission has updated the:

- (i) proportions of standard expenses attributable to dispersion using the most recent information provided by the States; and
- (ii) cost-distance relationships using the most recent data from service providers.

This updating of data recognises the aggregate effect of changes in the use of technology on the expenses incurred by States.

28. ***Explicit adjustments for technology.*** The discussion paper on the impact of technology concluded that there have been significant increases in non-voice communication in government administration and service delivery over the last five years. However, the effects have been different across regions because of the differences in the available capacity of communication networks and the cost of technology. The discussion paper proposed adjustments to the dispersion assessment including:

- (i) replacing the telephone cost component used in the 1999 Review assessment with two separate communication components, voice and non-voice;
- (ii) using the defined 'technology regions' in the assessment to reflect the differences in intensity of use of technology in different regions;

- (iii) capturing the extent to which technology has changed the amount of air and inter-regional travel used in providing services in urban and remote areas, by changing the input weights to reflect the different intensity of use;
- (iv) capturing the effect of the greater availability of technology in some regional centres, which reduces the relative importance of voice communication and travel between them and their capital city, by changing the regional weights; and
- (v) recognising that the increasing use of ICT has affected the level of expenses incurred in relation to the purchase of equipment, support, maintenance and training as well as communication and travel costs, by including those expenses in relevant dispersion-affected costs.

29. Together, these adjustments encompass the changes to the assessments suggested by Victoria (except for the proposed change to input weights for the use of voice communications in remote and very remote areas). They also reflect the arguments of other States that the growing use of technology has not had a uniform effect across all regions and has affected a range of costs in addition to the costs of accessing and using communication infrastructure.

The size of the input weights

30. ***1999 Review method.*** In the 1999 Review, the Commission made allowances (called input weights) for the observation that quantities of some inputs used to provide services in remote areas were higher relative to those in non-remote areas. The input weights used in the 1999 Review are shown in Table 2.

Table 2 INPUT WEIGHTS, 1999 REVIEW

Cost component	Remote area	Rainfall-affected areas and isolated islands
Telephone ^(a)	3.00	4.00
Local Travel ^(b)	1.25	1.75
General Freight ^(b)	1.25	1.50

(a) Based on Queensland schools data.

(b) Based on Commission judgment.

31. ***Preliminary State views.*** Victoria argued that the input weights assessed to account for higher telephone use in remote areas, and rainfall-affected areas and isolated islands, were too high. It argued that, based on Telstra data, input weights of 2 to 2.4 would be more appropriate than the currently assessed weights of 3 to 4.

32. **Staff proposals.** Staff proposed to seek data from States on input mix patterns in remote and non-remote areas for all cost components and on changes in input mixes arising from improved access to the Internet.

33. **Further State views.** Queensland said that the telephone input weight of 3 for remote areas and 4 for rainfall-affected and isolated islands should be retained.

34. **Analysis.** The Commission noted that the weights suggested by Victoria on the basis of Telstra's average number of long distance calls between non-metropolitan and metropolitan areas were highly aggregated, and may not directly relate to delivery of State type services, as the Queensland schools data did.

35. Queensland provided cost data arising from telephone, pager and fax use, obtained from the Department of Justice & Attorney General. These data indicated that the average cost per lodgement for Magistrates' courts in remote and very remote locations was 5 to 6 times that in the urban courts.

36. In response to the Dispersion Special Data Request, the New South Wales Road Traffic Authority (RTA) provided data on telephone, travel and freight expense for motor registries for the capital city, regional centres and locations in New South Wales. Based on these data, the RTA calculated a set of input weights for different locations.

37. The New South Wales and Queensland data did not provide conclusive evidence of more intensive use of telephone communication in remote areas because they did not control for differences in the cost of telephone calls. In addition, the New South Wales data, apart from Broken Hill, do not include remote locations as defined in the dispersion assessment.

38. The information and insights gathered in the technology study suggest that the increased use of non-voice communication in government administration and service delivery would have reduced the volume of telephone calls, at least for some remote areas if not for very remote areas.

39. However, analysis of Queensland Health data on the volume of telephone calls in Queensland health service districts, as set out in Table 3, indicates that input weights of about 3 for remote and about 7 for very remote areas could be applied. These are higher than the weights currently used.

Table 3 NUMBER OF TELEPHONE CALLS PER CAPITA BY AREAS

	Non-remote ^(a)	Remote ^(b)	Very remote ^(b)
Number of telephone calls	25 979 800	1 214 861	455 462
Population	3 596 291	49 374	9 469
Number of telephone calls per capita	7.2	24.6	48.1
Input weight	1	3.4	6.7

(a) Population estimated as the differences of total population obtained from 2001 Census Data and the population for the remote areas reported in this table.

(b) Population obtained from Queensland Health, Health Service District Profile website.
Source: Queensland Rejoinder Submission: 4.3A Dispersion Attachment.

40. **Commission decisions.** Given the different conclusions implied by the various sets of information and in the absence of broader information and a conceptual justification for the increased weights, we are reluctant to generalise the Queensland results to other States. Pending further information and investigation, we have decided to retain the current telephone input weights of 3 and 4 for remote and very remote areas respectively.

The use of ARIA to define remoteness

41. **1999 Review method.** In the 1999 Review, the Commission used the Remote and Metropolitan Area (RRMA) classification to measure remoteness. The Commission also recognised that additional costs were incurred in some areas where accessibility was not possible by normal means for substantial parts of the year due to climatic and other circumstances. They were classified as ‘Rainfall Affected Areas and Isolated Islands’. These areas were given additional weights in the calculation of disabilities for some of the dispersion-affected costs.

42. Since then, the ARIA classification⁶ has replaced the RRMA classification as the means of identifying remoteness (inaccessibility) in most analytical work in Australia.

43. The ABS has incorporated a variation of ARIA scores (known as ARIA+) into the 2001 edition of the Australian Standard Geographical Classification (ASGC). This variation has been used for the 2001 Census of Population and Housing as a measure of remoteness⁷.

44. **Preliminary State views.** Western Australia and the Northern Territory supported, in principle the use of ARIA+ as the measure of remoteness. However, they noted the following deficiencies of the index:

- (i) it is a poor measure of accessibility because road conditions and seasonal inaccessibility are ignored;
- (ii) it fails to adequately reflect actual service delivery environments because it measures distances to service centres that sometimes cross State borders; and
- (iii) it fails to distinguish degrees of ‘remoteness’ within its very remote category.

⁶ Developed by the National Key Centre for Social Applications of Geographical Information System at the University of Adelaide, sponsored by the Commonwealth Department of Health and Aged Care.

⁷ ARIA+ differs from ARIA because an extra category of service centres has been added to the classification.

45. **Staff proposals.** In *Discussion Paper CGC 2002/22 Dispersion*, Staff suggested that there were two ways the ARIA+ classification might be used in the dispersion assessment. That is, it could be used:

- (i) to replace the distance and remoteness measures used in the 1999 Review; or
- (ii) to identify remote areas in the assessment.

46. Since the ARIA classification is based on road distance⁸ and does not take into account road conditions or seasonal inaccessibility, staff also proposed to retain the rainfall-affected areas and isolated islands as defined in the 1999 Review to take account of the additional costs of providing services to these seasonally inaccessible areas.

47. **Further State views.** Queensland and the Northern Territory supported the use of the ARIA+ index as the measure of remoteness with modifications to it to account for road conditions and seasonal inaccessibility. Queensland did not support the replacement of the distance variable used in the assessment with the ARIA+ scores. It said the distances to service centres measured by the ARIA+ scores did not reflect State government service provision patterns.

48. South Australia and Western Australia said ARIA+ was essentially a national index that was not well suited to analysing State services. For example, Darwin and Hobart are not classified as major service centres and the distance effect for Broome is measured from Darwin rather than Perth.

49. Tasmania said that ARIA+ was a better measure than the RRMA classification. It also said that if the Commission decided to modify the ARIA+ index, care should be taken to ensure that no double counting would occur when the measure was used in conjunction with the socio-demographic composition factor to determine the impact of locality.

50. The Northern Territory suggested that the number of ARIA+ classifications should be expanded to accommodate extremely remote areas.

51. **Commission decisions.** The Commission has asked the National Centre for Social Applications of Geographical Information Systems (GISCA) to develop a State-based ARIA index which may be more relevant for our assessments. It will also reclassify Darwin⁹ and Hobart as the major service centres in their States.

52. Pending the completion of the new State-based index, we have not progressed work aimed at considering whether ARIA+ can be used as a substitute for the existing distance-based dispersion model.

⁸ The distance is adjusted for islands (see Commonwealth Department of Health and Aged Care, *Measuring Remoteness: Accessibility/Remoteness, Index of Australia (ARIA)*, Revised Edition, Occasional Paper: New Series Number 14, October 2001, for detail).

⁹ The Northern Territory has a concern about this.

53. For the draft assessments, we have used the ARIA+ classification to identify remote areas¹⁰. In doing so, we have made adjustments to overcome some of the shortcomings of the indexes, particularly the State boundary problem and ARIA's special treatment of islands¹¹. As the GISCA refinement to ARIA+ index will not include adjustments for road conditions and seasonal inaccessibility, we propose to retain the rainfall-affected areas and isolated islands as defined in the 1999 Review to take account of the additional costs of providing services to these seasonally inaccessible areas.

54. Table A1 in Attachment A sets out the interim variations to the ARIA+ classification. Table A2 in Attachment A compares geographic and population summary statistics calculated in the 1999 and 2004 Reviews, with and without the Commission's adjustments to the ARIA+ classification.

The estimation of expense weights

55. **1999 Review method.** The expense weights used in assessing the dispersion factor represent the average proportion of expenses States incur on each dispersion-affected cost in each category. These weights indicate the relative importance of the dispersion-affected cost in the category.

56. Expense weights were based on information provided by all States during the 1999 Review. However, the data provided by States were adjusted to allow for indirect and hidden costs (where the relevant costs were included as part of some other expense item) as follows:

- (i) for telephone costs, an upward adjustment of 10 per cent was made on the basis of judgement because communication costs were often included as part of services purchased by State agencies;
- (ii) for road travel costs, an upward adjustment of 10 per cent, based on judgement, was made for similar reasons;
- (iii) for general freight costs, an increase of 100 per cent was made on the basis of judgement because freight charges were not accounted for separately in the cost of goods and material purchased locally;
- (iv) for inter-regional travel, an upward adjustment of 50 per cent was made to allow for unproductive travel time using data from the

¹⁰ These include the remote and very remote Australia categories of remoteness defined in the ARIA+ classification.

¹¹ The method used to calculate remoteness scores for Tasmania adjusted the Class B service centre distances, measured to Hobart and Launceston, by adding a factor of 500 km to account for the distance between these centres and Melbourne, the closest Class A service centre. For other islands with identified localities, distance measured between the centroid of the island locality and the closest mainland point was weighted by a factor between 2 and 10 depending on the distance measured (Commonwealth Department of Health and Age Care, *Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA)*, Occasional Papers: New Series Number 14, October 2001, p 14-15).

National Roads and Motorists' Association Limited (NRMA) and judgement; and

- (v) for locality allowances, an upward adjustment of 40 per cent was made to allow for housing subsidy costs. This adjustment was based on data on the average housing subsidies States provide, expressed as a percentage of locality allowances.

57. **Preliminary State views.** New South Wales suggested that the Commission review the 'loading' it assigned to dispersion factors because telemedicine had been cost effective in comparison with traditional methods of service delivery.

58. Victoria said that, as one of the adjustments for the impact of ICT, the Commission should cease the 10 per cent adjustments to telephone and travel costs.

59. The Northern Territory suggested that the expenditure weights for telephone costs should reflect the increasing use of telecommunication technology such as Internet access, teleconferencing and videoconferencing.

60. **Staff proposals.** Staff said that the category-specific expense weights for dispersion would be revised using updated data to be sought from the States as part of the normal processes of the 2004 Review.

61. **Further State views.** A number of States raised concerns about the quality and comparability of the data collected for the dispersion assessment in the 2004 Review.

62. Victoria, in a letter attached to its data return, argued that it was unable to identify much of the requested data because the Commission had requested data that significantly differed from the information collated by departments. Victoria also said that other States would have similar problems. Therefore, Victoria was concerned about using these data in the dispersion assessment.

63. Western Australia was also concerned about the quality of the data collected. In the letter accompanying its dispersion data return, Western Australia argued that it had difficulty in fully quantifying dispersion costs because its recording systems were not designed to measure these costs and because there was not enough time for all agencies to respond. It also argued that the complexity and generalised definitions of the data request might lead to different interpretations across States. Western Australia raised the following specific issues, which it considered could result in the dispersion-affected costs being underestimated:

- the distinction between total State service delivery and remote areas was confusing;
- the scope of the head office functions was open to interpretation;
- the scope of various travel components was not well defined;
- making reliable estimates for freight was difficult because such costs were embedded in the purchase price of good and services;

- underestimation of costs due to outsourcing policies;
- locality allowances expenses should not be confined to remote areas;
- air travel for the 2001-02 financial year would have been low because of the collapse of Ansett; and
- unproductive travel time costs related to prisoner transport or outback police patrols should be included in the assessment.

64. South Australia argued that much of the data requested were not readily available and required a significant degree of estimation. It was, therefore, concerned about the quality and comparability (both between agencies and States) of the data.

65. *Analysis.* The Commission is aware that State accounting processes are not designed to readily identify the types of costs that are affected by dispersion. It also acknowledges that the data may not be fully comparable between States. However, it uses the data to establish the Australian average levels of expenditure, not interstate differentials. The averaging processes involved in establishing the standards imply that some lack of comparability at the individual State level could be accommodated.

66. *Commission decisions.* The Commission has decided to estimate the category-specific component weights based on the information provided by the States. However, we have made adjustments to allow for the larger problems with interstate comparability and over or underestimation in the data supplied. Details of the estimation of the expense weights are in Attachment B.

67. *Adjustment of weights for general freight.* There are strong reasons to indicate that State data understate the general freight costs. As was the case in the 1999 Review, a number of States in their responses to the dispersion data request said that they had difficulties in estimating freight costs because they were not accounted for separately or were embedded in the price of goods and services purchased locally. The Commission accepts that there is a case that data on freight expenses provided by the States underestimate the actual impact of freight on the expenses incurred by States. It also accepts that the level of underestimation would be large. In the absence of better information, the Commission has decided to continue the adjustment applied in the 1999 Review — that is, increase the weights by 100 per cent.

68. *Other adjustments to expense weights.* The Commission has not made any other adjustments in this review. The Commission does not consider that a conceptual case exists for the inclusion of unproductive travel time associated with inter-regional travel. In the case of locality allowances, the 1999 Review figures were adjusted to include allowance for the costs of staff housing. Similar adjustments have not been made in this review because States were explicitly asked to include those costs in the locality allowance figures they provided.

The inclusion of a repairs and maintenance cost component

69. ***1999 Review method.*** Repairs and maintenance expenses were not treated as dispersion-affected costs in the 1999 Review. That is, the dispersion assessment made no explicit allowance for the differences in the costs of repairs and maintenance of building and equipment in the remote areas in the 1999 Review.

70. ***Preliminary State views.*** Queensland, Western Australia and the Northern Territory argued that additional costs were incurred in the repairs and maintenance of buildings and equipment in remote areas. They said that charges for repair and maintenance services, often provided by the private sector, were higher in the remote areas due to lack of competition.

