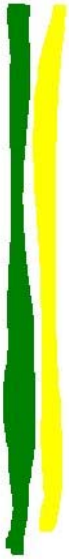




Water Accounting in Australia: Monitoring and Assessment

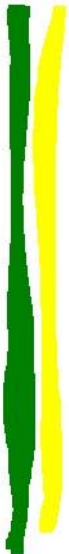
Gemma Van Halderen
Head, Environment Statistics Program
Australian Bureau of Statistics

May 2006

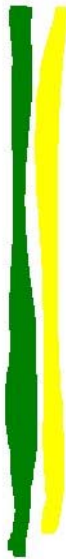


Presentation outline

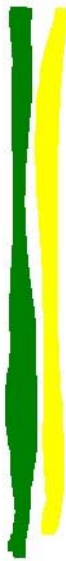
- What accounts have been produced
- How are they used
- How will they be used



Main Information Needs

- 
- How much water is there?
 - Now and what can we expect in the future
 - How much water is used?
 - What is water use?
 - Is this use sustainable?
 - What are the benefits and costs of water use?
 - Now/later
 - Here/there
 - Public/private
 - What is the best way to allocate/manage water?

What water accounts have been produced in Australia?

- 
- Australia has been producing reports which have a lot in common with SEEA for four decades
 - Reports have been called Water Resource Assessments and have been produced by water resource management authorities
 - Since 2000, the ABS has been producing National Water Accounts consistent with SEEA



What water accounts have been produced in Australia?

- 1963 Review of Australia's Water Resources (AWRC 1965)
 - 1975 Review of Australia's Water Resources (AWRC 1977)
 - 1977 The First National Survey of Water Use in Australia (DNDE 1981)
 - 1985 Review of Australia's Water Resources and Water Use (AWRC 1987)
 - 1995-96 Water in the Australian Economy (AATSE 1999)
 - 1993-94 to 1996-97 Water Account, Australia (ABS 2000)
 - 2000 Australian Water Resource Assessment (NLWRA 2001)
 - 2000-01 Water Account, Australia (ABS 2004)
- Forthcoming*
- 2004-05 Australian Water Resource Assessment (NWC, June 2006, update December 2006)
 - 2004-05 Water Account, Australia (ABS, November 2006)



How are water accounts used?

- Water accounts identify how much water there is and how it is being used
- Water use data can be linked to economic and social information to assist decision making
- Several examples of this are available but these centre on
 - predicting future demand for water given assumptions about economic and population growth
 - the impact on economic production of reduced water availability for particular industries
 - assessing the economic and technical efficiency of water saving measures

Who uses the ABS Water Accounts

Governments

- Australian (national) government
- Various state governments and their agencies
- National Land and Water Resources Audit
- Bureau of Rural Sciences

Industry groups

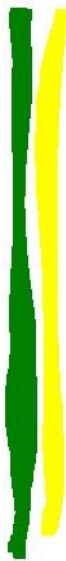
- Aust. National Committee on Irrigation and Drainage, Water Suppliers Association of Australia, Australian Water Association
- Individual water authorities

Academics and private sector researchers

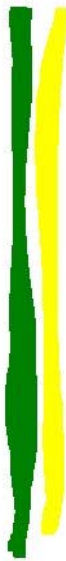
Examples of uses of ABS Water Accounts - Research

- Wittwer, G. (2003) - *An outline of TERM and modifications to include water usage in the Murray-Darling Basin*
- Foran, B. and Plody, F. (2002) - *The future of water* (Ch. 6 in *Future dilemmas*).
- Lenzen, M. and Foran, B. (2001) - *An input-output analysis of Australian water usage*.
- Centre for International Economics (2004) - *Implications of water reforms for the national economy*
- Productivity Commission (2005).

Lenzen, M. and Foran, B. (2001)
An input-output analysis of Australian water usage.

