Water trade in the Murray-Darling Basin

Presenter: Christopher Biesaga

20 April 2009
Water markets:
- are one feature of water management
- serves a purpose of redistributing water amongst uses
Australian Water Era

Water management in Australia driven by a lack of resources

- 1890’s – 1980’s Development era – ‘drought, royal commission, new dam’
- 1994 COAG reforms – environmental flows, separate water and land ‘titles’, corporatisation and cost recovery
- 1995 – MDB ‘Cap’ on development
- National Water Initiative 2004 – reaffirms markets’ role in reallocating water (*reduce barriers*)
- 2007 *Water Act* (Cth) – Basin Plan, which prescribes trading rules as a mandatory component
Government Funded Dams

Major periods of water diversions

18,000,000
12,000,000
6,000,000

Capacity (ML)

1890 1912 1934 1956 1978 2000

Murray
Darling
Water Rights and History

- each State Government has slightly different water products
- varying reliability of water products between states
- water reliability suits specific crop types
- all state entitlements have the following attributes:
  - tenure (ownership)
  - volumetre definition (measure)
  - reliability (security of product)
  - transferability (able to sell)
Cap and Trade Concept

![Graph showing annual diversion (GL/Year) from 1920 to 2020.](image)

- **X-axis:** Year (1920 to 2020)
- **Y-axis:** Annual Diversion (GL/Year)

- **Legend:**
  - **Total**
  - **Average Natural Flow to Sea**

- **Key Points:**
  - Full development of existing entitlements
  - Annual Diversion milestone years:
    - '88
    - '94

**Average Natural Flow to Sea**
Drivers of Water Trade

• no new water in Murray-Darling Basin
  ➢ Cap on diversions within Basin
• flexibility for irrigators to own different water products (increase profitability)
• allows for reallocation of water resources (within a connected system)
• promote sustainable use
• positive environmental benefits
• fundamental to Living Murray Initiative
Entitlements and Allocations

- allocations made against water entitlements each year for use

**Water Share**

- **Water entitlement** (water share of a resource)

**Use**

- **Annual allocation** (how much water can be used in a year against the entitlement based on river inflows)
Water Trade

- Water trade can occur for both:
  - **entitlements** (sell and buy shares to water) – known as permanent trade;

and

- **allocations** (sell and buy water against an entitlement) – known as temporary trade
What Have We Learnt so Far?

**Water Trade in MDB**

- **NSW & SA intrastate trade commenced**
- **VIC intrastate trade commenced**
- **Interstate trade commenced**
- **Dry year – reduced water availability**
- **Cap introduced**

Graph showing transfer volume (GL) from 1983/84 to 2010/11 with key events:
- Wetter period
- Drier period
Southern Basin

MDB Pilot Area

MDBC Expanded Area

Interstate Water Trading Zones

Note: Representation of the Interstate Water Trading Zones are indicative only.

Interstate Water Trading Zones

Produced by the Murray-Darling Basin Commission, October 2007

Copyright Murray-Darling Basin Commission 2007 and Commonwealth of Australia (Geoscience Australia) 1997
Pilot Interstate Water Trade Project

MDB Pilot Area

Interstate Water Trading Zones

Source: GA 1:250k Rivers & Land mass & MDBC Trading Zones

21/08/2006
Northern Basin

- not as mature as southern trade system
- surface and groundwater
- different rules to southern system

Interstate
Expanding trade: key requirements

- water user acceptance
- revised legislative framework - Schedule E to enable
  - transfer mechanisms
  - trading rules
  - environmental and salinity clearances
  - managing ‘stranded’ irrigation assets
- robust accounting mechanisms
Murray-Darling Basin Agreement

Trade Program defines the blueprint for water trade/market

- coordinate transfers between states/valleys using policy mechanisms
- set principles to be applied to such transfers

What does this mean?
- barrier free water trade in southern connected MDB
- minimisation of environmental and third party impacts
- capacity and knowledge building of water trading in Basin

Current tool for delivery
- Schedule E to Murray-Darling Basin Agreement and 8 supporting protocols
Subsection 22 (1) of the *Water Act (2007)*

- Basin Plan will define water trading rules which includes (similar to Schedule E);
  - governing rules
  - terms
  - processes
  - trading areas
  - reporting
- new consultation processes
- new stakeholders to engage (e.g. ACCC)
- establishing a new identity
- huge opportunities for improving market rules and operation
This is what may of happened without a water market since 2006
Water Trade Benefits
Water Accounting in the Murray-Darling Basin
What is water accounting?

"This is so exciting! I've never visited accounting before."
What is water accounting?

• Water accounting is the application of a consistent and structured approach to identifying, measuring, recording and reporting information about water.
What does this really mean?