71. ***Staff proposals.*** Staff proposed to assess the merits of including a repairs and maintenance cost component in the assessment based on the data requested from the States.

72. ***Further State views.*** Queensland and the Northern Territory supported the inclusion of a 'repairs and maintenance' cost component in the assessment. South Australia noted, however, that its whole-of-State maintenance and repairs contract made it impossible to identify those expenses for the remote areas. It suggested that this situation was also likely to happen in other States. South Australia doubted that the Commission would be able to collect comprehensive data to assess the repairs and maintenance disabilities.

73. ***Analysis.*** There is a strong conceptual case that repairs and maintenance costs are affected by dispersion. Based on the information provided by the States, repairs and maintenance required in the remote areas involve tradespeople travelling to service delivery outlets or for equipment to be freighted to repair centres. Therefore, the costs of repairs and maintenance incurred by the States are affected by the distance of the State facility from the location of the tradespeople or the repair centre. Furthermore, these costs are material. Data collected from the States on repairs and maintenance costs for buildings and equipment in the remote areas indicate that those costs accounted for about ten per cent of the total dispersion-affected costs.

74. ***Commission decisions.*** We have decided to include a repairs and maintenance cost component in the dispersion assessment because there is a conceptual case that those costs are affected by population dispersion and settlement patterns, and the expenses are material.

75. To allow for the different ways repairs may be done, we disaggregated the estimated repairs and maintenance costs into a freight element and other repairs. We allocated one-third of repairs and maintenance costs to freight based purely on judgement. The freight component should be subject to the same disability as other freight costs. The other repairs would be subject to a disability that reflects travel times from towns to nearby populations calculated as follows.

76. ***Assessment method for other repairs.*** Data provided by the States (particularly New South Wales, Queensland, Western Australia and the Northern Territory) indicated that the most common arrangements for repairs and maintenance in remote areas

are for tradespeople from the nearest centre to be engaged on an hourly basis. They are generally paid for travel time and time on the job. This suggests the disability factor should reflect travel plus work time.

77. To estimate the travel and job time, we assumed that tradespeople used in remote Census Collection Districts (CDs) come from the nearest urban centre of 1000 or more population. We calculated the time for a one way trip to a remote CD as the distance to its nearest urban centre divided by an average hourly travelling speed of 80 kilometres per hour. That speed was considered reasonable given the nature of roads in many remote areas. We also assumed that standard time on a job would be an hour. The notional costs of repair and maintenance for a remote CD therefore depend on the travel time and the population of the CD. (As with all other parts of the dispersion model, population is used as a proxy for the level of demand).

78. The Northern Territory argued that repair work in remote areas frequently required overnight trips by tradespeople. It provided data that indicated repairs and maintenance expenses in the remote areas consisted of 39 per cent labour, 40 per cent materials and 21 per cent other costs. The other costs component included vehicle per kilometre payments, call out rate, out of hours rate and accommodation costs. Based on that information, we concluded that the extra costs represented a cost loading of 20 per cent. We considered this a material amount and decided to include a cost weight of 1.2 to account for additional cost incurred to serve the very remote areas where the tradespeople may have to stay overnight.

79. Table 4 sets out the proposed repair and maintenance factors.

Table 4 REPAIR AND MAINTENANCE FACTORS, GENERAL CATEGORIES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004 Review Draft	0.23664	0.11435	1.34562	3.05947	1.35853	0.65538	0.00000	19.25268

80. **Reality check.** Table 5 sets out the estimated impact on State grants redistribution due to repairs and maintenance disabilities. Repairs and maintenance redistributed about \$82 million, accounting for 21 per cent of the estimated total grants redistribution due to dispersion assessment in the 2004 Review draft calculations.

Table 5 DISPERSION — TOTAL GRANTS REDISTRIBUTION AND REDISTRIBUTION DUE TO REPAIRS AND MAINTENANCE, 2004 REVIEW DRAFT CALCULATIONS^(a)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redistribution
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Repairs and maintenance	-42.2	-35.9	11.3	32.9	4.6	-1.4	-2.7	33.4	82.1
Total redistribution	-133.6	-195.2	135.9	140.4	-22.1	-10.1	-27.6	112.3	388.6

(a) Based on applying the proposed 2004 Review factors to standard expenditures for 2001-02.

81. Table 6 sets out the total expenses on repairs and maintenance in remote areas provided by the States via the Dispersion Special Data Collection. Table 6 also sets out the adjusted total repairs and maintenance expenses used to estimate the expense weights in the assessment. The adjustments were made to improve interstate consistency and the relevancy of the data to the assessment.¹²

Table 6 REPAIRS AND MAINTENANCE EXPENSES WITH AND WITHOUT ADJUSTMENTS BY STATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Without adjustments ^(a)	32.2	40.7	51.3	17.8	12.0	0.4	0.0	46.7	201.1
With adjustments ^(b)	19.5	32.3	42.3	17.0	12.0	0.3	0.0	13.4	136.9

(a) Based on expense data on repairs and maintenance returned by the States for the 2004 Review.

(b) Adjusted to ensure data quality and consistency.

82. The total adjusted repairs and maintenance expenses of \$136.9 million in Table 6 could have understated the actual expenses because data were missing in some categories.

83. In its Budget Paper No.3 *The Budget 2002-03*, the Northern Territory identified the repairs and maintenance expenses for most of its agencies. Of the total operating expenses of \$4 426 million for all agencies, about \$122 million were for repairs and maintenance expenses. The data provided by the States, which we used to set the standard level of repairs and maintenance costs for remote areas, imply that those expenses accounted for about 0.17 per cent of the standard expenses. This figure together with the assessed repairs and maintenance factor implies the standardised expenses on repairs and maintenance for the Northern Territory would be about \$41 million. Given that about half

¹² For example, the Northern Territory reported that \$18 and \$15 million of repairs and maintenance expenses related to the General Government and Mining, Fuel and Energy categories respectively. We could not reconcile the former with the types of services covered by the general government services category. We could not reconcile remote area repairs and maintenance expenditure of \$15 million with the expenses in the latter category — it represents about half the Territory expenditure classified to the category. We consequently did not use either amounts in setting the expense weights.

of the Northern Territory population lives in remote areas, our assessment appears reasonable.

84. Table 7 sets out the grants redistribution due to repairs and maintenance by groups of categories. It shows the effects of repairs done by visiting tradespeople and by freighting equipment to service centres separately. Repairs and maintenance redistributes a large amount of grants relative to the total redistribution. Housing, Law and Order, and Education account for about 73 per cent of the total redistribution due to the high level of repairs and maintenance associated with those services.

Table 7 GRANTS REDISTRIBUTION DUE TO REPAIRS AND MAINTENANCE DISABILITIES BY GROUP OF CATEGORIES

Category/group of categories	Repairs & maintenance	General freight ^(a)	Total	Proportion of standard expenditure
	\$m	\$m	\$m	%
Housing	27.0	0.0	27.0	0.44
Law and order	17.7	1.3	19.1	0.27
Education	14.8	1.0	15.8	0.08
Culture and recreation	8.5	0.6	9.1	0.43
Health (non-inpatient)	5.2	0.4	5.5	0.09
Primary industry	3.3	0.2	3.5	0.18
Services to Indigenous Communities	2.6	0.8	3.4	1.33
Roads	2.2	0.2	2.4	0.08
Welfare	0.9	0.1	0.9	0.02
Others	0.0	0.0	0.0	0.00
Total	82.1	4.6	86.7	0.16^(b)

(a) Treating one-third of repairs and maintenance in all categories except Housing as subject to freight disabilities.

(b) Includes only those standard expenditures for categories where repairs and maintenance disabilities are assessed.

Broaden the scope of some cost components

85. ***Preliminary State views.*** Queensland suggested that the costs of data telecommunications and mobile phone technology should be included in the telephone cost component to account for their greater cost (due to more expensive technologies required) and use in the rural and remote areas.

86. Queensland and Western Australia said that the dispersion assessment should include the full cost of staff turnover, such as costs of recruiting and retaining specialist staff in regional and remote areas¹³.

87. Tasmania and the Northern Territory said that additional costs of attracting and retaining General Practitioners (GPs) and/or Visiting Medical Officers (VMOs) to work in rural and remote areas should be recognised in the locality allowances disabilities.

88. **Staff proposals.** Staff proposed to consider whether the scope of these cost components should be expanded in the light of the information provided by States in response to our special data request.

89. **Further State views.** Queensland and the Northern Territory supported the expansion of the telephone cost component to include expenditure on mobile phone and Internet access. Data included in Queensland's rejoinder submission showed that voice telephone calls represented 72 per cent of total telecommunication expenditure in 2001-02. Mobile phones, wide area network (WAN) and Internet service provider (ISP) together represented the remainder of the expenditure.

90. Queensland and the Northern Territory supported the expansion of the remote removals cost component to include the costs of staff recruitment and training.

91. South Australia argued that the proposal to expand the scope of the telecommunication and remote removals components should be assessed based on quality data provided by the States.

92. The Northern Territory supported the adjustment of the locality allowances to take into account locations where States experienced extreme difficulty in attracting and retaining staff.

93. **Analysis.** The Commission has examined the arguments and data provided by the States and noted the following.

- (i) *Telephone cost component.* The data provided by the States indicated that the range of telecommunication modes has increased greatly. The staff investigation on technology found that the use of non-voice communication has also increased.
- (ii) *Remote staff turnover cost component.* The arguments presented by the States indicated that staff turnover rates in remote areas were much higher than in most urban and non-remote areas. They also indicated that there were substantial costs arising from that in the form of recruitment and specialised training. States have provided details of these costs. For example, Northern Territory data indicate that in the education portfolio, the recruitment and training costs for remote area staff are similar in size to the staff transfer costs.

¹³ For example, Queensland asserted that the cost of recruiting one overseas Specialist Medical Officer to work at Toowoomba was \$300 000. Of the 30 specialist staff at that hospital, 14 were recruited internationally.

- (iii) *Locality allowances.* Queensland, Western Australia, South Australia, Tasmania and the Northern Territory provided lists of locations where they experienced extreme difficulty in attracting and retaining staff for medical services.¹⁴ We identified locations where annual staff turnover was very high — for example, in Cape York health district, the rate of turnover of doctors exceeds 100 per cent. Table 8 sets out, for each State, the number of remote Census Collection Districts (CDs) associated with the identified locations where staff turnover was in excess of 100 per cent and expresses them as a percentage of the total remote CDs.

States incur extra costs in these localities, including special arrangements over and above the usual remote locality allowances for extra leave; professional development; appointment and transfer expenses; holiday airfares; lump sum isolation bonuses; housing; car expenses; access to a vehicle for personal use; access to consumables including pharmaceutical supplies, medical sundries and office requisites; use of health centre facilities and equipment including telephone and fax; and access to medical library resources.

Table 8 NUMBER OF CDs WITH DIFFICULTIES IN ATTRACTING MEDICAL STAFF BY STATE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Remote CDs with difficulties in attracting medical staff	0	0	35	72	13	17	0	190	327
Total remote CDs ^(a)	221	72	544	771	173	28	0	291	2 100
Percentage ^(b)	0	0	6	9	8	61	0	65	16

(a) Classified according to CGC interim variations to ABS ARIA+ classification (see Attachment A) and including rainfall-affected areas and isolated islands.

(b) Remote CDs with difficulties in attracting medical staff as a percentage of total remote CDs.

Source: 2004 Review Dispersion Data Return.

94. ***Commission decisions.*** The above material demonstrates some extra costs, which were not previously considered as dispersion-affected costs, are affected by remoteness and distance (or, in the case of telecommunications, by developments in modes of services). We consider that a conceptual case exists for extending the scope of:

- the telephone cost component to include expenses on mobile phone and internet access; and
- the remote removals component to include the costs of staff recruitment and training.

¹⁴ Some States also provided a list for education or police categories but data were only consistently available for medical staff across States.

95. To better reflect the new coverage, we have renamed the ‘remote removals’ cost component ‘remote staff turnover costs’.

96. We think there is also a conceptual case for an extra cost weight for locality allowances, given the necessity for face-to-face delivery of services, especially primary health care, in remote localities and the observation that all the States with large remote areas incur extra expenses in attracting or retaining basic levels of staff. However, there is little comprehensive information available to measure the extra costs.

97. To examine the possible impact on State budgets, we used judgement to apply a cost loading of 20 per cent¹⁵ to the population of the remote CDs identified as having very extreme difficulties in attracting and retaining staff to reflect the additional costs incurred. We then applied locality allowances factors, modified to include that extra cost loading, to the two health categories that cover primary health services. We confined the adjustments to these two categories because data were only consistently available for medical staff. We calculated the impact of this adjustment on notional assessments. The results indicated that the likely impact of adjusting the locality allowances factors to reflect the additional cost incurred due to extreme difficulty in attracting and retaining medical staff in remote areas was negligible. We therefore decided not to include such adjustments. We would reconsider this decision if States provided further evidence to support the case.

Cost weight for travel on unsealed roads

98. ***1999 Review method.*** Based on judgement, a cost weight of 1.1 was applied to capture the need to use more expensive four wheel drive (4WD) vehicles on unsealed roads.

99. ***Preliminary State views.*** Based on running costs data for 4WD vehicles, the Northern Territory suggested increasing the weight for unsealed road travel from 1.1 to 1.54.

100. ***Staff proposals.*** Staff proposed to investigate the issue.

101. ***Further State views.*** Queensland and the Northern Territory argued that the Commission should increase the current weight of 1.1 for unsealed road travel.

102. ***Analysis.*** In its main submission, the Northern Territory provided data on the additional costs of running a 4WD vehicle compared with a standard vehicle. Table 9 reproduces the Northern Territory’s vehicle running costs data.

¹⁵ The cost weight of 1.2 is intended to be conservative. The difficulties in attracting and retaining staff for a particular location may be a result of policy choices.

Table 9 VEHICLE RUNNING COSTS^(a), NORTHERN TERRITORY

	Registration	Fuel ^(b)	Service & maintenance	Hire rate ^(c)	Total
	\$	\$	\$	\$	\$
2WD utility (2.4L)					
<i>Mitsubishi Triton GLX 4x2 Petrol Traybody Utility</i>	44	225	64	1 105	1 438
4WD utility (3.0L)					
<i>Mitsubishi Triton GLX 4x4 Petrol Traybody Utility</i>	44	252	106	1 288	1 690
2WD station wagon (3.8L)					
<i>Holden Commodore Executive Station Wagon (Auto)</i>	51	207	37	1 028	1 323
4WD heavy duty station wagon (4.2L)					
<i>Toyota Landcruiser STD 4x4 Diesel Station Wagon (Manual)</i>	53	268	167	1 706	2 194

(a) Based on costs of driving 2000 kilometres per month.

(b) Fuel costs based on average unleaded price of 90c/litre.

(c) Indicative monthly hire rate over 25000km/12 months.

Source: Northern Territory Main Submission, Dispersion, Chapter 6: p 54.

103. Based on the running costs set out in Table 9 and the fact that 75 per cent of the Territory fleet was large/heavy duty 4WDs, the Northern Territory argued that a weight of 1.54 should be applied to the unsealed road distance in the calculation of both inter-regional and local travel.

