

# WATER, SANITATION AND PROTECTION OF THE ENVIRONMENT — ASSESSMENT RESULTS

- 1 This working paper describes the expenses assessment for Water, Sanitation and Protection of the Environment and provides information on its impact on GST revenue distribution for the 2008 Update. The development of the assessment method is discussed in Volume 5 of the 2004 Review Working Papers.

## DESCRIPTION OF THE CATEGORY

- 2 The Water, Sanitation and Protection of the Environment category comprises costs to the State budget sector of payments made to, or on behalf of, undertakings providing water, sanitation and protection of the environment services. It includes all costs associated with the reimbursement of concessions, subsidies and payments of community service obligations (CSOs). Payments made by government on behalf of Public Trading Enterprises (PTEs) for depreciation are also included. Where the service operates as part of the general government sector, and does so at a loss, that loss is also included.

23 The only Specific Purpose Payment associated with the Water, Sanitation and Protection of the Environment category is the Queensland Sugar Coast Environment Rescue Package payment. It is treated by inclusion.

24 Table 1 shows the average expenses for the last six financial years. In 2006-07, average expenses of \$116.37 per capita represented 1.81 per cent of total average expenses.

**Table 1 Water, Sanitation and Protection of the Environment, average expenses, 2001-02 to 2006-07**

|                                   | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|-----------------------------------|---------|---------|---------|---------|---------|---------|
| Average expenses (\$pc)           | 69.25   | 77.50   | 72.97   | 87.54   | 89.83   | 116.37  |
| % of total State average expenses | 1.34    | 1.45    | 1.34    | 1.54    | 1.50    | 1.81    |

Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/Average Expenses

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## **ASSESSMENT METHOD**

### **Description of the assessment**

- 5 The Water, Sanitation and Protection of the Environment assessment for the 2008 Update comprised eight components: fixed costs, regulation; concessions; general subsidies; economic development; land rights; native title; and isolation.
- 6 The expenses assessment method for the 2008 Update was the same as for the 2007 Update:
- the expenses for fixed costs, isolation, land rights and native title were assessed using general methods;
  - the expenses for regulation were assessed using general methods for input costs and dispersion;
  - the expenses for concessions were assessed using the proportion of people who have an Australian Government Health Care or Pensioner Card;
  - the expenses for general subsidies were assessed using the proportion of people in regional areas, weighted by an index of size, location, water availability and water quality in each State; and
  - the expenses for economic development were assessed on an equal per capita basis.

### **Assessment structure**

- 7 Table 2 summarises the assessment structure for the 2008 Update.
- 8 The proportion of expenses affected by fixed costs, land rights, native title and isolation were assessed using general methods. The proportion of expenses affected by the remaining components was assessed based on GFS data and data provided by States.

**Table 2 Water, Sanitation and Protection of the Environment, assessment structure, 2008 Update, 2006-07**

| Expenses component   | Component Weight | Factors   | Basis of calculation   |
|----------------------|------------------|---|--|
|                      | %                |   |  |
| Fixed costs          | 0.32             | Administrative scale<br>Input costs               | General method.<br>General method with weights of 80% for wages, 2% for accommodation and 0.5% for electricity.  |
| Regulation           | 17.36            | Economic environment<br>Dispersion<br>Input costs | Equal per capita.<br>General method.<br>General method with weights of 80% for wages, 2% for accommodation and 0.5% for electricity.   |
| Concessions          | 20.30            | Socio-demographic composition                     | Based on the proportion of people who have an Australian Government Health Care Card or a Pensioner Card.  |
| General subsidies    | 57.10            | Water and sewerage cost                           | Based on the proportion of the populations in specified areas of each State. State populations were weighted using a cost weighted index of size, location, water availability and water quality applied to 2006 Census populations at the UC/L level. |
| Economic development | 4.84             | None  | Equal per capita.  |
| Land rights          | 0.02             | Land rights                                       | General method.  |
| Native title         | 0.01             | Native title                                      | General method.  |
| Isolation            | 0.05             | Isolation   | General method.  |

### Calculating the category factor

9 Table 3 summarises the components, component weights and disability factors assessed for this category for the last year of the 2008 Update. It shows the calculation of the category factor for 2006-07.