- Similar to financial accounting
- Non-physical water
- Litres
- Water year alignment with financial year
- External reporting with notes and disclosures
Background to water accounting in Australia

- National Water Initiative ph.80
- National Water Accounting Development project
- Pilot projects
- Water Act
- National Water Account
Water Accounting Vision in MDBA

- Based on water accounting principles.
- Standard practice.
- Includes environmental water activities and trading.
- Basin wide.
- Clear linkages with internal business cycles.
- Annual published accounts.
- Informs decision makers.
- Timing coincides with the National Water Account.
- Efficiency gains through reporting.
- Used and user friendly.
MDBA Pilot Project

Map 1: Murray River Water Accounts Area

Legend
- Rivers Inside Accounts
- Rivers within the Basin
- Storages

Area of Interest

Produced by the Murray-Darling Basin Authority, Canberra 2006.
Sources: Topo 2000 © Geoscience Australia, 2006, MHH00809
### Murray Darling Basin Authority
- River Murray Shared Water Resources

#### Operational Statement
for year ended 30 June 2008

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increasing Water Resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System inflows</td>
<td>3</td>
<td>3,727,470</td>
</tr>
<tr>
<td>Inter-State Sales</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Increase in Water Resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3,727,470</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decreasing Water Resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Allocations</td>
<td>4</td>
<td>1,060,240</td>
</tr>
<tr>
<td>Flows to South Australia</td>
<td>6</td>
<td>1,870,870</td>
</tr>
<tr>
<td>Evaporation and Losses</td>
<td>8</td>
<td>826,580</td>
</tr>
<tr>
<td>Interstate Trade</td>
<td>5</td>
<td>108,900</td>
</tr>
<tr>
<td>Modelled to Actual Variance</td>
<td>19</td>
<td>203,520</td>
</tr>
<tr>
<td>Variance Adjustment</td>
<td>19</td>
<td>(255,790)</td>
</tr>
<tr>
<td><strong>Total Decrease in Water Resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3,814,320</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Change in Water Resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(86,850)</td>
<td>(2,555,610)</td>
</tr>
</tbody>
</table>
### Murray Darling Basin Authority
- River Murray Shared Water Resources

**Balance Sheet**

*as at 30 June 2008*

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 (ML)</th>
<th>2007 (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stock</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instream Resource 9</td>
<td>16,060</td>
<td>74,490</td>
</tr>
<tr>
<td>Active Storage 9</td>
<td>1,776,520</td>
<td>1,044,940</td>
</tr>
<tr>
<td>Dead Storage 9</td>
<td>246,000</td>
<td>246,000</td>
</tr>
<tr>
<td><strong>Total Stock</strong></td>
<td>2,038,580</td>
<td>1,365,430</td>
</tr>
<tr>
<td><strong>Rights to Water</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rights to Water Menindee 9</td>
<td>370,260</td>
<td>93,730</td>
</tr>
<tr>
<td>Rights to Water Snowy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Rights to Water</strong></td>
<td>370,260</td>
<td>93,730</td>
</tr>
<tr>
<td><strong>Total Water Resources</strong></td>
<td>2,408,840</td>
<td>1,459,160</td>
</tr>
<tr>
<td><strong>Commitments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payables (to SA?) 15</td>
<td>960,000</td>
<td>320,000</td>
</tr>
<tr>
<td>Provisions (to SA?) 16</td>
<td>170,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Commitments in Menindee 9</td>
<td>370,260</td>
<td>93,730</td>
</tr>
<tr>
<td><strong>Total Water Commitments</strong></td>
<td>1,500,260</td>
<td>463,730</td>
</tr>
<tr>
<td><strong>Net Water Resource</strong></td>
<td>908,580</td>
<td>995,430</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity at beginning of year</td>
<td>995,430</td>
<td>3,551,040</td>
</tr>
<tr>
<td>Change in Net Water Assets</td>
<td>( 86,850)</td>
<td>( 2,555,610)</td>
</tr>
<tr>
<td>Closing Equity</td>
<td>908,580</td>
<td>995,430</td>
</tr>
<tr>
<td><strong>Total Equity</strong></td>
<td>908,580</td>
<td>995,430</td>
</tr>
</tbody>
</table>
### Physical Inflows

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Inflows</td>
<td>3</td>
<td>3,727,470</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Physical Inflows</strong></td>
<td></td>
<td>3,727,470</td>
</tr>
</tbody>
</table>

### Physical Outflows

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Allocated</td>
<td>4</td>
<td>(1,060,240)</td>
</tr>
<tr>
<td>Physical Flows to South Australia</td>
<td>7</td>
<td>(1,110,870)</td>
</tr>
<tr>
<td>Evaporation and Losses</td>
<td>8</td>
<td>(826,580)</td>
</tr>
<tr>
<td>Interstate Trade</td>
<td>5</td>
<td>(108,900)</td>
</tr>
<tr>
<td>Modelled to Actual Variance</td>
<td>19</td>
<td>(203,520)</td>
</tr>
<tr>
<td>Variance Adjustment</td>
<td>19</td>
<td>255,790</td>
</tr>
<tr>
<td><strong>Total Physical Outflows</strong></td>
<td></td>
<td>(3,054,320)</td>
</tr>
</tbody>
</table>

### Net Flow

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Flow</td>
<td>673,150</td>
<td>(2,555,610)</td>
</tr>
</tbody>
</table>

### Add Opening Stock

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Opening Stock</td>
<td>1,365,430</td>
<td>3,921,040</td>
</tr>
</tbody>
</table>

### Closing Stock

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing Stock</td>
<td>2,038,580</td>
<td>1,365,430</td>
</tr>
</tbody>
</table>

Represented by:

<table>
<thead>
<tr>
<th>Note</th>
<th>2008 ML</th>
<th>2007 ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storages</td>
<td>9</td>
<td>2,022,520</td>
</tr>
<tr>
<td>Instream Resource</td>
<td>9</td>
<td>16,060</td>
</tr>
<tr>
<td><strong>Total Represented by</strong></td>
<td></td>
<td>2,038,580</td>
</tr>
</tbody>
</table>
For More Information Contact:

Website: www.mdba.gov.au

or email:

water.trade@mdba.gov.au