104. **Commission decision.** The data provided by the Northern Territory indicate that there is a conceptual case that the costs of travel on unsealed roads are greater than on sealed roads because:

- (i) of the greater wear and tear unsealed surfaces have on all vehicles; and
- (ii) travel on unsealed roads in remote areas requires a greater use of 4WD vehicles which are more expensive to run than conventional vehicles.

105. The data and our observations during workplace discussions, suggest the effect could be material for States with large remote areas and we have enough information to estimate the effects with a reasonable level of confidence.

106. To estimate the extra costs of 4WD vehicles, we obtained data from the National Roads and Motorists' Association Limited (NRMA) to compare the operating costs of standard vehicles and 4WDs. The vehicles included in the comparison were cars commonly used by government agencies in providing services.

107. Table 10 sets out the vehicle operating costs. The average cost of running a 4WD relative to a standard vehicle is about 1.5. Based on judgment informed by the data on vehicle fleets provided by the Northern Territory, we have assumed that 4WDs will be

used on 75 per cent of the unsealed road travel. On that basis we have decided to increase the cost weight for unsealed road travel from 1.1 to 1.3.

Table 10 COMPARISON OF VEHICLE OPERATING COSTS

Type	Operating costs per week ^(a)	Average cost
	\$	\$
Standard vehicle		
Ford Falcon Forte 4.0 litre	200.61	
Ford Laser 1.8 litre 4 door automatic sedan	158.27	
Holden Commodore Executive 3.8 litre	187.74	
Mitsubishi Magna Executive 3.5 litre	192.80	
Toyota Camry CSI 2.2 litre	160.30	
Toyota Corolla 1.8 litre	155.67	175.90
4WD		
Toyota Landcruiser 4x4 4.5 litre	313.74	
Subaru Forester	192.68	253.21

(a) Vehicle operating costs include costs of depreciation, interest, registration, insurance, NRMA membership, fuel and maintenance.

Source: NRMA: http://www.mynrma.com.au/motoring/cars/buying_and_selling/new_car/maintenance/operating_costs, 16 June 2003.

The use of travel time rather than distance in the assessment

108. ***1999 Review method.*** In the 1999 Review, actual distance was the main determinant of cost levels.

109. ***Preliminary State views.*** In its main submission, Tasmania proposed the adoption of travel time rather than distance as the main determinant of cost levels because travel time better reflected the loss of productive work time.

110. ***Staff proposals.*** Staff proposed to consider travel time as the main determinant in the assessment provided that comprehensive data were available.

111. ***Further State views.*** Queensland and South Australia preferred measures of distance rather than travel time as the main determinant of dispersion cost levels. Queensland suggested a higher weight for inter-regional and air travel expense components to account for unproductive travel time.

112. In its rejoinder submission, Tasmania said that travel time should be used because of the limitation of ARIA+ in measuring actual distance along a road network.

113. The Northern Territory acknowledged the importance of assessing unproductive travel time. However, it considered the difficulties and cost of objectively

determining travel time outweighed the benefits of using it as the main determinant of dispersion-related costs.

114. **Commission decisions.** The Commission accepts that a conceptual case exists for using travel time rather than distance in the assessment. However, in the light of State views and the lack of comparable data, we have decided to retain distance as the main determinant in the assessment.

ASSESSMENT METHOD FOR THE 2004 REVIEW

Method

115. **Commission decisions.** State arguments in this review have addressed the scope of the model and some weights within it. They have not, however, fundamentally questioned the distance-based model. We have not identified any reasons to change the model. We therefore have decided to continue to assess dispersion disabilities using the 1999 Review empirical model with distance being the major determinant of additional costs incurred in States in the provision of services to dispersed populations.

116. Similarly, in the absence of major arguments for changes in the regional centres used in the 1999 Review, we have decided to continue to use them in the 2004 Review. Attachment C sets out those regional centres.

Cost components

117. **Commission decisions.** Based on States' submissions and Commission research outlined earlier in this paper, the Commission has decided to include the following cost components in the assessment:

- (i) telecommunication, with sub-components for:
 - voice communication; and
 - non-voice communication;
- (ii) general freight costs;
- (iii) remote staff turnover;
- (iv) travel costs, with sub-components for:
 - air travel;
 - inter-regional travel; and
 - local travel;
- (v) locality allowances; and

- (vi) repairs and maintenance.

Data

118. **Commission decisions.** To ensure the assessment reflects the most recent population distribution and service delivery arrangements, we have updated:

- (i) the population distribution and distance variables using data from the 2001 ABS Census;
- (ii) the cost schedules, which identify the relationships between cost levels and distance, for telecommunication, freight, air travel and road travel using recent commercial data;
- (iii) the standard proportion of disability-affected costs in each category (category-specific expense weights) using information provided by the States in response to the Commission's special data request for dispersion, as adjusted to improve interstate comparability and to reduce over or underestimation; and
- (iv) we have also varied some input and regional weights in the model to reflect the impact of technology on the processes States use to provide services.

Results — 2004 Review draft dispersion component factors

119. Table 11 to Table 16 summarise the 2004 Review draft dispersion component factors and compare them with the factors assessed in the 1999 Review. Details of the calculation of the factors are in Attachment D.

120. The factors set out in Table 11 are for general categories in which the dispersion disabilities depend on the location of total State populations. The factors for the two reviews are comparable. The changes in their sizes between the two reviews reflect the combination of changes in price-distance schedules, the distribution of population and the definition of remoteness. In the cases of telecommunications, air travel and inter-regional travel, the table shows the factors with and without the changes in input weights we made to reflect the effects of technology.

121. Table 12 shows the air travel and inter-regional travel factors assessed for police and inpatient services where different methods were adopted because the nature of the services requires different travel patterns. For example, for most cases, the air travel factor covered travel between regional centres and capital cities where the distance exceeds 250 kilometres, but for police and inpatient services it covered all travel where the distance exceeded 250 kilometres. The table also shows the factors as adjusted to reflect the effects of technology on travel associated with inpatient services.

122. Table 13 shows the factors we applied to the Government Education - Secondary Schools and Administration of Justice categories to reflect the effects of

technology on the costs associated with repairs to equipment and inter-regional travel for technology related maintenance, support and training. To ensure these factors were applied to only the relevant expenses, the repairs and inter-regional cost weights for the two categories were disaggregated into the technology and other elements.

123. As was the case in the 1999 Review, there are some categories where the location of the general population was considered a poor indicator of where State services would be delivered. In those cases, we have used the geographic distribution of an indicator that better reflects the location of service delivery. For example, in the case of services to primary industries and mining fuel and energy industries we have used the location of employment in those industries. In the case of Services to Indigenous Communities we have used the distribution of the Indigenous population. In each of those cases, geographic distribution of the chosen indicator is very different from that of general population and has a material effect on the factors. Table 14 to Table 16 set out the factors for those special categories and compare them with those assessed in the 1999 Review.

124. The dispersion factors assessed for the Primary Industry category are different for some cost components between the two reviews because we have used different data in the assessment (see Attachment D for details). The factors for Mining, Fuel and Energy, and Services to Indigenous Communities are comparable between the two reviews.

125. In *Draft Assessment Paper CGC 2003/42, National Parks and Wildlife Services*, the Commission said it would assess the dispersion factor for that category on the basis of the location of national parks. That decision has not been implemented in this paper because the data to do so are not yet available — factors based on total population have been used. It is the intention to replace them with factors that reflect the location of parks when the data are available.

Table 11 DISPERSION COMPONENT FACTOR, GENERAL CATEGORIES

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Telecommunication								
R2004 voice default ^(a)	0.97719	0.88092	1.15615	1.10837	0.92275	0.91639	0.41694	2.23668
R2004 voice technology adjusted ^(b)	0.96071	0.84929	1.16273	1.19477	0.90213	0.97845	0.38138	2.62067
R2004 Non-voice	0.99826	1.00012	1.00021	1.00372	1.00023	0.99853	1.00437	1.00898
R1999 telephone	0.93387	0.82838	1.23430	1.20825	0.90162	0.90742	0.58692	2.57835
Freight, general								
R2004	1.02154	0.90622	1.26872	1.03387	0.53354	0.93374	0.07621	2.21652
R1999	1.03564	0.81741	1.29761	1.23264	0.52911	0.79908	0.27634	1.82352
Travel, air								
R2004	1.08549	0.14733	2.39401	0.99993	0.18066	0.00368	0.00000	2.37584
R2004 technology adjusted ^(c)	1.08407	0.14713	2.39591	1.00045	0.18042	0.00459	0.00000	2.38512
R1999	1.02445	0.06641	2.64125	1.01741	0.16900	0.00370	0.00000	2.64177
Travel, inter-regional								
R2004	1.07961	0.87967	0.90794	1.00468	1.01978	2.00410	0.14309	1.75620
R2004 technology adjusted ^(c)	1.09571	0.89446	0.90860	0.95093	1.01362	1.96474	0.15627	1.51242
R1999	1.04244	0.93424	0.88192	1.01714	1.03492	2.03079	0.18210	1.61863
Travel, local								
R2004	0.95010	0.93338	0.96236	1.29206	0.88370	0.66783	0.52703	4.29531
R1999	0.91677	0.79761	0.97874	1.67903	0.90743	0.70768	0.98992	3.85545
Remote staff turnover								
R2004	0.24604	0.09238	1.67619	3.58061	0.99480	0.52981	0.00000	11.94306
R1999	0.31279	0.10592	1.89717	3.52133	0.46452	0.11237	0.00000	12.06328
Locality allowances								
R2004	0.19730	0.09808	1.75264	3.59691	0.72447	0.15583	0.00000	14.51536
R1999	0.29518	0.10080	2.01115	3.34868	0.40898	0.09789	0.00000	12.72284
Repairs & maintenance								
R2004	0.23664	0.11435	1.34562	3.05947	1.35853	0.65538	0.00000	19.25268

(a) Default telephone factor with regional weight = 0.25, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4.

(b) Technology-adjusted factor with regional weight = 0.2, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4, input weight for technology region type 1 and 2 = 0.75.

(c) Applied to Administration of Justice and Government Secondary School expense categories only.

Table 12 DISPERSION COMPONENT FACTOR, INPATIENT SERVICES AND POLICE^(a)

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Travel, air								
R2004	0.77385	0.10032	2.46806	1.44549	0.62862	0.04849	0.00000	4.42064
R2004 technology ^(b)	0.72599	0.09312	2.48038	1.51300	0.69604	0.05580	0.00000	4.73468
R1999	0.78433	0.05399	2.30199	2.01924	0.42739	0.05296	0.00000	5.34069
Travel, inter-regional								
R2004	1.17099	0.94462	0.94451	0.69919	0.99434	1.67595	0.10235	0.55878
R2004 technology ^(b)	1.17484	0.96059	0.92360	0.66124	0.99770	1.81666	0.10003	0.46169
R1999	1.12828	0.95788	0.92432	0.74520	1.06284	1.71558	0.26324	0.51904

(a) The air and inter-regional cost components are assessed differently for Inpatient Services and Police. Details of assessment are in Attachment D.

(b) Technology-adjusted travel components only applicable to Inpatient Services, not Police.

Table 13 DISPERSION COMPONENT FACTORS, TECHNOLOGY-RELATED FACTORS

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Technology-related repairs^(a)								
Secondary Schools	0.89305	0.96676	1.21323	1.16474	0.68452	0.78025	0.11581	3.80331
Administration of Justice	0.92015	0.98305	1.20585	1.10970	0.69140	0.83941	0.12207	3.05074
Technology-related support, maintenance and training								
Secondary Schools	0.92638	0.67966	1.15182	1.65221	0.92090	0.53970	0.22973	4.61344
Administration of Justice	0.98593	0.71702	1.14708	1.46591	0.92238	0.57796	0.23132	3.61265

(a) Calculated by adjusting the general freight factors with the standard ratio of students to workstations in each region.

(b) Calculated by adjusting the inter-regional travel factors with the standard ratio of students to workstations in each region.

Table 14 DISPERSION COMPONENT FACTOR, PRIMARY INDUSTRY

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Telecommunication								
R2004 voice default ^(a)	0.79957	0.70626	1.34032	1.50535	1.45139	1.14299	0.02695	1.18021
R2004 voice technology adjusted ^(b)	0.79376	0.67968	1.34785	1.59310	1.40973	1.17573	0.02257	1.26618
R2004 non-voice	0.82998	0.89468	1.20865	1.13487	1.43935	1.53368	0.12379	0.73987
R1999 telephone	0.77087	0.59355	1.01336	1.93838	1.24970	1.39668	0.07904	7.32313
Freight, general								
R2004	0.84272	0.82227	1.40793	1.27222	0.93434	1.35022	0.00644	1.37547
R1999	0.84177	0.62043	1.13483	1.82281	0.94894	1.23395	0.03507	6.10292
Travel, air								
R2004	1.25223	0.22987	2.03311	0.93667	0.39969	0.01332	0.00000	0.78399
R1999	0.32823	0.07076	0.63685	0.52972	0.11638	0.00361	0.00000	1.19038
Travel, inter-regional								
R2004	0.73619	0.93582	1.17121	1.21474	1.60812	1.82289	0.00769	0.98671
R1999	0.79598	0.69909	0.65582	1.68380	1.83949	2.21694	0.03065	6.43031
Travel, local								
R2004	0.58296	0.52103	1.42435	2.09155	1.46655	1.62633	0.02865	4.05107
R1999	0.43186	0.34819	1.37369	1.93774	0.78141	1.62244	0.13336	19.91523
Remote staff turnover								
R2004	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
R1999	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
Locality allowances								
R2004	0.43996	0.14476	2.26097	2.64431	0.88852	0.32917	0.00000	4.17939
R1999	0.34020	0.25145	1.59322	3.52806	0.42821	0.14961	0.00000	13.31964
Repairs & maintenance								
R2004	0.39234	0.14720	1.75137	2.97009	1.51868	0.92862	0.00000	5.85654

(a) Default telephone factor with regional weight = 0.25, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4.

(b) Technology-adjusted telephone factor with regional weight = 0.2, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4, input weight for technology region type 1 and 2 = 0.75.

Table 15 DISPERSION COMPONENT FACTOR, MINING, FUEL AND ENERGY

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Telecommunication								
R2004 voice default ^(a)	0.39771	0.11114	1.51807	4.20679	0.83571	0.90456	0.01288	4.45915
R2004 voice technology adjusted ^(b)	0.36025	0.09631	1.53602	4.29331	0.84856	0.92994	0.01048	4.70654
R2004 Non-voice	0.58253	0.23685	1.34737	3.93403	0.67493	0.84872	0.06608	2.61802
R1999 telephone	0.59313	0.23833	1.29346	3.89222	0.59395	0.81439	0.03502	4.90482
Freight, general								
R2004	0.48176	0.13464	1.51246	4.11944	0.52082	0.77216	0.00240	4.75958
R1999	0.76372	0.29555	1.24136	3.50029	0.41291	0.73744	0.00204	4.26607
Travel, air								
R2004	0.18798	0.01466	2.55528	4.34914	0.00966	0.00000	0.00000	1.41618
R1999	0.46248	0.01209	2.26670	3.84429	0.04187	0.00168	0.00000	3.64835
Travel, inter-regional								
R2004	0.57185	0.12362	1.05247	3.76511	1.39962	1.63952	0.00398	5.36885
R1999	0.81802	0.33816	0.88932	3.03182	1.02480	1.99725	0.01385	4.38835
Travel, local								
R2004	0.14177	0.07374	0.96129	5.75436	0.92075	0.25270	0.01056	9.91009
R1999	0.37112	0.17982	1.08969	4.53106	0.88328	0.60293	0.06818	9.28544
Remote staff turnover								
R2004	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
R1999	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
Locality allowances								
R2004	0.06128	0.00379	1.82819	5.12839	0.77330	0.13295	0.00000	5.64872
R1999	0.14001	0.00652	1.73537	5.32827	0.46530	0.04633	0.00000	6.59688
Repairs & maintenance								
R2004	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000

(a) Default telephone factor with regional weight = 0.25, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4.

