Economic Impacts of SDLs and Water for the Future

Peter Gooday

14 December 2010
Objectives of the reports

To examine the effect on agriculture and regional economies of

– The Basin plan (3500 GL option)

– Water for the Future

– Government additional funding commitment to bridge any remaining gap
Methodology

Baseline assumptions (ABS)

Water Trade Model
- Change in land, water usage in MDB irrigated agriculture
- Change in GVIAP and GVAP in the MDB

Changes in water availability

Policy assumptions: SDLs and WftF (MDBA and DSEWPaC)

Changes in GVAP

AusRegion
- Changes in gross regional product (GRP) and employment by MDB region and industry

Regional expenditure on entitlement purchases and infrastructure
WTM regions
AusRegion Model Regions
Data & Model Assumptions

Regional SDL data were provided by MBDA

Data provided by DSEWPaC included

- Original water purchase (WP), average price is $2073/ML

- Infrastructure Investments, average price is $4606/ML

- Infrastructure water savings occur when SDLs are implemented

- Additional WP to bridge the gap to SDLs occurs between now and when SDLs are implemented
Limitations

- Water supply variability is not investigated
- Analysis provides estimates over large regions
- Considers only productivity improvement from increased water use efficiency through infrastructure investment
- Detail of implementation is not known
- Transitional impacts
- Threshold effects
Impacts on Irrigated Agriculture

Change in Basin-wide GVIAP

QLD, NSW, SA

VIC

% change in GVIAP

SDLs

Year

Impacts on Irrigated Agriculture

Change in Basin-wide GVIAP

% change in GVIAP

Year

SDLs
SDLS and Government actions

% change in GVIAP by region

Scenario: SDLs and Government Actions

-35 -30 -25 -20 -15 -10 -5 0

Condamine
Border Rivers (QLD)
Border Rivers (NSW)
Warrego
Paroo
Namoi
Macquarie
Moonie
Gwydir
Barwon Darling
Lachlan
Murrumbidgee
Goulburn Broken
Ovens
Wimmera
Campaspe
Eastern Mt Lofty
SA Murray
Lower Murray
Murray VIC
Murray NSW
Loddon

Region

% change in GVIAP
GVIAP by activity

- Vegetables
- Irrigated sheep
- Rice
- Other irrig. broadacre
- Irrigated meat cattle
- Irrigated hay
- Grapes
- Fruit & nuts
- Irrigated dairy
- Cotton
- Irrigated cereals

$ million/year

SDLs and Government Actions
Baseline
Impacts by activity by region are concentrated

- Rice in Murrumbidgee: −$88m
- Cotton in Condamine: −$42m
- Cotton in Gwydir: −$41m
- Cotton in Namoi: −$37m
- Cotton in Barwon-Darling: −$35m
- Rice in NSW Murray: −$29m
- Cereals in Murrumbidgee: −$27m
- Dairy in Goulburn-Broken: −$18m
- Dairy in Vic Murray: −$16m
- Cotton in Macquarie: −$15m
Land Use in the Southern Basin
## AusRegion model baseline 2001-02

<table>
<thead>
<tr>
<th>Region</th>
<th>GRP $ billion</th>
<th>% of GDP</th>
<th>Ag. share of Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern NSW</td>
<td>15.4</td>
<td>2.0%</td>
<td>17.6</td>
</tr>
<tr>
<td>Riverina NSW</td>
<td>11.3</td>
<td>1.5%</td>
<td>26.8</td>
</tr>
<tr>
<td>Western NSW</td>
<td>1.5</td>
<td>0.2%</td>
<td>25.2</td>
</tr>
<tr>
<td>North East VIC</td>
<td>8.6</td>
<td>1.1%</td>
<td>12.7</td>
</tr>
<tr>
<td>North West VIC</td>
<td>10.9</td>
<td>1.4%</td>
<td>17</td>
</tr>
<tr>
<td>Queensland MDB</td>
<td>7.9</td>
<td>1.0%</td>
<td>14.5</td>
</tr>
<tr>
<td>South Australia MDB</td>
<td>3.3</td>
<td>0.4%</td>
<td>30.9</td>
</tr>
<tr>
<td>MDB Total</td>
<td>59</td>
<td>7.8%</td>
<td>18.3</td>
</tr>
<tr>
<td><strong>Australia Total</strong></td>
<td><strong>759.2</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>3.6</strong></td>
</tr>
</tbody>
</table>
Economy-wide impacts

Change in Gross Regional Product
Scenario: SDLs and Government Actions

Year
% change in GRP
MDB
Australia
## Changes in GRP and GDP, 2018-19

<table>
<thead>
<tr>
<th>Region</th>
<th>SDLs only</th>
<th>Net impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% change in GRP/GDP</td>
<td>% change in GRP/GDP</td>
</tr>
<tr>
<td>Northern NSW</td>
<td>-0.9%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>Riverina NSW</td>
<td>-1.9%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Western NSW</td>
<td>-1.6%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>North East VIC</td>
<td>-1.7%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>North West VIC</td>
<td>-1.0%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Queensland MDB</td>
<td>-1.4%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>South Australia MDB</td>
<td>-1.1%</td>
<td>-0.5%</td>
</tr>
<tr>
<td><strong>MDB Total</strong></td>
<td><strong>-1.3%</strong></td>
<td><strong>-0.7%</strong></td>
</tr>
<tr>
<td><strong>Australia Total</strong></td>
<td><strong>-0.1%</strong></td>
<td><strong>-0.1%</strong></td>
</tr>
</tbody>
</table>
Conclusion

• Government spending on infrastructure and entitlements reduces impacts

• At a broad level impacts are small

• Impacts are concentrated

• Uncertainty over the location of impacts
Thank you

Science and economics for decision-makers