- 
- 30% of Australia's water use was devoted to domestic food production and a further 30% to food exports
 - If by 2050 Australia's population grows to 25 million people and per-capita expenditure doubles, the annual water requirement for Australia may more than double to 50,000 GL per annum

Centre for International Economics (2004)
Implications of water reforms for the national economy

- 
- Irrigation contribution to the economy is \$12.4 billion (2.3 per cent of Australia's GDP)
 - irrigation directly and indirectly contributes around 171,000 employees (2.6 percent of total employment)
 - Reducing water use in the Murray-Darling Basin by 10% (=540 GL) is estimated to result in the loss of 400-900 jobs and \$88 million to GDP



Examples of use - Government

- Water Resource Accounting is a key element of the NWI
 - ABS and NWC jointly hosted a workshop outlining accounting models that could be used.
 - SEEA was one model presented
 - Agreement to avoid unwarranted departures from international water accounting standards
 - ABS is also part of an Expert Advisory Panel for Water Accounting



Examples of use - Government

- The 2004-05 National Water Account will form part of the National Water Initiative Baseline Assessment
 - which is to be undertaken biennially thereafter
 - the Water Account is based on SEEA

National Water Commission (forthcoming)
Australian Water Resources 2005

ABS is leading the Water Use theme

1. Water Use

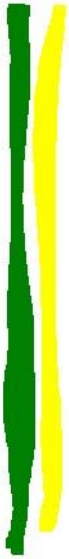
- How much water is used
- What are the sources of the water
- What is the water used for?

2. Entitlements, Allocation and Trading Requirements

- How many water access entitlements were granted?
- How much water was allocated?
- How much water was traded?

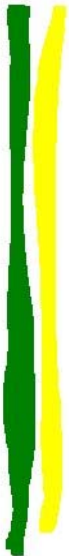
<i>Industry</i>	Self- extracted(b) ML	Mains water(c) ML	Reuse water(d) ML	In-stream(e) ML	Water consumption(a) ML
Agriculture					
Livestock, pasture, grains & other	3 471 109	1 905 485	191 879	—	5 568 474
Dairy farming	1 210 701	1 571 863	51 855	—	2 834 418
Vegetables	422 008	117 033	16 670	—	555 711
Sugar	555 668	753 129	1 875	—	1 310 671
Fruit	491 250	296 557	14 825	—	802 632
Grapes	345 371	364 190	19 576	—	729 137
Cotton	2 502 002	404 090	2 085	—	2 908 178
Rice	133 986	1 692 674	124 501	—	1 951 160
<i>Total</i>	9 132 095	7 105 022	423 264	—	16 660 381
Services to agriculture; hunting & trapping	2 770	1 027	104	—	3 901
Forestry & fishing	378 389	5 245	7 145	367 756	23 022
Mining	479 635	49 196	5 441	127 430	400 622
Manufacturing	295 825	553 700	16 536	—	866 061
Electricity & gas(f)	49 116 399	122 937	4 991	47 543 867	1 687 778
Water supply, sewerage & drainage services(g)	12 767 205	1 768 650	23 056	—	1 793 953
Construction	3 414	14 665	—	—	18 079
Wholesale & retail trade	833	81 248	265	—	82 346
Accommodation, cafes & restaurants	5 283	45 794	734	—	51 811
Transport & storage	3 846	50 660	250	—	54 756
Finance, property & business services	852	85 437	56	—	86 345
Government administration	4 200	50 895	1 279	—	56 374
Education	10 955	34 826	719	—	46 500
Health & community services	2 611	38 165	64	—	40 840
Cultural, recreational & personal services	131 327	231 230	32 492	—	395 049
Household	95 512	2 085 768	167	—	2 181 447
Environment	—	459 393	—	—	459 393
Total	72 431 152	12 783 858	516 563	48 039 054	24 908 659

Entitlements and Allocations



State/Territory	Entitlements (no)	Base Volume (ML)	Allocated Water (ML)	Consumptive Use (ML)
NSW				
Vic				
Qld				
SA				
WA				
Tas				
NT				
ACT				
Australia				

Water Trading



State/Territory	Number of trades	Volume traded within state (ML)	Volume traded into state (ML)	Volume traded out of state (ML)	Average price (\$)
NSW					
Vic					
Qld					
SA					
WA					
Tas					
ACT					
Australia					



National Water Commission (forthcoming)
Australian Water Resources 2005

ABS 2004-05 Water Account Publication accelerated to November 2006 release
Water use data from 2004-05 ABS Water Account modelled to Water
Management Areas
Information integrated into AWR 2005 in December 2006 once the ABS Water
Account has been released



Concluding Remarks

ABS Water Accounts have been used extensively for research, policy analysis,
and policy development
Flagship of the ABS Environment Statistics Program
Demand is for more detail, and increased frequency and level of geography