(b) Technology-adjusted telephone factor with regional weight = 0.2, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4, input weight for technology region type 1 and 2 = 0.75.

Table 16 DISPERSION COMPONENT FACTOR, SERVICES TO INDIGENOUS COMMUNITIES

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Telecommunication								
R2004 voice default ^(a)	0.60382	0.12583	1.39992	1.86231	0.64828	0.76529	0.10330	22.02749
R2004 voice technology adjusted ^(b)	0.56492	0.10977	1.39250	1.93429	0.60213	0.74426	0.08370	23.45068
R2004 Non-voice	0.86362	0.24441	1.44326	1.48171	0.71543	1.55635	0.51580	11.35432
R1999 telephone	0.52890	0.10432	1.44593	1.98313	0.62168	0.63669	0.11757	24.24580
Freight, general								
R2004	0.56977	0.12462	1.80066	1.69644	0.37496	0.73091	0.01582	19.69653
R1999	0.55932	0.11406	1.85050	1.91404	0.46864	0.56499	0.06154	18.08531
Travel, air								
R2004	0.65377	0.03080	2.42955	1.93590	0.02569	0.00309	0.00000	10.24192
R1999	0.54559	0.01691	2.60705	1.92310	0.02048	0.00310	0.00000	12.24180
Travel, inter-regional								
R2004	0.64413	0.15923	0.77204	2.85580	1.40539	1.60806	0.03369	15.23820
R1999	0.65464	0.17298	0.68278	2.93808	1.59648	1.71181	0.04625	13.98356
Travel, local								
R2004	0.23285	0.05531	0.98499	2.30812	1.03130	0.39406	0.06100	36.28422
R1999	0.19022	0.04048	1.44795	2.49133	0.89770	0.32944	0.12315	30.32518
Remote staff turnover								
R2004	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
R1999	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
Locality allowances								
R2004	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
R1999	1.00000	1.00000	1.00000	1.0000	1.00000	1.0000	1.00000	1.00000
Repairs & maintenance								
R2004	0.10764	0.00501	0.95844	2.56575	1.07945	0.12501	0.00000	39.71526

(a) Default telephone factor with regional weight = 0.25, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4.

(b) Technology-adjusted telephone factor with regional weight = 0.2, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4, input weight for technology region type 1 and 2 = 0.75.

SUMMARY AND CONCLUSION

126. Table 17 and Table 18 set out the estimated impact of the dispersion assessment on notional grants distributions for the 1999 and 2004 Reviews respectively. Table 19 shows the effect of explicit adjustments for changes due to technology, and Table 20 sets out the differences in total distribution between the two reviews. For the purposes of demonstrating the effects of the dispersion assessment on grants movements in this paper, we have estimated the impacts without interactions.

127. Overall, the redistribution arising from the dispersion assessment has increased between the 1999 Review and the 2004 Review. This increase is the combined effect of the following influences, which often work in different directions:

- (i) updating the proportion of total expenses that is considered to be affected by dispersion;
- (ii) changes in the disability factors for most dispersion-affected cost components, reflecting changes in cost schedules — such as freight rates, transport costs, telephone rates;
- (iii) changes in the underlying geographic distribution of population between the 1996 and 2001 Censuses;
- (iv) changes in the range of dispersion-affected costs, such as the inclusion of repairs and maintenance and the inclusion of recruitment and other costs associated with staff turnover in remote areas; and
- (v) changes in component weights, factors and input weights to reflect changes in the costs of providing services due to technology — *Discussion Paper CGC 2003/8 Impact of Technology on Assessments*.

128. The telephone, general freight, inter-regional and local travel cost components redistribute less in the 2004 Review than they did in the 1999 Review. Locality allowances redistribute more, primarily because the scope of the costs was increased. The repairs and maintenance component is included for the first time in the 2004 Review. These two cost components together account about 54 per cent of the total redistribution in 2004 Review.

Table 17 DISPERSION — ESTIMATED GRANTS REDISTRIBUTION BY COST COMPONENT, 1999 REVIEW^(a)

Cost component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redistribution
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Telephone	-10.6	-18.1	15.2	10.9	-2.3	-0.5	-2.9	8.3	34.4
Freight, general	0.9	-5.8	6.5	3.2	-4.3	-0.5	-1.5	1.5	12.1
Freight, remote removals	-12.0	-11.3	8.8	12.6	-2.2	-1.2	-0.9	6.3	27.6
Air travel	-10.3	-46.8	51.8	11.4	-11.2	-5.1	-3.4	6.8	70.0
Inter-regional travel	6.8	-10.7	-11.5	1.8	3.8	12.2	-6.7	4.3	28.9
Local travel	-21.0	-29.4	0.8	35.2	-4.0	-3.0	-0.7	22.2	58.2
Locality allowance	-47.7	-43.9	37.6	45.8	-9.5	-4.6	-3.4	25.6	109.1
Total redistribution	-94.0	-166.1	109.2	121.0	-29.7	-2.8	-19.3	75.0	305.1

(a) Based on applying the 1999 Review factors to standard expenditures for 2001-02.

Table 18 DISPERSION — ESTIMATED GRANTS REDISTRIBUTION BY COST COMPONENT, 2004 REVIEW^(a)

Cost component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redistribution
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Telecommunication	-4.8	-13.2	12.8	6.0	-1.9	-0.7	-4.0	5.8	24.6
Freight, general	0.0	-3.9	7.6	0.9	-4.7	-0.1	-2.1	2.3	10.8
Freight, remote staff turnover	-17.2	-15.1	8.8	17.1	0.0	-0.8	-1.1	8.2	34.2
Air travel	-3.5	-53.1	67.9	4.9	-12.4	-5.9	-4.1	6.0	78.9
Inter-regional travel	10.9	-9.6	-4.1	-2.2	1.6	7.7	-5.5	1.2	21.4
Local travel	-13.3	-12.1	-3.2	20.6	-4.3	-4.1	-4.2	20.7	41.3
Locality allowances	-63.6	-52.3	34.7	60.0	-5.0	-4.8	-3.9	34.8	129.5
Repairs and maintenance	-42.2	-35.9	11.3	32.9	4.6	-1.4	-2.7	33.4	82.1
Total redistribution ^(b)	-91.5	-159.3	124.7	107.4	-26.7	-8.7	-24.9	79.0	311.1
Total redistribution ^(c)	-133.6	-195.2	135.9	140.4	-22.1	-10.1	-27.6	112.3	388.6

(a) Based on applying the proposed 2004 Review factors to standard expenditures for 2001-02.

(b) Total redistribution without the effect of the repairs and maintenance cost component.

(c) Total redistribution with the effect of the repairs and maintenance cost component.

Table 19 DISPERSION — GRANTS REDISTRIBUTION BY COST COMPONENT, 2004 REVIEW WITH ADJUSTMENTS FOR TECHNOLOGY^(a)

Cost component ^(b)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redistribution
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Voice	-5.9	-13.7	11.2	8.0	-2.1	-0.1	-3.5	6.2	25.4
Non-voice	-0.2	-0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.3
Freight, general	0.0	-3.9	7.6	0.9	-4.7	-0.1	-2.1	2.3	10.8
Freight, remote staff turnover	-17.2	-15.1	8.8	17.1	0.0	-0.8	-1.1	8.2	34.2
Air travel	-4.8	-53.2	68.1	5.5	-11.9	-5.8	-4.1	6.3	79.9
Inter-regional travel ^(c)	10.2	-8.9	-4.1	-2.1	1.6	7.5	-5.2	1.1	20.3
Local travel	-13.3	-12.1	-3.2	20.6	-4.3	-4.1	-4.2	20.7	41.3
Locality allowances	-63.6	-52.3	34.7	60.0	-5.0	-4.8	-3.9	34.8	129.5
Repairs and maintenance ^(d)	-41.9	-35.7	11.2	32.8	4.6	-1.4	-2.7	33.2	81.7
ICT related repairs	-1.8	-0.4	2.2	0.8	-1.3	-0.3	-0.8	1.5	4.5
ICT related training	-1.2	-2.6	1.6	2.2	-0.6	-0.4	-0.7	1.7	5.5
Total redistribution	-139.7	-198.0	138.4	145.8	-23.8	-10.4	-28.3	116.0	400.2

- (a) Based on applying the proposed 2004 Review technology-adjusted factors to standard expenditures for 2001-02.
- (b) The technology-adjusted factors, non-voice, are applied to all categories while other technology-adjusted or technology-related factors are applied to three categories: Secondary Schools, Inpatient Services and Administration of Justice.
- (c) Component weights have been adjusted for the categories for which technology-adjusted factors applied to account for part of the expenses on ICT related training.
- (d) Component weights have been adjusted for the categories for which technology-adjusted factors applied to account part of the expenses on ICT related repairs.

Table 20 DISPERSION — DIFFERENCES IN GRANTS REDISTRIBUTION BETWEEN 1999 AND 2004 REVIEWS

Differences in total redistribution	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redistribution
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Without repairs and maintenance	2.5	6.9	15.5	-13.5	3.0	-6.0	-5.5	4.0	31.8
With repairs and maintenance	-39.7	-29.0	26.8	19.4	7.5	-7.3	-8.3	37.4	91.1
With repairs and maintenance and technology	-45.7	-31.9	29.3	24.8	5.8	-7.6	-9.0	41.0	100.9

ATTACHMENT A

INTERIM VARIATIONS TO ARIA+ CLASSIFICATION

Table A1 COMMISSION'S VARIATIONS TO THE ARIA+ CLASSIFICATION^(a)

Areas	ARIA+ Classification	Reasons for proposed change
New South Wales		
Broken Hill	Non-remote	To be treated as a remote area as in the 1999 Review because it is surrounded by remote areas.
CDs at the border between New South Wales and Victoria, associated with the SLAs: Balranald, Hay, Wakool and Windouran	Non-remote	To be treated as remote areas because (a) surrounding CDs associated with these SLAs were treated as remote areas by ARIA+ and (b) they were treated as remote areas in the 1999 Review.
2 CDs associated with SLA Bega Valley	Remote	To be treated as non-remote areas because (a) all other CDs associated with SLA Bega Valley were treated as non-remote areas by ARIA+ and (b) they were treated as non-remote areas in the 1999 Review.
Victoria		
Mildura	Non-remote	To be treated as a remote area as in the 1999 Review because it is surrounded by remote areas.
Queensland		
Fraser Island, Moreton Island and North Stradbroke Island	Remote	To be treated as non-remote areas as in the 1999 Review.
2 CDs associated with SLA Inglewood	Remote	To be treated as non-remote CDs because (a) all other CDs associated with SLA Inglewood were treated as non-remote areas by ARIA+ and (b) they were treated as non-remote areas in the 1999 Review.
South Australia		
Yorke Peninsula (South) and Kangaroo Island	Remote	To be treated as non-remote areas as in the 1999 Review.
CDs associated with SLAs: Lacepede, Southern Mallee and Tatiara in the south-east of South Australia	Remote	To be treated as non-remote areas because (a) other surrounding CDs associated with these SLAs were treated as non-remote areas by ARIA+ and (b) they were treated as non-remote areas in the 1999 Review.
Tasmania		
CDs associated with SLAs: Break O'Day, Central Highlands, Circular Head, Dorset, Derwent Valley, Glamorgan/Spring Bay, Huon Valley, Kingborough, Tasman, Waratah/Wynyard and West Coast	Remote	To be treated as non-remote areas as in the 1999 Review.
Northern Territory		
CD associated with SLA Coomalie	Remote	To be treated as non-remote area because it situated close to Darwin and was treated as non-remote area in the 1999 Review.

(a) None needed for Western Australia and the ACT.

Table A2 COMPARATIVE SUMMARY STATISTICS BETWEEN 1999 AND 2004 REVIEWS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Total number of CDs^(a)									
1999 Review	11 618	7 889	6 372	3 481	3 151	1 088	499	389	34 487
2004 Review	11 706	8 642	7 184	4 407	3 173	1 072	515	498	37 197
Number of CDs in the capital city in a State									
1999 Review	6 503	5 587	2 609	2 314	2 141	390	492	149	20 185
2004 Review	6 628	5 837	2 913	2 775	2 150	387	508	200	21 398
Number of CDs within 250 km of a capital city									
1999 Review	9 471	7 436	4 375	2 880	2 838	1 055	499	201	28 755
2004 Review	9 092	8 117	4 972	3 427	2 863	1 036	515	243	30 265
Number of remote and very remote CDs									
1999 Review	265	78	573	466	106	14	0	210	1 712
2004 Review	201	27	553	771	197	51	0	292	2 092
2004 Review ^(b)	221	72	544	771	173	28	0	291	2 100
Number of very remote CDs									
1999 Review	0	0	89	15	0	11	0	40	155
2004 Review	0	0	84	13	0	11	0	37	145
Total population									
1999 Review	6038656	4373465	3368819	1725934	1428093	459621	299308	195060	17888956
2004 Review	6371747	4644947	3655134	1851255	1467264	456650	311946	210661	18969604
Population living in remote and very remote areas									
1999 Review	78 921	31 858	198 336	192 202	25 326	3 467	0	92 242	622 352
2004 Review	46 806	5 800	159 049	162 568	61 938	11 123	0	98 951	546 235
2004 Review ^(b)	51 604	26 938	156 703	162 568	54 930	7 241	0	98 542	558 526
Population living in very remote areas									
1999 Review	0	0	34 203	7 302	0	2 725	0	17 264	61 494
2004 Review	0	0	32 377	7 153	0	2 551	0	14 565	56 646
Proportion (%) of population living in remote and very remote areas in a State									
1999 Review	1.3	0.7	5.9	11.1	1.8	0.8	0.0	47.3	3.5
2004 Review	0.7	0.1	4.4	8.8	4.2	2.4	0.0	47.0	2.9
2004 Review ^(b)	0.8	0.6	4.3	8.8	3.7	1.6	0.0	46.8	2.9
State's share (%) of population living in remote and very remote areas									
1999 Review	12.7	5.1	31.9	30.9	4.1	0.6	0.0	14.8	100.0
2004 Review	8.6	1.1	29.1	29.8	11.3	2.0	0.0	18.1	100.0
2004 Review ^(b)	9.2	4.8	28.1	29.1	9.8	1.3	0.0	17.6	100.0

Table A2 COMPARATIVE SUMMARY STATISTICS BETWEEN 1999 AND 2004 REVIEWS (continued)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Population weighted average distance between CDs and regional centre (kms)									
1999 Review	35.2	26.4	44.1	57.7	37.4	22.1	12.3	128.6	
2004 Review ^(b)	36.2	30.1	44.6	55.1	37.8	21.6	9.6	124.8	
Population weighted average distance between CDs and urban centre (kms)									
1999 Review	10.5	9.9	10.0	17.4	10.7	7.2	12.3	31.3	
2004 Review ^(b)	11.5	12.8	11.7	15.1	11.2	7.3	9.6	36.1	

(a) Statistical information for the 1999 Review and 2004 Review were based on the ABS 1996 and 2001 Census of Population and Housing respectively.