**Table 3 Water, Sanitation and Protection of the Environment, derivation of category factor, 2006-07**

| Factors   | NSW            | Vic            | Qld            | WA             | SA             | Tas            | ACT            | NT             |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>Fixed costs (component weight = 0.32 %)</b>          |                |                |                |                |                |                |                |                |
| Administrative scale                                    | 0.38031        | 0.50456        | 0.63046        | 1.25230        | 1.65373        | 5.30328        | 7.74403        | 12.25245       |
| <b>Input costs</b>                                      | <b>1.02528</b> | <b>0.99212</b> | <b>0.98387</b> | <b>0.99199</b> | <b>0.97579</b> | <b>0.95664</b> | <b>1.01939</b> | <b>1.01769</b> |
| Component factor  | 0.38993        | 0.50059        | 0.62029        | 1.24227        | 1.61369        | 5.07334        | 7.89420        | 12.46916       |
| <b>A Wgtd comp factor</b>                               | <b>0.00124</b> | <b>0.00160</b> | <b>0.00198</b> | <b>0.00396</b> | <b>0.00514</b> | <b>0.01617</b> | <b>0.02517</b> | <b>0.03975</b> |
| <b>Regulation (component weight = 17.36 %)</b>          |                |                |                |                |                |                |                |                |
| Economic environment                                    | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        |
| Dispersion  | 1.00040        | 0.99573        | 1.00462        | 1.00079        | 0.99803        | 0.99970        | 0.98771        | 1.02785        |
| <b>Input costs</b>                                      | <b>1.02528</b> | <b>0.99212</b> | <b>0.98387</b> | <b>0.99199</b> | <b>0.97579</b> | <b>0.95664</b> | <b>1.01939</b> | <b>1.01769</b> |
| Component factor  | 1.02568        | 0.98786        | 0.98848        | 0.99278        | 0.97382        | 0.95634        | 1.00710        | 1.04553        |
| <b>B Wgtd comp factor</b>                               | <b>0.17803</b> | <b>0.17147</b> | <b>0.17158</b> | <b>0.17232</b> | <b>0.16903</b> | <b>0.16600</b> | <b>0.17481</b> | <b>0.18148</b> |
| <b>Concessions (component weight = 20.3 %)</b>          |                |                |                |                |                |                |                |                |
| Socio-demographic composition                           |                |                |                |                |                |                |                |                |
| Component factor  | 0.99208        | 1.03064        | 0.97330        | 0.86575        | 1.17128        | 1.32789        | 0.62160        | 0.91556        |
| <b>C Wgtd comp factor</b>                               | <b>0.20140</b> | <b>0.20923</b> | <b>0.19759</b> | <b>0.17576</b> | <b>0.23778</b> | <b>0.26957</b> | <b>0.12619</b> | <b>0.18587</b> |
| <b>General subsidies (component weight = 57.1 %)</b>    |                |                |                |                |                |                |                |                |
| Water and sewerage cost                                 |                |                |                |                |                |                |                |                |
| Component factor  | 0.89102        | 0.43297        | 0.90653        | 2.08946        | 2.07598        | 0.57838        | 0.00000        | 4.02210        |
| <b>D Wgtd comp factor</b>                               | <b>0.50880</b> | <b>0.24724</b> | <b>0.51766</b> | <b>1.19315</b> | <b>1.18545</b> | <b>0.33027</b> | <b>0.00000</b> | <b>2.29674</b> |
| <b>Economic development (component weight = 4.84 %)</b> |                |                |                |                |                |                |                |                |
| EPC   |                |                |                |                |                |                |                |                |
| Component factor  | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        | 1.00000        |
| <b>E Wgtd comp factor</b>                               | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> | <b>0.04845</b> |
| <b>Land rights (component weight = 0.02 %)</b>          |                |                |                |                |                |                |                |                |
| Land rights   |                |                |                |                |                |                |                |                |
| Component factor  | 0.00000        | 0.00000        | 0.00000        | 0.00000        | 0.00000        | 0.00000        | 0.00000        | 98.01962       |
| <b>F Wgtd comp factor</b>                               | <b>0.00000</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.01578</b> |
| <b>Native title (component weight = 0.01 %)</b>         |                |                |                |                |                |                |                |                |
| Native title  |                |                |                |                |                |                |                |                |
| Component factor  | 0.43629        | 0.00000        | 0.00000        | 2.41508        | 5.48787        | 0.00000        | 0.00000        | 19.67519       |
| <b>G Wgtd comp factor</b>                               | <b>0.00004</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00022</b> | <b>0.00051</b> | <b>0.00000</b> | <b>0.00000</b> | <b>0.00183</b> |
| <b>Isolation (component weight = 0.05 %)</b>            |                |                |                |                |                |                |                |                |
| Isolation   |                |                |                |                |                |                |                |                |
| Component factor  | 0.04081        | 0.06917        | 0.11309        | 1.80761        | 1.09363        | 2.75060        | 1.22840        | 58.74083       |
| <b>H Wgtd comp factor</b>                               | <b>0.00002</b> | <b>0.00004</b> | <b>0.00006</b> | <b>0.00092</b> | <b>0.00056</b> | <b>0.00141</b> | <b>0.00063</b> | <b>0.03001</b> |
| <b>Category factor</b>                                  | <b>0.93798</b> | <b>0.67801</b> | <b>0.93730</b> | <b>1.59478</b> | <b>1.64692</b> | <b>0.83187</b> | <b>0.37524</b> | <b>2.79990</b> |

Note: For each component, the component factor is calculated using the formula in the following paragraph. The weighted component factor is the component factor multiplied by the component weight. This is then population weighted to ensure that the sum of assessed expenses equals average expenses.