(b) According to CGC's interim variations to ARIA+ classification.

ATTACHMENT B

ESTIMATION OF EXPENSE WEIGHTS

Summary

1. The expense weights used in assessing the dispersion factor represent the average proportion of expenditure States incur on each dispersion cost component in each category. These weights indicate the relative importance of the dispersion cost components in that category. For the 2004 Review, the Commission has asked States for data to update the component weights.

2. Tables B1 to B8 in Attachment B set out the per capita dispersion costs for each category and dispersion cost component, based on the information provided by the States. These tables also include an Australian average for each category and dispersion cost component. We have attempted to ensure the data included were consistent across States.

3. As indicated in these tables, there are missing data for some categories for which dispersion disabilities are assessed. In contrast, data exist where dispersion disabilities are not assessed or where a particular dispersion cost component is not relevant for a category.

4. For each category and dispersion cost component, the estimated State-specific per capita dispersion costs vary greatly across States. However, the variations in costs across States reflect both the real differences in costs and other factors such as differences in the methods of estimation or differences in the interpretation of the requested data.

5. In the following section, a summary is presented of the data used to estimate the component weights, and the adjustment principles used in the estimating process. Detailed analysis of the data and proposed adjustments by functional groups of categories will be discussed later in this Attachment.

6. ***Summary of data used.*** Table B9 sets out the total dispersion costs as a percentage of the category standard expenditure (overall component weights) by category, for different series of the 2004 Review data and the 1999 Review data¹⁶. We define different series of the 2004 Review data in Table B9 as follows:

- (i) 2004A shows the overall component weights based on expense data returned by the States;

¹⁶ The expenditure weights are not always comparable because of the changes in scope of the cost components in the dispersion assessment and the changes in scope and structure of the categories between two reviews.

- (ii) 2004B calculates the weights based on expense data for only those cost components which we considered to be relevant to a category¹⁷;
- (iii) 2004C calculates the weights excluding expenses on repairs and maintenance — this facilitates comparisons between the 1999 and 2004 Reviews on a like-for-like basis; and
- (iv) 2004D calculates the weights with adjustments to general freight and repairs and maintenance.

7. Table B10 compares the relative importance of each dispersion cost component in terms of its share of the total dispersion costs implied by each of the four series of data defined above.

8. Series 2004B indicates that repairs and maintenance is an important cost component, accounting for about ten per cent of the total dispersion costs.

9. Comparing series 2004C with the weights assessed in the 1999 Review, the proportion of dispersion costs attributable to general freight is much lower in the 2004 Review. This is because in the 1999 Review, the Commission doubled the weights for general freight to account for hidden costs. Series 2004C does not include a similar adjustment. Although the overall importance of the three travel components have not changed much, air travel has become more important in the 2004 Review while inter-regional travel has reduced in importance.

10. ***Adjustment principles.*** We propose adjusting the data provided by the States to estimate the expenditure weights in the following ways.

- (i) *Cost components:* include only those cost components judged to be relevant to the category;
- (ii) *Size:* compare the proportion of all dispersion-affected costs to total expenditure for each category for the 1999 Review with those implied by the data collected for the 2004 Review. Where there were material differences, we examined the cause of the change. Where there were plausible reasons for change the 2004 data were used. But where there were no plausible explanations the 1999 proportions were retained; and
- (iii) *Distribution of cost components:* a similar process to that outlined above was adopted in considering the allocation of total dispersion-affected costs in each category among the various components of dispersion affected costs.

¹⁷ For example, as much of the vocational education and training would have been provided in regional centres or larger towns, cost of remote staff turnover and locality allowances will be too small to be considered for this category. The exclusion of cost components involves the application of judgement based on our understanding how services are provided for a category.

Table B1 TELECOMMUNICATIONS — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.01		0.70	0.33				0.26	0.26
Government Education ^(a)	5.29	1.90	10.21	4.38	10.04	4.11		5.07	5.62
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training	1.46	0.02	2.33	0.69	2.76	3.24		5.24	1.37
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			1.32	0.16	2.38	0.41		2.51	1.22
Population and Preventive Health			0.34			0.25		1.78	0.40
Family and Child Services	0.41		0.55	1.32				1.03	0.60
Aged and Disabled Services			0.29	1.10		0.14		0.87	0.54
Homeless and General Welfare	0.00			0.22					0.05
Community Development				0.00					0.00
Housing	0.69		0.44	0.63	0.33			0.55	0.58
First Home Owners Scheme									
Services to Indigenous Communities		0.01	0.14	0.12	0.05			0.58	0.08
Police		1.88	2.74	3.60	3.98			7.43	2.76
Administration of Justice	1.42		0.45	0.91	0.07	0.87		1.45	0.95
Corrective Services	1.29		0.77	2.27		0.72		1.73	1.28
Public Safety	0.87		2.61	1.09		1.54		1.61	1.43
Culture and Recreation		0.54	0.17	0.43	0.04	0.15		1.47	0.36
National Parks and Wildlife Services	0.48	0.31	0.42	0.19	0.49			0.46	0.39
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.50	0.17	0.94	0.67				0.59	0.52
Non-urban Transport								0.04	0.04
Roads			0.64	1.68				1.02	1.00
Urban Transit									
Primary Industry	0.22	0.34	0.97	1.79	1.09			3.68	0.66
Mining, Fuel and Energy		0.00	0.18	0.22	0.40			4.12	0.21
Tourism			0.59			0.03		0.35	0.52
Manufacturing and Other Industry	0.12		0.32	0.77		0.80		1.54	0.32
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.55	1.76				3.38	1.05
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.

Source 2004 Review Dispersion Special Data Return.

Table B2 FREIGHT — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.00		0.02	0.06	0.15			0.01	0.03
Government Education ^(a)	0.04	0.06	0.32	0.80	1.45	1.43		0.20	0.32
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training	0.05	0.00	0.62	0.10		0.55		0.36	0.18
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			0.40	0.06	0.40	0.05		0.43	0.30
Population and Preventive Health			0.10			0.04		0.31	0.11
Family and Child Services	0.01		0.03	0.12				0.13	0.04
Aged and Disabled Services			0.01	0.23		0.04		0.15	0.08
Homeless and General Welfare	0.00			0.01					0.00
Community Development									
Housing	0.02				0.03			0.01	0.02
First Home Owners Scheme									
Services to Indigenous Communities		0.00		0.01	0.00			0.01	0.00
Police		0.05	0.15	0.14	0.31			0.47	0.13
Administration of Justice	0.03		0.00	0.70	0.00			0.07	0.12
Corrective Services	0.12		0.21	0.43				0.07	0.19
Public Safety	0.04		0.50	0.11		0.07		0.09	0.19
Culture and Recreation		0.20	0.01	0.13	0.01	0.00		0.06	0.10
National Parks and Wildlife Services	0.06	0.02	0.07	0.08	0.02			0.02	0.05
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.03	0.02	0.10	0.02				0.00	0.04
Non-urban Transport								0.00	0.00
Roads			0.23	0.00	0.00			0.03	0.12
Urban Transit									
Primary Industry	0.01	0.09	0.32	0.23	0.36			0.20	0.15
Mining, Fuel and Energy		0.00	0.02	0.01				0.11	0.01
Tourism			0.36					0.04	0.34
Manufacturing and Other Industry	0.00			0.01		0.05		0.04	0.01
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.06	0.03				0.19	0.06
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.
Source 2004 Review Dispersion Special Data Return.

Table B3 AIR TRAVEL — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.01			0.10				0.06	0.03
Government Education ^(a)				0.75		0.58		1.39	0.77
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training		0.02	0.49	0.29		0.16		12.77	0.46
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			3.91		0.34	0.06		1.03	2.58
Population and Preventive Health			1.01			0.27		0.63	0.91
Family and Child Services	0.04		0.46	0.39				0.53	0.23
Aged and Disabled Services			0.11	0.06		0.01		0.36	0.09
Homeless and General Welfare	0.00			0.02					0.01
Community Development									
Housing			0.12	0.12	0.10			0.43	0.12
First Home Owners Scheme									
Services to Indigenous Communities		0.00	0.16	0.03	0.13			0.48	0.08
Police		0.14	1.57	1.73	0.53			1.37	0.89
Administration of Justice	0.26	0.14	0.12	0.68	0.25	0.16		1.47	0.25
Corrective Services	0.13	0.01	0.30	0.37		0.04		2.48	0.18
Public Safety	0.02	0.02	1.93	0.24		0.04		0.43	0.44
Culture and Recreation		0.10	0.19	0.09	0.00	0.00		1.37	0.13
National Parks and Wildlife Services	0.95	0.02	0.12	0.38	0.11			0.29	0.41
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.15	0.06	0.36	0.13				0.45	0.17
Non-urban Transport								0.03	0.03
Roads			0.47	0.37	0.01			0.67	0.35
Urban Transit									
Primary Industry	0.06	0.27	0.53	0.49	0.14			0.95	0.27
Mining, Fuel and Energy		0.01	0.10	0.16	0.01			2.45	0.10
Tourism			0.23					0.33	0.24
Manufacturing and Other Industry	0.05		0.11	0.05		0.02		1.02	0.08
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.20	0.87				2.13	0.49
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.

Source 2004 Review Dispersion Special Data Return.

Table B4 INTER-REGIONAL TRAVEL — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.01		0.32	0.26				0.15	0.14
Government Education ^(a)			4.75	2.02		3.01		4.25	3.77
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training			1.89	0.18		1.42		5.12	1.44
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			0.28		1.01	0.32		2.18	0.54
Population and Preventive Health			0.07			0.24		1.35	0.15
Family and Child Services	0.18		1.28					0.73	0.58
Aged and Disabled Services			0.06	0.29		0.00		0.75	0.15
Homeless and General Welfare	0.00								0.00
Community Development									
Housing			0.25	0.10	0.29			0.15	0.22
First Home Owners Scheme									
Services to Indigenous Communities		0.01	0.01	0.07	0.09			0.27	0.04
Police			5.36					2.59	5.22
Administration of Justice	0.31		0.16	0.04	0.04			0.71	0.21
Corrective Services			0.52	1.41		0.01		1.01	0.77
Public Safety	0.08		1.10			0.14		0.74	0.44
Culture and Recreation		0.00	0.17	0.08		0.05		1.99	0.11
National Parks and Wildlife Services		0.61	0.21	0.41				0.95	0.44
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.51	0.02	2.43	0.04				0.15	0.73
Non-urban Transport								0.08	0.08
Roads			0.29	0.55	0.12			2.09	0.37
Urban Transit									
Primary Industry	0.22	0.91	3.99		1.08			1.61	1.33
Mining, Fuel and Energy		0.05	0.63	0.62	0.26			0.98	0.36
Tourism			0.76			0.09		0.25	0.66
Manufacturing and Other Industry	0.10		0.06			0.35		3.28	0.16
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.57	0.36				3.29	0.59
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.

Source 2004 Review Dispersion Special Data Return.

Table B5 LOCAL TRAVEL — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.00			0.08				0.51	0.03
Government Education ^(a)				0.64				12.31	1.74
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training			0.10	0.08				2.59	0.18
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			0.61		2.81	0.76		2.08	1.24
Population and Preventive Health			0.16			0.24		1.29	0.22
Family and Child Services	0.00							0.72	0.03
Aged and Disabled Services			0.49	2.08		0.01		0.72	0.94
Homeless and General Welfare	0.00								0.00
Community Development									
Housing			0.21	0.75	0.25			0.27	0.36
First Home Owners Scheme									
Services to Indigenous Communities			0.06	0.26	0.06			1.17	0.14
Police					9.86			4.95	9.29
Administration of Justice	0.74			0.14	0.00	0.18		0.52	0.50
Corrective Services			0.97	1.04		0.02		0.43	0.90
Public Safety	0.41		9.93			1.13		1.22	3.64
Culture and Recreation		0.09	0.04	0.03	0.10			2.13	0.10
National Parks and Wildlife Services		0.71	2.07	0.76	0.42			1.06	1.10
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.13		0.38	0.03				1.41	0.21
Non-urban Transport								0.09	0.09
Roads			1.63	1.41	0.01			2.35	1.26
Urban Transit									
Primary Industry	0.05		0.06		1.94			3.85	0.36
Mining, Fuel and Energy				0.24	0.19			7.26	0.60
Tourism			0.05					0.21	0.06
Manufacturing and Other Industry	0.03		0.07					3.67	0.11
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.20	0.61				3.05	0.43
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.

Source 2004 Review Dispersion Special Data Return.

Table B6 REMOTE STAFF TURNOVER — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education			0.02	0.25				0.22	0.10
Government Education ^(a)			1.11	2.97		0.00		5.17	1.73
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training			0.00	0.09				3.28	0.15
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community									
Health Services			0.02	0.04	0.03	0.03		2.04	0.08
Population and Preventive Health			0.00			0.03		1.27	0.06
Family and Child Services	0.02		0.01	0.05				0.74	0.03
Aged and Disabled Services				0.01		0.03		0.70	0.07
Homeless and General Welfare	0.00								0.00
Community Development									
Housing			0.00		0.55			0.09	0.16
First Home Owners Scheme									
Services to Indigenous Communities				0.01				0.76	0.08
Police			1.17	1.67				6.27	1.51
Administration of Justice	0.04		0.04	0.01				0.47	0.04
Corrective Services			0.01	0.09				0.21	0.04
Public Safety			0.08	0.04				1.30	0.11
Culture and Recreation				0.02				0.41	0.06
National Parks and Wildlife Services	0.06		0.03	0.09	0.02			0.30	0.06
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.00		0.04	0.06				1.08	0.04
Non-urban Transport								0.03	0.03
Roads			0.12		0.00			0.68	0.11
Urban Transit									
Primary Industry	0.00		0.00	0.25	0.92			0.27	0.14
Mining, Fuel and Energy			0.02	0.01	0.01			4.54	0.14
Tourism								0.27	0.27
Manufacturing and Other Industry								1.04	1.04
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.02	0.01				0.45	0.03
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.
Source 2004 Review Dispersion Special Data Return.

Table B7 LOCALITY ALLOWANCE — PER CAPITA DISPERSION COST BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education			0.05	1.27				0.28	0.46
Government Education ^(a)	0.61	24.29	1.30	12.10		0.67		6.52	8.54
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training			0.08	1.79				1.62	0.70
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community Health Services			0.07		0.18	0.02		0.71	0.11
Population and Preventive Health			0.01			0.01		0.45	0.03
Family and Child Services			0.07	1.07				0.23	0.41
Aged and Disabled Services			0.03	0.03		0.10		0.25	0.04
Homeless and General Welfare				0.08					0.08
Community Development									
Housing			0.04	0.11	0.00			0.04	0.05
First Home Owners Scheme									
Services to Indigenous Communities			0.03	0.24				0.05	0.10
Police			1.01	6.68	0.20			1.30	2.34
Administration of Justice	0.00	0.04	0.26	0.22				0.10	0.09
Corrective Services		0.01	0.25	1.42				0.04	0.35
Public Safety		0.00	0.04	0.28				0.28	0.07
Culture and Recreation			0.00	0.05				0.15	0.02
National Parks and Wildlife Services	0.04	0.01	0.36	0.47				0.09	0.15
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.01		0.56	0.11				0.05	0.19
Non-urban Transport								0.01	0.01
Roads			0.17	0.44	0.00			0.21	0.21
Urban Transit									
Primary Industry	0.00		0.08	1.31	0.03			0.17	0.21
Mining, Fuel and Energy			0.08	0.34	0.03			0.23	0.14
Tourism								0.01	0.01
Manufacturing and Other Industry			0.03	0.01				0.31	0.03
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.05	0.10				0.18	0.07
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.
Source 2004 Review Dispersion Special Data Return.

Table B8 REPAIRS AND MAINTENANCE — PER CAPITA DISPERSION COST
BY STATE AND CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust Av
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Pre-school Education	0.00			0.12					0.03
Government Education ^(a)		3.26	1.86	1.31		0.17			2.32
Non-Government Primary School									
Government Secondary School									
Non-Government Secondary School									
Vocational Education and Training		0.02	0.05	0.32				1.75	0.12
Higher Education									
Transport of Rural School Children									
Inpatient Services									
Non-inpatient and Community									
Health Services			0.95	0.61	0.35	0.21			0.70
Population and Preventive Health			0.14			0.04			0.12
Family and Child Services	0.05		0.01	0.57	0.01				0.11
Aged and Disabled Services				0.01		0.28			0.07
Homeless and General Welfare	0.00			0.07					0.02
Community Development									
Housing	0.23		4.12		6.64			38.10	2.85
First Home Owners Scheme									
Services to Indigenous Communities		0.01		0.06				11.59	0.35
Police		2.97	1.85	0.95	0.22				1.95
Administration of Justice	1.90			0.08		1.59			1.50
Corrective Services			0.27	1.04					0.53
Public Safety			0.15	0.67					0.33
Culture and Recreation		0.19	0.10	0.00					0.12
National Parks and Wildlife									
Services	2.42	0.08	1.40	0.15	0.62				1.23
Electricity and Gas									
Water, Sanitation and Protection of the Environment	0.24		0.00	0.19				17.33	0.44
Non-urban Transport									
Roads			0.54	0.00					0.36
Urban Transit									
Primary Industry		0.16	0.13	3.05	0.05				0.60
Mining, Fuel and Energy		0.00		0.03	0.01			73.75	1.74
Tourism									
Manufacturing and Other Industry			0.00	0.00					0.00
Subsidies – Petroleum Products									
Subsidies – Alcohol Products									
Superannuation									
GST Administration Costs									
General Public Services			0.00	0.02					0.01
Debt Charges									
Depreciation									

(a) Including Government Primary and Secondary School.

Source 2004 Review Dispersion Special Data Return.

Table B9 TOTAL DISPERSION COSTS AS PERCENTAGE OF STANDARD EXPENDITURE BY CATEGORY

Category	2004A ^(a)	2004B ^(b)	2004C ^(c)	1999	2004D ^(d)
	%	%	%	%	%
Pre-school Education	4.6	4.6	4.5	1.7	1.8
Government Primary School	3.3	3.3	3.0	2.2	3.4
Non-Government Primary School					
Government Secondary School	3.3	3.3	3.0	2.2	3.4
Non-Government Secondary School					
Vocational Education and Training	2.5	1.9	1.9	1.3	2.0
Higher Education					
Transport of Rural School Children					
Inpatient Services^(e)	1.5	1.5	1.5	1.5	1.5
Non-inpatient and Community Health Services	2.8	2.8	2.5	3.4	2.9
Population and Preventive Health	3.6	3.6	3.3	3.4	3.7
Family and Child Services	2.6	2.6	2.5	4.2	2.7
Aged and Disabled Services	1.1	1.1	1.0	4.2	1.1
Homeless and General Welfare	0.3	0.3	0.3		0.3
Community Development					1.3
Housing	1.4	1.4	0.5	2.6	1.4
First Home Owners Scheme					
Services to Indigenous Communities	6.7	5.3	2.6	7.7	5.3
Police	10.9	10.9	10.0	11.3	11.0
Administration of Justice	3.8	2.2	2.2	2.5	2.3
Corrective Services	5.3	5.2	4.6	7.6	5.5
Public Safety	10.4	10.2	9.7	1.7	10.5
Culture and Recreation	1.4	1.3	1.1	0.9	1.4
National Parks and Wildlife Services	10.6	10.5	7.1	9.5	10.6
Electricity and Gas					1.3
Water, Sanitation and Protection of the Environment	10.7				1.3
Non-urban Transport	0.7				1.3
Roads	2.5	2.5	2.2	7.5	2.5
Urban Transit					
Primary Industry	3.7	3.6	3.0	5.9	3.7
Mining, Fuel and Energy	21.5	9.3	9.3	6.3	9.3
Tourism	12.0				
Manufacturing and Other Industry	11.0				
Subsidies – Petroleum Products					
Subsidies – Alcohol Products					
Superannuation					
GST Administration Costs					
General Public Services	1.4	1.3	1.3	1.2	1.3
Debt Charges					
Depreciation					
Overall	2.3	2.1	1.9	2.3	2.2

(a) Based on expense data for all cost components returned by the States.

(b) Excluding cost components considered to be irrelevant to a category.

(c) Excluding expenses on repairs and maintenance and cost components considered to be irrelevant to a category.

(d) Excluding cost components considered to be irrelevant to a category and including adjustments to general freight and repairs and maintenance.

(e) The figures for inpatient services relate to patient travel costs only.

Note: **Bolded category name** indicates a new or reconstructed category.

Table B10 RELATIVE OVERALL IMPORTANCE OF DISPERSION COST COMPONENTS

Review	Telecommunication	Freight	Air travel	Inter-regional travel	Local travel	Remote staff turnover	Locality allowances	Repairs & maintenance
	%	%	%	%	%	%	%	%
2004A ^(a)	18.1	2.1	7.6	15.0	19.2	5.0	11.7	12.6
2004B ^(b)	18.8	1.9	11.7	18.1	23.6	3.3	12.0	10.6
2004C ^(c)	21.0	2.1	13.1	20.3	26.4	3.7	13.4	
1999	19.0	5.6	10.2	26.5	25.8	2.6	10.4	
2004D ^(d)	18.6	6.5	11.5	17.5	24.2	3.2	11.1	7.7

(a) Based on expense data for all cost components returned by the States.

(b) Excluding cost components considered to be irrelevant to a category.

(c) Excluding expenses on repairs and maintenance and cost components considered to be irrelevant to a category.

(d) Excluding cost components considered to be irrelevant to a category and including all adjustments, including those for general freight and repairs and maintenance.

Estimation of expense weights

11. This sector documents the estimation of expense weights based on the information provided by the States by groups of categories.

Education

12. **Overall component weights¹⁸.** As indicated Table B9, compared to 1999 Review, the overall component weights for all education categories, except for Pre-school Education, are similar.

13. **Distribution of cost components.** Table B11 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

14. Comparing series 2004C with the 1999 Review data, the distributions of cost components for Government School (including primary and secondary) and Vocational Education and Training (VET), are qualitatively comparable. The higher telecommunications costs reflect the fact that we have extended the scope of the telecommunications component to include expenses on mobile phones and internet access. The lower freight costs reflect the fact that the 1999 Review freight expenses was inflated. Therefore, the Commission estimates the component weights for these categories based on the information provided by the States for the 2004 Review.

15. For Pre-school Education, given the distribution of dispersion costs displayed in series 2004C does not appear to match the function of the category and the much higher overall 2004 Review component weight as compared with the 1999 Review,

¹⁸ Referring to the proportion of category standard expenditure attributable to the total dispersion costs.

we propose to use the 1999 Review overall component weight and cost distribution and include the repairs and maintenance expenses.

16. Series 2004D in Table B11 set out the proposed cost distributions for the education categories. This series includes adjustments¹⁹, including the adjustments to general freight and repairs and maintenance.

Table B11 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, EDUCATION

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turnover	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Pre-school Education	24.3	2.8	2.7	13.0	2.7	9.4	42.6	2.5
Government School	22.7	1.3	3.1	15.2	7.0	7.0	34.4	9.3
Vocational Education and Training	38.9	5.2	13.3	41.7				
2004C^(b)								
Pre-school Education	24.9	2.9	2.8	13.4	2.8	9.6	43.7	
Government School	25.0	1.4	3.4	16.7	7.7	7.7	38.0	
Vocational Education and Training	39.8	5.2	13.3	41.7				
1999								
Pre-school Education	9.2	17.5	1.5	22.9	13.6	8.9	26.4	
Government School	12.9	14.4	3.0	23.3	10.4	7.6	28.5	
Vocational Education and Training	41.7	17.7	11.4	29.2				
2004D^(c)								
Pre-school Education	8.6	18.5	1.4	21.5	12.7	8.3	24.7	4.2
Government School	22.4	5.6	3.1	15.0	6.9	6.9	34.0	6.1
Vocational Education and Training	37.9	9.8	12.6	39.7				

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

Health

17. **Overall component weights.** As indicated in Table B9, the overall component weights of these categories are comparable between the two reviews.

18. **Distribution of cost components.** Table B12 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

¹⁹ Adjustments for the impact of technology are not included in series 2004D.

19. Comparing series 2004C and the 1999 Review data in Table B12, there are striking differences in the relative importance of the three travel components. Air travel has become very important in the 2004 Review while inter-regional travel has reduced importance. For these two categories, the Commission estimates the expenditure component weights based on the information provided by the States with adjustments to general freight and repairs and maintenance.

20. Series 2004D in Table B12 sets out the cost distributions for the health categories. This series includes all adjustments, including the adjustments to general freight and repairs and maintenance.

Table B12 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, HEALTH

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Non-inpatient and Community Health Services	18.0	4.4	38.1	7.9	18.4	1.2	1.7	10.3
Population and Preventive Health	19.9	5.3	45.5	7.5	10.9	3.2	1.5	6.2
2004C^(b)								
Non-inpatient and Community Health Services	20.1	4.9	42.4	8.8	20.5	1.3	1.9	
Population and Preventive Health	21.2	5.7	48.5	8.0	11.6	3.4	1.6	
1999								
Non-inpatient and Community Health Services	20.5	7.0	4.0	25.4	32.8	7.5	2.9	
Population and Preventive Health	20.5	7.0	4.0	25.4	32.8	7.5	2.9	
2004D^(c)								
Non-inpatient and Community Health Services	17.3	11.7	36.5	7.6	17.6	1.1	1.6	6.6
Population and Preventive Health	18.9	12.1	43.2	7.1	10.4	3.1	1.4	3.9

- (a) Distribution with repairs and maintenance.
- (b) Distribution without repairs and maintenance.
- (c) Proposed distribution for 2004 Review.

Welfare

21. ***Overall component weights.*** As indicated Table B9, the overall component weights of these three categories are not comparable between the two reviews. Aged and Disabled Services was assessed for dispersion for the first time in the 1999 Review, and was given the same component weight as the Family and Child Welfare. Homeless and General Welfare is a newly constructed category for the 2004 Review. Therefore, we estimate component weights based on the information provided by the States for the 2004 Review.

22. **Distribution of cost components.** Table B13 sets out the distribution of dispersion costs by dispersion cost component for different series of data.

23. The distributions of cost components set out in series 2004C in Table B13 are quite different among the three categories of welfare compared with 1999 Review. We consider that the distribution of cost components for the Aged and Disabled Services matches the functions of these categories. We, therefore, calculate the component weights based on this distribution for all the categories in welfare categories.

24. Series 2004D in Table B13 sets out the proposed distributions of cost components for the welfare categories. This series includes all adjustments proposed, including the adjustments to general freight and repairs and maintenance components.

Table B13 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, WELFARE

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Family and Child Services	30.4	1.8	11.5	29.0	1.3		20.7	5.4
Aged and Disabled Services	28.4	4.3	4.9	7.8	49.2		2.1	3.4
Homeless and General Welfare	31.1	1.1	4.9	2.2	0.1		49.3	11.3
2004C^(b)								
Family and Child Services	32.1	1.9	12.2	30.6	1.3		21.8	
Aged and Disabled Services	29.4	4.5	5.1	8.0	50.9		2.2	
Homeless and General Welfare	35.0	1.3	5.5	2.5	0.1		55.7	
1999								
Family and Child Services	25.4	3.6	6.5	45.0	12.6		6.8	
Aged and Disabled Services	25.4	3.6	6.5	45.0	12.6		6.8	
Homeless and General Welfare								
2004D^(c)								
Family and Child Services	27.2	9.3	4.7	7.4	47.1		2.0	2.2
Aged and Disabled Services	27.2	9.3	4.7	7.4	47.1		2.0	2.2
Homeless and General Welfare	27.2	9.3	4.7	7.4	47.1		2.0	2.2

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

Law and order

25. **Overall component weights.** As indicated in Table B9, the overall component weights, except for Public Safety, are comparable between the two reviews. Compared with the 1999 Review, the overall component weight for the Public Safety expense category increases about five times in the 2004 Review.

Table B14 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, LAW AND ORDER

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Police	11.5	0.6	3.7	21.7	38.5	6.3	9.7	8.1
Administration of Justice	44.8	5.4	11.9	9.9	23.7		4.3	
Corrective Services	30.4	4.5	4.3	18.3	21.5		8.3	12.7
Public Safety	22.0	2.8	6.7	6.7	55.7		1.0	5.0
2004C^(b)								
Police	12.5	0.6	4.0	23.6	41.9	6.8	10.6	
Administration of Justice	44.8	5.4	11.9	9.9	23.7		4.3	
Corrective Services	34.8	5.2	5.0	20.9	24.7		9.5	
Public Safety	23.1	3.0	7.1	7.0	58.7		1.1	
1999								
Police	17.8	2.1	4.6	16.0	42.2	3.1	14.1	
Administration of Justice	23.9	3.3	4.7	43.4	23.1		1.6	
Corrective Services	16.7	3.2	7.5	36.7	25.1		10.8	
Public Safety	22.6	3.1	6.3	10.8	56.1		1.1	
2004D^(c)								
Police	11.4	3.8	3.7	21.6	38.3	6.2	9.6	5.4
Administration of Justice	42.4	10.3	11.3	9.4	22.5		4.1	
Corrective Services	29.1	12.7	4.2	17.5	20.6		7.9	8.1
Public Safety	21.4	7.1	6.6	6.5	54.2		1.0	3.3

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

26. **Distribution of cost components.** Table B14 sets out the distributions of dispersion costs by dispersion cost component for different series of data. The distributions of cost components for these categories based on the 2004 Review data are reasonably appropriate for the function of the categories.

27. Series 2004D in Table B14 sets out the proposed distributions of cost components for these categories. This series includes all adjustments²⁰, including the adjustments to general freight and repairs and maintenance.

Housing and Services to Indigenous Communities

28. ***Overall component weights.*** As indicated in Table B9, without the repairs and maintenance components, the overall component weights for the two categories are much lower in the 2004 Review than in the 1999 Review.