Source: Assessment System, U2008 GST/Expenses/f. Economic Activities/Water, Sanitation and Protection of the Environment/Assessed Expenses/QA 5420 E Water Sanitation and Protection of the Environment Standardised Expenditure

*Water, Sanitation and Protection of the Environment*

10 The category factor was calculated as follows.

$$\text{Category factor} = \text{fixed costs} + \text{regulation} + \text{concessions} + \text{general subsidies} + \text{economic development} + \text{land rights} + \text{native title} + \text{isolation}$$

Where:

$$\text{Fixed costs} = 0.0032 * [\text{administrative scale} * \text{fixed costs} - \text{input costs}]$$

$$\text{Regulation} = 0.1736 * [\text{economic environment} * (\text{dispersion} + \text{input costs} - 1)]$$

$$\text{Concessions} = 0.2030 * [\text{socio-demographic composition}]$$

$$\text{General subsidies} = 0.5710 * [\text{water and sewerage cost}]$$

$$\text{Economic development} = 0.0484 * [\text{equal per capita}]$$

$$\text{Land rights} = 0.0002 * [\text{land rights factor}]$$

$$\text{Native title} = 0.0001 * [\text{native title factor}]$$

$$\text{Isolation} = 0.0005 * [\text{isolation}]$$

11 In each case, the contribution to the category factor was calculated as the component weight (the percentages above) multiplied by the component factor (the bracketed terms in the formulas). Each component's contribution to the category factor was then scaled to ensure the sum of assessed expenses equalled the sum of actual expenses.

## RESULTS FOR 2006-07

12 Table 4 shows actual, average and assessed expenses per capita and the assessed cost of providing services ratios for 2006-07. The assessed cost of providing services ratio is equivalent to the category factor shown in Table 3.

**Table 4 Water, Sanitation and Protection of the Environment, assessment results, 2006-07**

|   | NSW    | Vic    | Qld    | WA     | SA     | Tas   | ACT    | NT     | Avg    |
|---|--------|--------|--------|--------|--------|-------|--------|--------|--------|
|   | \$pc   | \$pc   | \$pc   | \$pc   | \$pc   | \$pc  | \$pc   | \$pc   | \$pc   |
| Actual expenses                               | 105.02 | 104.51 | 42.03  | 242.49 | 250.70 | 38.33 | 105.63 | 182.65 | 116.37 |
| Assessed expenses                             | 109.15 | 78.90  | 109.07 | 185.58 | 191.65 | 96.80 | 43.67  | 325.82 | 116.37 |
|   | %      | %      | %      | %      | %      | %     | %      | %      | %      |
| Assessed cost of providing services ratio (a) | 93.80  | 67.80  | 93.73  | 159.48 | 164.69 | 83.19 | 37.52  | 279.99 | 100.00 |

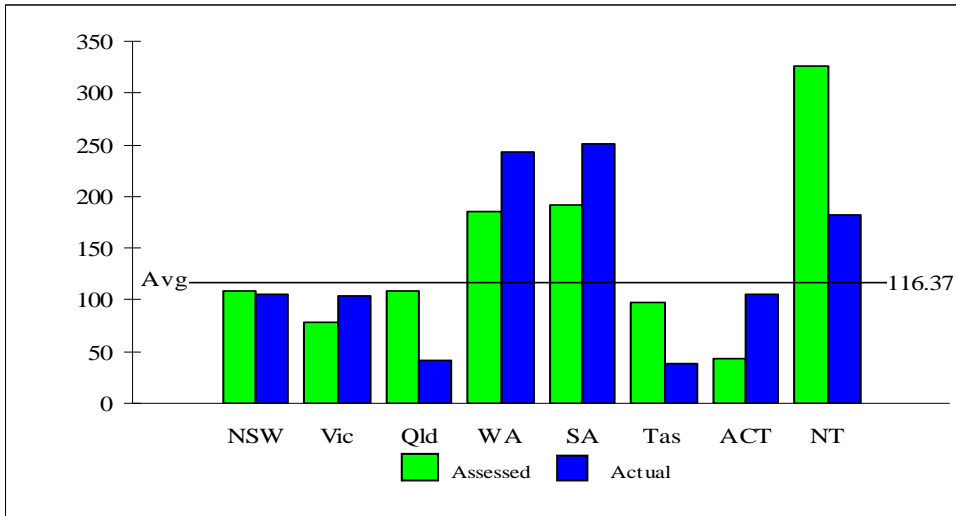
(a) The cost of service provision ratio is the ratio of assessed expenses per capita to average expenses per capita.  
Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Assessment Results

13 Table 11 at the end of this working paper shows the actual, average and assessed expenses for each State for all years of the 2008 Update.

1314 Figure 1 illustrates the actual, average and assessed expenses for Water, Sanitation and Protection of the Environment for 2006-07. It shows that Western Australia, South Australia and the Northern Territory are assessed to have above average costs, New South Wales, Queensland and Tasmania are assessed to have close to average costs and Victoria and the ACT are assessed to have below average costs.

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**Figure 1 Water, Sanitation and Protection of the Environment, expenses per capita – assessed, actual and average, 2005-06**



Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Expenses Per Capita - Assessed, Actual and Average

**CONTRIBUTION TO GST REVENUE DISTRIBUTION**

15 Table 5 shows the category’s contribution to the distribution of GST revenue and health care grants (hereafter GST revenue pool). It also shows the contribution of each factor and component to the GST revenue distribution.

**Table 5 Water, Sanitation and Protection of the Environment, contribution of assessment to GST revenue distribution, 2008 Update**

| Factor   | NSW   | Vic    | Qld   | WA    | SA   | Tas  | ACT   | NT   | Total<br>redist'd |
|--|-------|--------|-------|-------|------|------|-------|------|-------------------|
|  | \$m   | \$m    | \$m   | \$m   | \$m  | \$m  | \$m   | \$m  | \$m               |
| <b>Fixed costs</b>   |       |        |       |       |      |      |       |      |                   |
| Administrative scale   | -1.7  | -1.0   | -0.6  | 0.2   | 0.4  | 0.8  | 0.9   | 1.0  | 3.4               |
| Input costs  | 0.1   | 0.0    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.1               |
| Component factor   | -1.7  | -1.0   | -0.6  | 0.2   | 0.4  | 0.8  | 0.9   | 1.0  | 3.4               |
| <b>General subsidies</b>   |       |        |       |       |      |      |       |      |                   |
| Water and sewerage costs   | -30.1 | -137.7 | -19.6 | 105.2 | 78.3 | -9.4 | -15.5 | 28.9 | 212.4             |
| Component factor   | -30.1 | -137.7 | -19.6 | 105.2 | 78.3 | -9.4 | -15.5 | 28.9 | 212.4             |
| <b>Concessions</b>   |       |        |       |       |      |      |       |      |                   |
| Socio-demographic composition  | -4.8  | 2.0    | 0.8   | -4.9  | 6.8  | 4.3  | -3.4  | -0.7 | 13.8              |
| Component factor   | -4.8  | 2.0    | 0.8   | -4.9  | 6.8  | 4.3  | -3.4  | -0.7 | 13.8              |
| <b>Regulation</b>  |       |        |       |       |      |      |       |      |                   |
| Economic environment   | 0.0   | 0.0    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0               |
| Dispersion   | 0.0   | -0.4   | 0.3   | 0.0   | -0.1 | 0.0  | -0.1  | 0.1  | 0.5               |
| Input costs  | 4.3   | -0.4   | -2.2  | -0.6  | -0.8 | -0.4 | 0.1   | 0.1  | 4.5               |
| Component factor   | 4.3   | -0.8   | -1.9  | -0.6  | -0.9 | -0.4 | 0.1   | 0.2  | 4.6               |
| <b>Economic development</b>  |       |        |       |       |      |      |       |      |                   |
| EPC  | 0.0   | 0.0    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0               |
| Component factor   | 0.0   | 0.0    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  | 0.0               |
| <b>Land rights</b>   |       |        |       |       |      |      |       |      |                   |
| Land rights  | -0.1  | -0.1   | -0.1  | 0.0   | 0.0  | 0.0  | 0.0   | 0.4  | 0.4               |
| Component factor   | -0.1  | -0.1   | -0.1  | 0.0   | 0.0  | 0.0  | 0.0   | 0.4  | 0.4               |
| <b>Native title</b>  |       |        |       |       |      |      |       |      |                   |
| Native title   | -0.2  | -0.2   | -0.1  | 0.5   | 0.0  | 0.0  | 0.0   | 0.0  | 0.5               |
| Component factor   | -0.2  | -0.2   | -0.1  | 0.5   | 0.0  | 0.0  | 0.0   | 0.0  | 0.5               |
| <b>Isolation</b>   |       |        |       |       |      |      |       |      |                   |
| Isolation  | -0.4  | -0.3   | -0.2  | 0.1   | 0.0  | 0.1  | 0.0   | 0.8  | 1.0               |
| Component factor   | -0.4  | -0.3   | -0.2  | 0.1   | 0.0  | 0.1  | 0.0   | 0.8  | 1.0               |
| <b>Redistribution from EPC resulting from the 2008 Update assessment</b> |       |        |       |       |      |      |       |      |                   |
|  | -33.1 | -138.2 | -21.7 | 100.4 | 84.5 | -4.8 | -17.8 | 30.7 | 215.6             |

Note: The redistribution due to the component factors includes the effect of interactions between factors. Therefore the component factor figure may not equal the sum of its factors' redistribution.

Source: Assessment System, U2008 GST/Expenses/Economic Activities/5420 Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Contribution of Assessment to GST Revenue

### Differences from an equal per capita assessment

16 Table 5 shows that compared with an equal per capita assessment, the 2008 Update redistributed \$215.6 million to Western Australia, South Australia and the Northern Territory.

17 The water and sewerage costs factor recognised that the costs of providing the service were higher in remote and very remote areas of the State. The cost weights also recognised water quality and water availability. The basins of the Murray, South Australian Gulf, South West Coast, Lake Eyre, Bulloo-Bancannia and Western Plateau had lower levels of fresh surface water available, which made it more likely that water in these regions required additional treatment before use. People living in those regions were also more likely to need to access water by bores or by pipelines. Water quality and availability affected populations in Western Australia, South Australia and the Northern Territory more than populations in other States and therefore they were assessed to have higher than average costs.

18 The category factor reflected the following on a State by State basis:

- *New South Wales* - This State required a less than equal per capita share of GST revenue to deliver this service primarily because most of its population were located on the high rainfall side of the Great Dividing Range. These regions receive a lower cost weight. New South Wales also had a below average proportion of Health Care Card and Pensioner Concession Card holders. These influences were partially offset by its higher labour costs.
- *Victoria* - Victoria required a less than equal per capita share of GST revenue to deliver this service due to its very low proportion of people in remote and very remote areas (high cost areas). This was partially offset by an above average proportion of Health Care Card and Pensioner Concession Card holders.
- *Queensland* - This State required a less than equal per capita share of GST revenue mainly because most of its population was centred on the high rainfall side of the Great Dividing Range which received a lower cost weight. Queensland also had lower labour costs. These influences were partially offset by an above average share of Health Care Card and Pensioner Concession Card holders.
- *Western Australia* - Western Australia required more than an equal per capita share of GST revenue due to its above average share of remote and very remote population (high cost areas), a greater proportion of which lived in areas of low rainfall. These influences were slightly offset by its below average share of Health Care Card and Pensioner Concession Card holders.
- *South Australia* - This State required more than an equal per capita share of GST revenue due to its above average share of population living in areas of low rainfall and its above average share of Health Care Card and Pensioner Concession Card holders.
- *Tasmania* - This State required a less than equal per capita share of GST revenue due to an above average share of its population living in high rainfall areas. This influence was

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reduced by its diseconomies of scale and above average proportion of Health Care Card and Pensioner Concession Card holders.