Table B15 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, HOUSING AND SERVICES TO INDIGENOUS COMMUNITIES

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Housing	13.3		2.8	5.0	8.3	3.7	1.1	65.8
Services to Indigenous Communities	11.5	0.6	11.1	5.2	20.2			51.3
2004C^(b)								
Housing	38.8		8.3	14.5	24.2	10.7	3.3	
Services to Indigenous Communities	23.7	1.3	22.9	10.6	41.5			
1999								
Housing	26.6		5.5	21.0	31.6	3.8	11.5	
Services to Indigenous Communities	8.9	3.0	1.8	24.5	61.8			
2004D^(c)								
Housing	13.3		2.8	5.0	8.3	3.7	1.1	65.8
Services to Indigenous Communities	11.5	18.3	11.1	5.1	20.0		34.0	

- (a) Distribution with repairs and maintenance.
- (b) Distribution without repairs and maintenance.
- (c) Proposed distribution for 2004 Review.

29. ***Distribution of cost components.*** Table B15 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

30. Comparing series 2004C with the 1999 Review data, the distributions of cost components for both categories are quite different. Telecommunications becomes more

²⁰ Adjustments for the impact of technology are not included in series 2004D for Administration of Justice.

important, and travel becomes less important. For Housing, the comparison also indicates a reversal with importance of staff remote turnover and locality allowances between the two reviews.

31. Repairs and maintenance is a very important cost component Housing in the 2004 Review, accounting for about 66 per cent of the dispersion-affected costs.

32. Series 2004D in Table B15 sets out the proposed distributions of cost components for these categories. This series includes all adjustments, including the adjustments to general freight and repairs and maintenance components.

Culture and recreation

33. ***Overall component weights.*** As indicated in Table B9, the overall component weights for these categories are comparable between the two reviews.

Table B16 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT,
CULTURE AND RECREATION

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turnover	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Culture and Recreation	38.9	11.1	14.0	11.7	11.0			13.3
National Parks and Wildlife Services	10.4	1.3	11.0	11.7	29.1		3.9	32.6
2004C^(b)								
Culture and Recreation	44.9	12.8	16.1	13.5	12.7			
National Parks and Wildlife Services	15.5	2.0	16.3	17.3	43.1		5.8	
1999								
Culture and Recreation	31.5	21.1	17.7	18.9	10.8			
National Parks and Wildlife Services	18.3	6.2	19.5	31.1	20.7		4.2	
2004D^(c)								
Culture and Recreation	35.0	24.0	12.6	10.5	9.9			8.0
National Parks and Wildlife Services	10.3	13.3	10.9	11.5	28.7		3.8	21.4

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

34. *Distribution of cost components.* Table B16 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

35. Of the three travel components, local travel rather than inter-regional travel is more important in the 2004 Review than in the 1999 Review for the National Parks and Wildlife Services (NPWS) category.

36. Repairs and maintenance is an important cost component for NPWS category in the 2004 Review, accounting for about 33 per cent of the distribution costs before adjustment and about 21 per cent after adjustment.

37. Series 2004D in Table B16 sets out the proposed distributions of cost components for these categories. This series includes all adjustments, including the adjustments to general freight and repairs and maintenance components.

Roads

38. *Overall component weight.* As indicated in Table B9, the overall component weight for Roads is about three times lower in the 2004 Review than in the 1999 Review.

Table B17 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, ROADS

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Roads	27.2	3.2	9.6	10.1	34.4		5.7	9.8
2004C^(b)								
Roads	30.2	3.5	10.7	11.2	38.1		6.3	
1999								
Roads	19.7	9.6	5.9	31.9	26.7		6.2	
2004D^(c)								
Roads	26.4	9.3	9.3	9.8	33.3		5.5	6.3

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

39. *Distribution of cost components.* Table B17 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

40. Comparing series 2004C with the 1999 Review data, air travel is more important and inter-regional travel is less important in the 2004 Review.

41. Series 2004D in Table B17 sets out the proposed distributions of cost components for Roads. This series includes all adjustments proposed, including the adjustments to general freight and repairs and maintenance components.

Services to industry

42. **Overall component weights.** As indicated in Table B9, the overall component weights for these categories are comparable between the two reviews.

Table B18 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, SERVICES TO INDUSTRY

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
Primary Industry	18.5	4.1	7.5	37.3	10.0		5.8	16.8
Mining, Fuel and Energy	14.7	0.7	7.1	25.0	42.5		10.0	
2004C^(b)								
Primary Industry	22.3	4.9	9.0	44.8	12.0		7.0	
Mining, Fuel and Energy	14.7	0.7	7.1	25.0	42.5		10.0	
1999								
Primary Industry	29.9	6.8	10.3	31.8	13.2		7.9	
Mining, Fuel and Energy	22.7	3.2	10.2	30.8	28.1		5.0	
2004D^(c)								
Primary Industry	17.8	13.2	7.2	35.8	9.6		5.5	10.7
Mining, Fuel and Energy	14.5	1.5	7.0	24.9	42.2		9.9	

(a) Distribution with repairs and maintenance.

(b) Distribution without repairs and maintenance.

(c) Proposed distribution for 2004 Review.

43. **Distribution of cost components.** Table B18 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

44. Comparing series 2004C with the 1999 Review data, the distributions of cost components are reasonably comparable between the two reviews.

45. Series 2004D in Table B18 sets out the proposed distributions of cost components for Services to Industry categories. This series includes all adjustments proposed, including the adjustments to general freight and repairs and maintenance components.

General Public Services and others

46. **Overall component weights.** As indicated in Table B9, the overall component weights for General Public Services are comparable between the two reviews.

Table B19 DISTRIBUTION OF DISPERSION COSTS BY COMPONENT, GENERAL PUBLIC SERVICES AND OTHERS

Category	Telcom	Freight	Air travel	Inter-region travel	Local travel	Remote staff turn-over	Locality allowances	R & M
	%	%	%	%	%	%	%	%
2004B^(a)								
General Public Services	40.7		19.0	23.2	16.8			0.2
2004C^(b)								
General Public Services	40.8		19.1	23.2	16.8			
1999								
General Public Services	45.0		17.5	23.0	14.6			
2004D^(c)								
General Public Services	40.8		19.1	23.2	16.8			
Electricity and Gas	40.8		19.1	23.2	16.8			
Water, Sanitation and Protection of the Environment	40.8		19.1	23.2	16.8			
Non-urban transport	40.8		19.1	23.2	16.8			

- (a) Distribution with repairs and maintenance.
- (b) Distribution without repairs and maintenance.
- (c) Proposed distribution for 2004 Review.

47. **Distribution of cost components.** Table B19 sets out the distribution of dispersion costs by dispersion cost component for the different series of data.

48. Comparing series 2004C with the 1999 Review data, the distributions of cost components for General Public Services are reasonably comparable between the two reviews.

49. In the 2004 Review, dispersion is assessed first time for three categories: Electricity and Gas, Water, Sanitation and Protection of the Environment, and Non-urban Transport. They are assigned the expense weight and cost distribution of General Public Services (see DAP CGC 2003/43,44,45 respectively). Series 2004D in Table B19 sets out the proposed distributions of cost components these categories. This series includes all adjustments proposed, including the adjustments to general freight and repairs and maintenance components.

ATTACHMENT C

REGIONAL CENTRES USED IN THE 1999 REVIEW

NSW	VIC	QLD	WA	SA	TAS	ACT	NT
Sydney	Melbourne	Brisbane	Perth	Adelaide	Hobart	Canberra	Darwin
Albury	Ballarat	Cairns	Albany	Mount Gambier	Burnie-Somerset		Alice Springs
Broken Hill	Bendigo	Bundaberg	Bunbury	Port Lincoln	Launceston		
Coffs Harbour	Geelong	Maroochydore-Mooloolaba	Geraldton	Port Augusta			
Dubbo	Mildura	Mackay	Kalgoorlie-Boulder	Remark			
Goulburn	Shepparton-Mooroopna	Mount Isa	Port Hedland	Whyalla			
Lismore	Traralgon	Rockhampton					
Newcastle	Warrnambool	Toowoomba					
Orange	Wodonga	Townsville					
Tamworth							
Wagga							
Wagga							
Wollongong							

ATTACHMENT D

CALCULATION OF 2004 REVIEW FACTORS

1. For most categories, dispersion disabilities depend on the location of total State populations. The following sections outline the results for those categories for which the general approach is appropriate.

2. However, in some categories, such as Services to Indigenous Communities; Primary Industry; Mining, Fuel and Energy; (and in this review, National Parks and Wildlife) the services are provided to specific groups of people or industries. The geographic distribution is very different from that of the general population. In those categories, the factors are of those variables based on the distribution of the relevant population, employment in the particular industries, or of National Parks. Calculation of factors for these categories are in the section 'Special categories' in this Attachment.

Telecommunications

3. For the 2004 Review, the Commission proposes to introduce some explicit adjustments to the dispersion assessment to allow for the differential impacts of telecommunications on the costs of service delivery by States. Telecommunication expenses include the costs of telephone and mobile communication, internet access, and conferencing through audio and video communication technology in relation to delivery of services. Based on the results of the Technology Study, (see *Discussion Paper CGC 2003/8, Impact of Technology on Assessments*) we propose to assess these disabilities using two sub-factors:

- (i) voice communication; and
- (ii) non-voice communication.

4. ***Voice communication.*** This mainly refers to the cost of telephone calls. We estimated the notional cost of telephone calls for each Census Collection District (CD) in a State based on the price of a three minute phone call and the population in the CD. We derived the price of a three minute phone call by taking the average charges set by Telstra and Optus to their business customers.

5. Table D1 sets out the price of telephone calls charged by Telstra and Optus and Table D2 compares the average unit cost used in 1999 Review and the proposed unit cost for the 2004 Review. Compared with the unit cost used in the 1999 Review, the proposed unit cost for telephone calls varies much less with the distance of the call.

Table D1 PRICE OF TELEPHONE CALL FOR BUSINESS^(a)

Type	Telstra	Optus
	(cents)	(cents)
Local call ^(b)	16	22
STD call		
Connection fee (cent per call)	22	25
Rate (cent per minute)		
Within a radius of 25-50 kilometres	8.5	
Greater than a radius of 50 kilometres	16	16

(a) Price applicable 24 hours a day, 7 days a week from a fixed business phone line.

(b) For Telstra: charge applicable to call within a radius of 25 kilometres, for Optus: charge applicable to call within a radius of 50 kilometres.

Source: Telstra and Optus, May 2003.

Table D2 COMPARISON OF TELEPHONE AVERAGE UNIT COST^(a)

Distance (kilometre)	1999 Review	2004 Review
	(cents)	(cents)
Local call	25	19
STD call		
0-49	69	
49-50	78	35
50-85	90	
85-165	95	
165-745	1.04	72

(a) Based on a three minute phone call.

6. The total notional cost of telephone communication for a CD consists of two parts. The first part is the cost of telephone communication between a CD and its nearest regional centre. The second part is the cost of telecommunication between its regional centre and capital city.

7. Table D3 sets out the telecommunication sub-factors for the 2004 Review and compares them with the factors assessed for the 1999 Review. The changes in factors between the two reviews reflect the changes in prices of telephone calls, the distribution of population and the measure of remoteness.

8. ***Impact of technology on voice communication.*** Following the conclusions of the Technology Study, the Commission proposes to reflect the impact of technology on voice communication by modifying the telephone factor calculated above with different input and regional weights. An input weight of 0.75 for the technology regions type 1 and 2 (regions with high levels of access to technology) is used to reflect lower use of voice communication in regional centres and capital cities relative to other areas. A regional

weight of 0.2 is used to reflect the lesser importance of the regional centres-to-capital cities cost component arising from the greater use of technology. The technology-adjusted telephone factor is included in Table D3.

Table D3 TELEPHONE FACTOR, GENERAL CATEGORY

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004 Review ^(a)	0.96071	0.84929	1.16273	1.19477	0.90213	0.97845	0.38138	2.62067
2004 Review ^(b)	0.97719	0.88092	1.15615	1.10837	0.92275	0.91639	0.41694	2.23668
1999 Review	0.93387	0.82838	1.23430	1.20825	0.90162	0.90742	0.58692	2.57835

(a) Technology-adjusted telephone factor with regional weight = 0.2, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4, input weight for technology region type 1 and 2 = 0.75.

(b) Default telephone factor with regional weight = 0.25, input weight for remote area = 3, input weight for rainfall affected areas and isolated island = 4.

9. **Non-voice component.** Table D4 sets out the proposed non-voice communication factor for the 2004 Review. The derivation of these factors can be found in the Discussion Paper CGC 2003/8, *Impact of Technology on Assessments*.

Table D4 NON-VOICE COMMUNICATION FACTOR

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004 Review	0.99826	1.00012	1.00021	1.00372	1.00023	0.99853	1.00437	1.00898

10. **Derivation of communication factor.** Following the recommendation of the Technology Study, the Commission aggregates the voice and non-voice sub-factors into one communication factor using proportions of the telecommunication expenditure component weights to reflect the different intensity of use of these two components specific to a category. Because of differences in the use of the various types of communication, these proportions will vary between categories. Table D5 sets out the proposed proportions of expenditure component for voice and non-voice communication for different categories. Table D6 sets out the resulting communication factors by category.

Table D5 PROPOSED PROPORTION^(a) OF EXPENDITURE COMPONENT WEIGHTS FOR VOICE AND NON-VOICE COMMUNICATION

Sub-factor	Secondary Schools	Inpatients Services	Administration of Justice	Others
	%	%	%	%
Voice	40	NA	80	90
Non-voice	60	NA	20	10
	100		100	100

(a) Referring to the share of the voice and non-voice communication within the telecommunication expense weights for a specific category.

Note: NA = not applicable.

Source: Technology Study.

Table D6 PROPOSED AGGREGATED COMMUNICATIONS FACTORS BY CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Secondary School	0.98324	0.93979	1.06522	1.08014	0.96099	0.99050	0.75518	1.65365
Administration of Justice	0.96822	0.87946	1.13023	1.15656	0.92175	0.98246	0.50598	2.29833
Others	0.96447	0.86438	1.14648	1.17566	0.91194	0.98046	0.44368	2.45950

Note: Australia equals 1.00000.

General freight

11. Information provided by States indicates that there is a conceptual case for allowing for differences in freight rates payable for goods and materials transported to different regions within States. In general, freight rates to remote areas are higher than those to non-remote areas, and a higher proportion of goods and material used in providing State services in remote areas need to be freighted in. Data are available to measure these effects with confidence. We therefore have assessed the differential impacts of general freight on the costs of service delivery by States in the 2004 Review.

12. General freight expenses include the costs of transporting goods and materials used in the delivery of services to schools, health centres, police stations, offices and so on. We estimated the notional cost of general freight for each CD in a State based on the price of transporting 50 kilograms of goods, and the population in the CD. We derived the price of transporting 50 kilograms of goods between locations based on recent commercial freight charges.

13. The total notional cost of general freight for a CD consists of two parts. The first part is the cost of transporting goods between the CD and its nearest regional centre. The second part is the cost of transporting goods between its regional centre and the capital city.

14. Table D7 sets out the estimated general freight factors for the 2004 Review and compares them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in freight charges, the distribution of population and the measure of remoteness.

Table D7 GENERAL FREIGHT FACTOR, GENERAL CATEGORY

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004 Review	1.02154	0.90622	1.26872	1.03387	0.53354	0.93374	0.07621	2.21652
1999 Review	1.03564	0.81741	1.29761	1.23264	0.52911	0.79908	0.27634	1.82352

Note Regional weight = 1, input weight for remote area = 1.25, input weight for rainfall affected areas and isolated islands = 1.5.