- *ACT* – This State required a less than equal per capita share of GST revenue due an above average share of its population living in high rainfall areas and a below average proportion of Health Care Card and Pensioner Concession Card holders. These influences were partially offset by diseconomies of scale.
- *Northern Territory* – This State required a less than equal per capita share of GST revenue to deliver this service due to its above average share of remote and very remote population (high cost areas), a greater proportion of which lived in areas of low rainfall. Diseconomies of scale and high isolation costs compounded these problems. These influences were partially offset by a below average share of Health Care Card and Pensioner Concession Card holders.

## CHANGES SINCE THE 2007 UPDATE

### Effect of assessment on GST revenue distribution

19 Table 6 shows the redistribution of GST revenue shares resulting from the assessments in the 2007 Update and the 2008 Update. The assessment is now redistributing more GST than it did in the 2007 Update. This result reflects the greater redistribution effects due to the variation across the States in populations living in areas with poorer water quality and availability, flowing from the increase in State expenses on general subsidies to water suppliers.

1920 The table also shows the changes were brought about because the Commission:

- used revised average expenses and other revised data in updating factor calculations for the years 2001-02 to 2005-06; and
- replaced 2001-02 average expenses and factors with those of 2006-07 to move forward the five year period on which GST revenue distribution was based. Moving the five year period forward in this way ensures the assessments reflect recent trends in State priorities on the services provided and recent trends in State demographic and economic circumstances which affect the relative costs of those services.

21 With the availability of 2006 Census data, these have now been included in the water and sewerage cost factor calculations for the years 2004-05 through 2006-07. Earlier assessment years have continued to use 2001 Census data for the factor calculations.

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**Table 6 Water, Sanitation and Protection of the Environment, effect of assessment on GST revenue distribution, 2007 Update to 2008 Update**

|   | NSW   | Vic    | Qld   | WA    | SA   | Tas  | ACT   | NT   | Total<br>redist'd |
|---|-------|--------|-------|-------|------|------|-------|------|-------------------|
|   | \$m   | \$m    | \$m   | \$m   | \$m  | \$m  | \$m   | \$m  | \$m               |
| <b>Redistribution from EPC resulting from the 2007 Update assessment (a)</b>            | -19.4 | -115.8 | -19.8 | 79.9  | 69.1 | -2.8 | -14.4 | 23.3 | 172.3             |
| <b>Effect of revising category averages and factors for 2001-02 to 2005-06</b>          |       |        |       |       |      |      |       |      |                   |
| Category average  | -1.0  | -5.7   | -1.0  | 3.9   | 3.4  | -0.1 | -0.7  | 1.1  | 8.5               |
| Category factors  | -5.3  | 4.5    | 2.3   | -0.9  | -1.3 | -0.1 | 0.0   | 0.7  | 7.5               |
| Interactions  | -0.3  | 0.2    | 0.1   | 0.0   | -0.1 | 0.0  | 0.0   | 0.0  | 0.4               |
| Total   | -6.5  | -1.0   | 1.4   | 3.0   | 2.0  | -0.2 | -0.7  | 1.9  | 8.4               |
| <b>Effect of replacing 2001-02 category averages and factors with those for 2006-07</b> |       |        |       |       |      |      |       |      |                   |
| Category average  | -0.8  | -4.8   | -0.8  | 3.2   | 2.8  | -0.1 | -0.6  | 1.0  | 7.1               |
| Category factors  | -5.1  | -13.3  | -2.1  | 11.4  | 8.5  | -1.3 | -1.7  | 3.6  | 23.5              |
| Interactions  | -1.3  | -3.3   | -0.5  | 2.8   | 2.1  | -0.3 | -0.4  | 0.9  | 5.8               |
| Total   | -7.2  | -21.4  | -3.3  | 17.5  | 13.4 | -1.7 | -2.7  | 5.5  | 36.4              |
| <b>Redistribution from EPC resulting from the 2008 Update assessment (a)</b>            | -33.1 | -138.2 | -21.7 | 100.4 | 84.5 | -4.8 | -17.8 | 30.7 | 215.6             |
| <b>Total effect of revisions and updating (b)</b>                                       | -13.7 | -22.4  | -1.9  | 20.5  | 15.5 | -1.9 | -3.5  | 7.4  | 43.4              |

(a) Using the same pool and populations that were used to calculate the 2007 Update redistribution.

(b) This figure shows the change in the amount redistributed among the States between the 2007 Update and the 2008 Update. It does not necessarily equal the difference in the total redistribution from EPC between the two inquiries.

Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Effect of Assessment, Previous Inquiry to Current Inquiry

22 The Water, Sanitation and Protection of the Environment assessment resulted in a redistribution of \$215.6 million towards Western Australia, South Australia and the Northern Territory, away from the other States. The total effect of revisions and updating was to increase the redistribution and to redistribute \$43.4 million across the States. The GST shares of Western Australia, South Australia and the Northern Territory increased and those of the other States decreased.

23 Table 7 shows the changes in GST revenue attributable to changes in each factor arising from both revisions over the period 2001-02 to 2005-06 and replacing 2001-02 data with 2006-07 data.

**Table 7 Water, sanitation and protection of the environment, effect of assessment on GST revenue distribution by factor, 2007 Update to 2008 Update**

|                               | NSW   | Vic   | Qld  | WA   | SA   | Tas  | ACT  | NT   | Total<br>redist'd |
|-------------------------------|-------|-------|------|------|------|------|------|------|-------------------|
|                               | \$m   | \$m   | \$m  | \$m  | \$m  | \$m  | \$m  | \$m  | \$m               |
| <b>Fixed Costs</b>            |       |       |      |      |      |      |      |      |                   |
| Administrative scale          | 0.1   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1               |
| Input costs                   | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0               |
| <b>General subsidies</b>      |       |       |      |      |      |      |      |      |                   |
| Water and sewerage costs      | -15.0 | -23.5 | -1.0 | 21.8 | 15.2 | -2.0 | -3.4 | 7.8  | 44.8              |
| <b>Concessions</b>            |       |       |      |      |      |      |      |      |                   |
| Socio-demographic composition | 1.9   | 0.6   | -1.8 | -0.9 | 0.2  | 0.1  | -0.2 | 0.0  | 2.9               |
| <b>Regulation</b>             |       |       |      |      |      |      |      |      |                   |
| Economic environment          | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0               |
| Dispersion                    | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1               |
| Input costs                   | -0.6  | -0.1  | 0.5  | 0.1  | 0.1  | 0.0  | 0.0  | 0.0  | 0.7               |
| <b>Economic development</b>   |       |       |      |      |      |      |      |      |                   |
| EPC                           | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0               |
| <b>Land rights</b>            |       |       |      |      |      |      |      |      |                   |
| Land rights                   | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | -0.1 | 0.1               |
| <b>Native title</b>           |       |       |      |      |      |      |      |      |                   |
| Native title                  | 0.0   | 0.0   | 0.0  | -0.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.1               |
| <b>Isolation</b>              |       |       |      |      |      |      |      |      |                   |
| Isolation                     | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1               |

Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Effect of Assessment by Factor, Previous Inquiry to Current Inquiry

24 The main reasons for the changes in GST revenue distribution between the two updates are explained in more detail in the following sections.

#### Changes due to revising average expenses and factors for years 2001-02 to 2005-06

##### Revising average expenses

25 For this category, there were upward revisions of expense data for 2001-02 to 2005-06. The GST share of those States with a higher cost of service provision (Western Australia, South Australia and the Northern Territory) increased. States with a lower cost of providing services had their GST shares decrease. The revisions were mainly due to Victoria and Tasmania reallocating some concessions expenses previously in the welfare category to this category.

2526 Table 8 shows the average expenses and user charges for the six financial years of this update and those of the previous update.

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**Table 8 Water, sanitation and protection of the environment, Average expenses used in the 2007 and 2008 Updates**

|             | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|-------------|---------|---------|---------|---------|---------|---------|---------|
|             | \$pc    | \$pc    | \$pc    | \$pc    | \$pc    | \$pc    | \$pc    |
| 2008 Update | -       | 69.25   | 77.50   | 72.97   | 87.54   | 89.83   | 116.37  |
| 2007 Update | 65.19   | 65.61   | 74.37   | 69.58   | 84.24   | 85.55   | -       |
| Difference  | -       | 3.6     | 3.1     | 3.4     | 3.3     | 4.3     | -       |

Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5240 E Average expenses 2006 and 2007

*Revising category factors*

27 The water and sewerage costs factor is the most important for the 2008 Update in this category. Revisions were made to this factor, changing States' cost of providing services ratios, because new census data became available. The 2001 Census data were revised to 2006 Census data for the years 2004-05 and 2005-06.

2728 The new 2006 Census data reflected a redistribution of the population living with poorer access to good quality water and sanitation and water services across the States. The impact was a redistribution of \$7.5 million towards Victoria, Queensland and the Northern Territory. Table 9 shows a summary.

2729 New South Wales, Queensland and Victoria have lower than average proportions of population with poor water access/quality. With the new census data, New South Wales's proportion has decreased (more people with better water access/quality), while Victoria's and Queensland's has increased (more people with poorer water access/quality) compared to the Australian average. This explains the redistribution away from New South Wales and towards Victoria and Queensland.

2730 Western Australia and South Australia have higher than average proportions of population with poor water access/quality. However, with the 2006 Census data, both States' proportions of people living with lower than average water access/quality has decreased, which causes their GST shares to decrease.

**Table 9 Proportion of States' populations with poor water availability/access: 2001 and 2006 Census**

|                        | NSW  | Vic | Qld  | WA   | SA   | Tas  | ACT | NT   | Aust |
|------------------------|------|-----|------|------|------|------|-----|------|------|
|                        | %    | %   | %    | %    | %    | %    | %   | %    | %    |
| 2001 Census proportion | 4.9  | 2.0 | 4.6  | 10.9 | 11.0 | 3.1  | 0.0 | 19.6 | 5.2  |
| 2006 Census proportion | 4.3  | 2.1 | 4.4  | 10.1 | 10.0 | 2.8  | 0.0 | 19.4 | 4.8  |
| Difference             | -0.6 | 0.1 | -0.2 | -0.8 | -1.0 | -0.3 | 0.0 | -0.2 | -0.4 |

Note: Refers to the proportion of States' populations weighted by drainage basin and location.

Source: I:\U2008\Category Assessments\Water, Sanitation and Protection of the Environment\Census data\WSPE census compare.xls

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**Changes in State circumstances — replacing 2001-02 with 2006-07 data**

31 Table 10 shows the actual expenses and implied costs of service provision for 2001-02, the year that drops out of the assessment period, and 2006-07, the year that comes in, for the 2008 Update assessment.

*Replacing average expenses*

32 Since 2001-02, State spending on services in this category has increased (by 79.4 per cent), at a faster rate than growth in the GST pool (43.9 per cent). So, replacing 2001-02 average expenses with 2006-07 average expenses increase the amount of GST redistributed (\$7.1 million). It increased the GST revenue shares of States assessed to have above average cost of providing services ratios (Western Australia, South Australia and the Northern Territory). It reduced the GST revenue shares of the other States.

**Table 10 Water, sanitation and protection of the environment, actual expenses and assessed cost of providing services, 2001-02 and 2006-07**

|  | NSW    | Vic    | Qld    | WA     | SA     | Tas   | ACT     | NT     | Avg    |
|--|--------|--------|--------|--------|--------|-------|---------|--------|--------|
|  | \$pc   | \$pc   | \$pc   | \$pc   | \$pc   | \$pc  | \$pc    | \$pc   | \$pc   |
| <b>Actual expenses</b>                           |        |        |        |        |        |       |         |        |        |
| 2001-02  | 65.99  | 43.02  | 27.78  | 160.78 | 156.85 | 33.24 | 6.23    | 219.81 | 69.25  |
| 2006-07  | 105.02 | 104.51 | 42.03  | 242.49 | 250.70 | 38.33 | 105.63  | 182.65 | 116.37 |
|  | %      | %      | %      | %      | %      | %     | %       | %      | %      |
| Change between 2001-02 and 2006-07               | 59.14  | 142.95 | 51.32  | 50.82  | 59.84  | 15.32 | 1594.90 | -16.91 | 68.03  |
|  | \$pc   | \$pc   | \$pc   | \$pc   | \$pc   | \$pc  | \$pc    | \$pc   | \$pc   |
| <b>Assessed expenses</b>                         |        |        |        |        |        |       |         |        |        |
| 2001-02  | 67.58  | 55.96  | 66.62  | 91.29  | 95.03  | 66.85 | 43.89   | 134.61 | 69.25  |
| 2006-07  | 109.15 | 78.90  | 109.07 | 185.58 | 191.65 | 96.80 | 43.67   | 325.82 | 116.37 |
|  | %      | %      | %      | %      | %      | %     | %       | %      | %      |
| <b>Assessed cost of providing services ratio</b> |        |        |        |        |        |       |         |        |        |
| 2001-02  | 97.58  | 80.81  | 96.20  | 131.83 | 137.22 | 96.54 | 63.38   | 194.37 | 100.00 |
| 2006-07  | 93.80  | 67.80  | 93.73  | 159.48 | 164.69 | 83.19 | 37.52   | 279.99 | 100.00 |

Source: Assessment System, U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Assessment Data, Year 0 and Year 5

*Replacing category factors*

33 Whilst the impacts from the census changes are incorporated into the effect of replacing 2001-02 category factors with those for 2006-07, they are overridden by changing State expense patterns that increased the proportion of expenses in the category on general subsidies. The proportion of State expenses allocated to general subsidies increased between 2001-02 and 2006-07. This means that in 2006-07 each State's assessed cost of providing services is much more dependent on their share of population living with lower than average water access or quality than in 2001-02. The result of replacing 2001-02 assessed costs with 2006-07 assessed costs is then to increase the GST share of those States with a larger proportion of their

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population living with poorer water access/quality. Those States are Western Australia, South Australia and the Northern Territory.

3334 Another minor cause of redistribution has been the difference in the weighting of the concessions component of the category. Mostly because general subsidy expenditure has become so much more important in State budgets, concession expenditure has become relatively less important. New South Wales's proportion of concession card holders has increased, only slightly offsetting their GST share loss because the weight given to the concessions component has declined. The opposite is the case for Queensland.

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This working paper was prepared by the Expense — Health and Welfare section of the Commonwealth Grants Commission. If you have any questions about its content please contact Anthony Nichols on (02) 6229 8858 or [Anthony.Nichols@cgc.gov.au](mailto:Anthony.Nichols@cgc.gov.au).