Remote staff turnover

15. For the 2004 Review, the Commission assesses the differential impacts of remote staff turnover on the cost of service delivery by States. The remote staff turnover expenses include costs of relocating employees to or from remote areas in relation to delivery of services. We assess this cost component using a remote removals factor and reflect the other staff turnover expenses via the expenditure component weights.

16. ***Remote removals.*** We estimated the notional cost of remote removals for each remote CD in a State based on the price of transporting 50 kilograms of goods, and the population in the remote CD. The price of transporting 50 kilograms of goods between locations is the same as general freight. However, this disability factor relates only to remote CDs, whereas the general freight factor covers all CDs.

17. The total notional cost of remote removals for a remote CD consists of two parts. The first part is the cost of transporting goods between the remote CD and its nearest regional centre. The second part is the cost of transporting goods between its regional centre and the capital city.

18. Table D8 sets out the estimated remote removals factors for the 2004 Review and compares them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in freight charges, the distribution of population and the measure of remoteness.

Table D8 REMOTE REMOVALS FACTOR

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004 Review	0.24604	0.09238	1.67619	3.58061	0.99480	0.52981	0.00000	11.94306
1999 Review	0.31279	0.10592	1.89717	3.52133	0.46452	0.11237	0.00000	12.06328

Note Regional weight = 1.

Travel costs

19. For the 2004 Review, the Commission assesses the impacts of staff travel on the costs of service delivery by States. We assess the disabilities using three sub-components:

- (i) air travel;
- (ii) inter-regional travel; and
- (iii) local travel.

20. ***Air travel.*** Air travel expenses include costs of air travel in relation to delivery of services. As in 1999 Review, it appears that after excluding travel for emergency services and health services, air travel by staff is generally limited to co-ordination activities between capital cities and regional centres, and longer trips (often involving the most remote localities). Consistent with this and the methods adopted in the 1999 Review, we estimated two sets of air travel factors. One set is for general categories and the other for Police and Inpatient Services. For most general categories, air travel is restricted to travel between:

- (i) regional centres and capital city in a State where the distance is over 250 kilometres; and
- (ii) a very remote CD and its nearest regional centre²¹.

For Police and Inpatient Services categories, air travel is restricted to travel between:

- (i) regional centres and capital city in a State where the distance is over 250 kilometres;
- (ii) a very remote CD and its nearest regional centre; and
- (iii) a non-very-remote CD where distance to its nearest regional centre is over 250 kilometres.

21. We obtained data for airfares between locations from Qantas, Regional Express, Virgin Blue and various charter flight operators. The unit cost of travelling between a regional centre and the capital city in a State was the cost of a one way economy fare. Based on the airfares between sampled locations, we estimated a dollar value of air travel per kilometre for each Statistical Subdivision (SSD) in a State. We assumed the cost of air travel was the same for all CDs in a SSD.

22. The notional cost of air travel for a CD to its nearest regional centre is the function of distance travelled, cost per kilometre and the population of the CD.

²¹ A very remote CD refers to a CD defined as rainfall affected areas and isolated islands.

23. Table D9 and Table D10 set out the estimated air travel factors applicable to most general categories and the Police and Inpatient Services categories respectively, for the 2004 Review, and compare them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in airfares, the distribution of population and the measure of remoteness.

Table D9 AIR TRAVEL FACTORS, GENERAL CATEGORIES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	1.08549	0.14733	2.39401	0.99993	0.18066	0.00368	0.00000	2.37584
1999	1.02445	0.06641	2.64125	1.01741	0.16900	0.00370	0.00000	2.64177

Note Regional weight = 5.

Table D10 AIR TRAVEL FACTORS, POLICE AND INPATIENT SERVICES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	0.77385	0.10032	2.46806	1.44549	0.62862	0.04849	0.00000	4.42064
1999	0.78433	0.05399	2.30199	2.01924	0.42739	0.05296	0.00000	5.34069

Note Regional weight = 0.25.

24. **Inter-regional travel.** Inter-regional travel expenses include costs of road travel in relation to delivery of services. This factor complements the air travel factor. As in the 1999 Review, we estimated two sets of inter-regional travel factors. One set is for general categories and the other for Police and Inpatient Services categories. For general categories, inter-regional road travel accounts for travel between:

- (i) regional centres and the capital city in a State where the distance is less than 250 kilometres; and
- (ii) a non-very-remote CD and its nearest regional centre.

For Police and Inpatient Services categories, inter-regional road travel accounts for travel between:

- (i) regional centres and the capital city in a State where the distance is less than 250 kilometres; and
- (ii) a non-very-remote CD where distance to its nearest regional centre is less than 250 kilometres.

25. We assumed that the costs of inter-regional road travel were proportional to the distances involved. However, the available data on distances between localities was measured in terms of straight line distances between the centroids of two locations.

26. Since these costs are related more to road distances than straight line distances, we propose to continue to include an allowance for differences between States in sinuosity of roads. As noted earlier, differences between States in the extent of unsealed roads can also affect relative costs because they lead to greater use of more expensive 4WD vehicles. The Commission adjusts the straight line distances by:

- (i) a region-State-specific sinuosity factor so that the distances travelled approximate the actual road distances; and
- (ii) a cost weight of 1.3 for the proportion of unsealed road to account for the additional costs associated with using a 4WD vehicle.

27. In the absence of new or better information, we continue to use the 1999 Review estimates for the sinuosity factors and proportion of unsealed road.

28. The notional cost of inter-regional road travel for a CD to its nearest regional centre depends on the adjusted distance travelled and the population of the CD.

29. Table D11 and Table D12 set out the estimated inter-regional road travel factors applicable to general categories and the Police and Inpatient Services categories respectively, for the 2004 Review, and compare them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in the distribution of population and the measure of remoteness.

Table D11 INTER-REGIONAL TRAVEL FACTORS, GENERAL CATEGORIES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	1.07961	0.87967	0.90794	1.00468	1.01978	2.00410	0.14309	1.75620
1999	1.04244	0.93424	0.88192	1.01714	1.03492	2.03079	0.18210	1.61863

Note Regional weight = 1.

Table D12 INTER-REGIONAL TRAVEL FACTORS, POLICE AND IN-PATIENT SERVICES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	1.17099	0.94462	0.94451	0.69919	0.99434	1.67595	0.10235	0.55878
1999	1.12828	0.95788	0.92432	0.74520	1.06284	1.71558	0.26324	0.51904

Note Regional weight = 0.5.

30. **Local travel.** Local travel expenses include costs of staff travel between a CD and its nearest urban centre of 1000 or more population, including the capital city in relation to delivery of services. As local travel is predominantly by road we have assumed that the costs are proportional to distances involved. For the same reasons as inter-regional travel, we adjusted the straight line distances between centres for differences between States

in the sinuosity of roads and the proportion of unsealed roads. The adjustments were made using the methods adopted for inter-regional travel.

31. Table D13 sets out the estimated local travel factors for the 2004 Review and compares them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in the distribution of population and the measure of remoteness.

Table D13 LOCAL TRAVEL FACTORS, GENERAL CATEGORIES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	0.95010	0.93338	0.96236	1.29206	0.88370	0.66783	0.52703	4.29531
1999	0.91677	0.79761	0.97874	1.67903	0.90743	0.70768	0.98992	3.85545

Note Input weight for remote areas = 1.25 and for rainfall affected areas and isolated islands = 1.75.

32. **Impact of technology on long distance travel.** The Technology Study suggests that non-voice communication has reduced the extent of air and inter-regional travel between technology rich regions such as capital cities and regional centres. The Study also suggested using input and regional weights in the calculation of these factors to capture the effects on costs of changes in input mix. The technology-adjusted factors, set out in Table D14, are applicable to three categories in which changes in input mix are evident. Details of the calculation are in *Discussion Paper CGC 2003/8, Impact on Technology on Assessments*.

Table D14 PROPOSED TECHNOLOGY-ADJUSTED AIR AND INTER-REGIONAL TRAVEL FACTORS BY CATEGORY

Category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Air travel factors								
Administration of Justice (AOJ)	1.08407	0.14713	2.39591	1.00045	0.18042	0.00459	0.00000	2.38512
Secondary Schools	1.08407	0.14713	2.39591	1.00045	0.18042	0.00459	0.00000	2.38512
Inpatient Services	0.72599	0.09312	2.48038	1.51300	0.69604	0.05580	0.00000	4.73468
Inter-regional travel factors								
Administration of Justice	1.09571	0.89446	0.90860	0.95093	1.01362	1.96474	0.15627	1.51242
Secondary Schools	1.09571	0.89446	0.90860	0.95093	1.01362	1.96474	0.15627	1.51242
Inpatient Services	1.17484	0.96059	0.92360	0.66124	0.99770	1.81666	0.10003	0.46169

Note: Air travel: Input weight = 0.95 (region type 1 and 2) for all three categories; air travel: regional weight = 4 for AOJ and Secondary School, and regional weight = 0.2 for Inpatient Services; inter-regional travel: regional weight = 0.9 for AOJ and Secondary Schools, regional weight = 0.6 for Inpatient Services.

Locality allowances

33. For the 2004 Review, the Commission assesses the impacts of locality allowances on the costs of service delivery by the States. Locality allowances expenses include additional direct and indirect benefits given to employees to work at specific locations — in particular, remote areas. Research in the 1999 Review indicated it was a widespread policy of the States to provide allowances and incentives to staff in remote localities. These allowances generally reflect distance from the capital city or regional centres. Data available from New South Wales, Queensland, South Australia and Western Australia were used to establish a relationship between the level of allowances and distance from capital cities and regional centres.

34. In this review we requested data from the States to recalibrate the relationship between distance and level of locality allowances. However, the data received were inadequate to provide a reliable estimate. In the absence of better data, we retain the 1999 Review cost function for estimating the locality allowances factors.

35. Table D15 sets out the estimated locality allowances factors for the 2004 Review and compares them with the factors assessed in the 1999 Review. The changes in factors between the two reviews reflect the changes in the distribution of population and the measure of remoteness.

Table D15 LOCALITY ALLOWANCES FACTORS, GENERAL CATEGORIES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	0.19730	0.09808	1.75264	3.59691	0.72447	0.15583	0.00000	14.51536
1999	0.29518	0.10080	2.01115	3.34868	0.40898	0.09789	0.00000	12.72284

Repairs and maintenance

36. For the 2004 Review, the Commission assesses the impacts of repairs and maintenance on the costs of service delivery by States. Repairs and maintenance expenses include costs of repairs and maintenance of buildings and equipment in remote areas. The rationale for introducing this allowance was discussed earlier in this paper.

37. Data provided by the States (particularly New South Wales, Queensland, Western Australia and the Northern Territory) indicated that the most common arrangements for repairs and maintenance in remote areas are for tradespeople from the nearest centre to be engaged on an hourly basis, and the tradespeople are generally paid for travel time and time on the job. This suggests the disability factor should reflect travel plus work time.

38. For a remote CD, the tradespeople come from the nearest urban centre of 1000 or more population. The payments to the tradespeople include the time spent on the job and travelling time. We estimated the time for a one way trip to a remote CD to be the its distance to the nearest urban centre divided by an average hourly travelling speed of

80 kilometres per hour. We also assumed that standard time on a job would be an hour. The notional costs of repair and maintenance for a remote CD therefore depend on the time spent on the job and the population of the CD. (As with all other parts of the dispersion model, population is a proxy for the level of demand).

39. Based on a sample of invoices for General Government, the Northern Territory provided a 39 per cent labour, 40 per cent materials and 21 per cent other costs breakdown of the repairs and maintenance expenses in the remote areas. The other costs component included travel per kilometre, call out rate, out of hours rate and accommodation costs. Based on that information, we estimated a cost weight of 1.2 to account for additional cost incurred to serve the very remote areas where the tradespeople may have to stay overnight. Table D16 sets out the estimated repair and maintenance proposed factors for the 2004 Review.

Table D16 REPAIR AND MAINTENANCE FACTORS, GENERAL CATEGORIES

Review	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2004	0.23664	0.11435	1.34562	3.05947	1.35853	0.65538	0.00000	19.25268

Other modifications for ICT related factors

40. The Technology Study suggests:

- (i) to modify the dispersion general freight factors using the standard ratio of student to workstations to reflect the ICT related repair disabilities and ICT related capital costs;
- (ii) to modify the inter-regional travel factors using the standard ratio of student to workstations to reflect the ICT related support, maintenance and training disabilities.

41. The above proposed factors and their proposed component weights are reported in the *Discussion Paper CGC 2003/8 Impact of Technology on Assessments*.

Special categories

42. For some categories such as Primary Industry, Mining, Fuel and Energy, and Services to Indigenous Communities, the dispersion disabilities depend on the relevant populations to which the services are provided. For the 2004 Review, we used the ABS regional employment data for the first two categories, and the 2001 Census data for the Indigenous population. We adjusted these data as follows.

43. The ABS regional employment data are available for Agriculture, Forestry and Fishing, and Mining at the Statistical Local Area (SLA) levels for person aged 15 and over. However, the dispersion calculation is done at the CD level. We allocated the data

for each SLA among its constituent CDs using the distribution of people aged 15 and over. Table D17 sets out the ABS employment data by State and compares them with those used in the 1999 Review.

44. In the 1999 Review, the number of agricultural establishments was used in the assessment for the Primary Industry. Data were available only at the SLA level. The number of establishments for each SLA was allocated evenly to its constituent CDs. This allocation was not accurate because the number of establishments in a CD might not be related to the size of its population²².

45. The differences in some of the dispersion factors assessed for Primary Industry, set out in Table 14, are in part due to the differences in methods between the two reviews.

Table D17 ABS REGIONAL EMPLOYMENT DATA

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2004 Review									
Agriculture, Forestry and Fishing	92 349	72 645	76 465	36 631	36 864	12 225	668	2 662	330 509
Mining	14 820	4 361	19 344	28 491	3 883	1 549	81	2 013	74 542
1999 Review									
Agriculture, Forestry and Fishing ^(a)	7 290	4 280	3 805	3 198	2 585	1 370	90	945	23 563
Mining	22 513	9 871	15 819	20 585	4 137	1 986	154	2 174	77 239

(a) Data based on establishments rather than number of employments.

46. Table D18 sets out the Indigenous population. The Indigenous population obtained from the 2001 Census was understated. We adjusted these data by reference to the ABS experimental estimates of Indigenous populations at 30 June 2003. Table D18 also includes the data used in the 1999 Review.

47. Table 14 to Table 16 set out the factors calculated for these categories.

²² In some cases, CDs with no population were assigned an establishment.

Table D19 INDIGENOUS POPULATION

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001 Census data									
Males	59 528	12 257	54 677	28 972	11 502	7 860	1 791	25 240	201 827
Females	60 257	12 730	58 164	29 606	11 916	7 841	1 828	25 567	207 909
Total	119 785	24 987	112 841	58 578	23 418	15 701	3 619	50 807	409 736
ABS experimental estimates of Indigenous populations^(a)									
Males	67 432	13 799	61 526	32 881	12 604	8 718	1 963	28 492	227 415
Females	67 456	14 047	64 384	33 050	12 940	8 666	1 946	28 383	230 872
Total	134 888	27 846	125 910	65 931	25 544	17 384	3 909	56 875	458 287
2004 Review^(b)	134 888	27 846	125 910	65 931	25 544	17 384	3 909	56 875	458 287
1999 Review	109 989	22 589	104 996	56 347	22 089	15 314	3 097	51 874	386 294

(a) Data provided by the ABS.

(b) Adjusted total.