Date: 29/02/08

**Table 11 Assessment of expenses, Water, sanitation and protection of the environment**

|                                     | 2002-03  |            | 2003-04  |            | 2004-05   |            | 2005-06   |            | 2006-07   |            |
|-------------------------------------|----------|------------|----------|------------|-----------|------------|-----------|------------|-----------|------------|
|                                     | Amount   | Per Capita | Amount   | Per Capita | Amount    | Per Capita | Amount    | Per Capita | Amount    | Per Capita |
|                                     | \$m      | \$         | \$m      | \$         | \$m       | \$         | \$m       | \$         | \$m       | \$         |
| <b>Average Expenses</b>             |          | 77.50      |          | 72.97      |           | 87.54      |           | 89.83      |           | 116.37     |
| <b>New South Wales</b>              |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | - 10.483 | - 1.58     | - 16.632 | - 2.49     | - 32.989  | - 4.90     | - 35.819  | - 5.28     | - 49.476  | - 7.22     |
| Expenses - Assessed                 | 505.108  | 75.92      | 471.744  | 70.49      | 556.387   | 82.64      | 574.027   | 84.55      | 748.314   | 109.15     |
| Actual                              | 470.187  | 70.67      | 398.515  | 59.55      | 534.960   | 79.46      | 492.815   | 72.59      | 720.000   | 105.02     |
| <b>Victoria</b>                     |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | - 65.203 | - 13.32    | - 91.066 | - 18.37    | - 114.066 | - 22.72    | - 131.794 | - 25.89    | - 193.619 | - 37.47    |
| Expenses - Assessed                 | 314.181  | 64.18      | 270.595  | 54.60      | 325.331   | 64.81      | 325.523   | 63.94      | 407.709   | 78.90      |
| Actual                              | 365.900  | 74.74      | 312.900  | 63.13      | 448.300   | 89.31      | 421.000   | 82.70      | 540.042   | 104.51     |
| <b>Queensland</b>                   |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | - 10.594 | - 2.81     | - 14.152 | - 3.66     | - 16.140  | - 4.08     | - 20.475  | - 5.06     | - 30.172  | - 7.30     |
| Expenses - Assessed                 | 281.376  | 74.69      | 267.721  | 69.31      | 330.201   | 83.46      | 343.228   | 84.77      | 451.077   | 109.07     |
| Actual                              | 58.000   | 15.40      | 57.200   | 14.81      | 67.700    | 17.11      | 57.000    | 14.08      | 173.820   | 42.03      |
| <b>Western Australia</b>            |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | 42.776   | 22.07      | 62.081   | 31.54      | 83.471    | 41.74      | 97.204    | 47.68      | 144.103   | 69.21      |
| Expenses - Assessed                 | 193.007  | 99.56      | 205.708  | 104.51     | 258.548   | 129.28     | 280.329   | 137.51     | 386.384   | 185.58     |
| Actual                              | 324.000  | 167.14     | 361.000  | 183.41     | 382.000   | 191.00     | 428.000   | 209.95     | 504.872   | 242.49     |
| <b>South Australia</b>              |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | 39.714   | 26.02      | 55.714   | 36.27      | 72.901    | 47.13      | 82.924    | 53.14      | 118.689   | 75.28      |
| Expenses - Assessed                 | 158.003  | 103.52     | 167.821  | 109.24     | 208.292   | 134.67     | 223.100   | 142.97     | 302.158   | 191.65     |
| Actual                              | 254.744  | 166.90     | 261.410  | 170.16     | 295.620   | 191.14     | 388.826   | 249.17     | 395.259   | 250.70     |
| <b>Tasmania</b>                     |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | - 0.767  | - 1.61     | - 1.853  | - 3.85     | - 3.789   | - 7.82     | - 5.376   | - 11.01    | - 9.619   | - 19.56    |
| Expenses - Assessed                 | 36.049   | 75.88      | 33.224   | 69.12      | 38.651    | 79.72      | 38.502    | 78.82      | 47.593    | 96.80      |
| Actual                              | 15.700   | 33.05      | 16.600   | 34.53      | 6.800     | 14.03      | 16.000    | 32.76      | 18.847    | 38.33      |
| <b>Australian Capital Territory</b> |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | - 8.476  | - 26.15    | - 11.722 | - 35.93    | - 15.471  | - 47.09    | - 17.211  | - 51.80    | - 24.478  | - 72.70    |
| Expenses - Assessed                 | 16.645   | 51.35      | 12.083   | 37.04      | 13.289    | 40.45      | 12.633    | 38.03      | 14.702    | 43.67      |
| Actual                              | 2.000    | 6.17       | 8.000    | 24.52      | - 4.000   | - 12.18    | 4.000     | 12.04      | 35.565    | 105.63     |
| <b>Northern Territory</b>           |          |            |          |            |           |            |           |            |           |            |
| Assessed difference                 | 13.032   | 65.35      | 17.630   | 87.75      | 26.084    | 127.69     | 30.548    | 146.36     | 44.571    | 209.45     |
| Expenses - Assessed                 | 28.489   | 142.84     | 32.291   | 160.73     | 43.966    | 215.23     | 49.297    | 236.19     | 69.334    | 325.82     |
| Actual                              | 42.326   | 212.23     | 45.562   | 226.78     | 43.286    | 211.90     | 39.000    | 186.85     | 38.867    | 182.65     |

Note: Refer to Attachment A of the 2008 Update, Relative Fiscal Capacity of States for how these figures are compiled.

Source: U2008 GST/Expenses/Economic Activities/Water, Sanitation and Protection of the Environment/Tables and Chart/5420 E Assessment of Expenses