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# Literature review on the economic policies and conditions in the Murray Darling Basin

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NATSEM aims to be a key contributor to social and economic policy debate and analysis by developing models of the highest quality, undertaking independent and impartial research, and supplying valued research services.

It must be emphasised that NATSEM does not have views on policy. All opinions are the authors' own and are not necessarily shared by NATSEM.

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## **Executive Summary**

This paper reviews the literature on economic policy, data and indicators in the Murray Darling Basin (MDB). It reviews the latest theories on place-based policy, including Regional Deals; and reviews the OECD literature on place-based policies in regional areas.

The review focusses on areas in the MDB where possible, but also extends to regional areas in Australia.

In terms of policy, we find that on request grants like the Building Better Regions Fund (BBRF) disproportionately benefit areas in the MDB, that is, the amounts going into MDB areas are greater than we would expect given an equal per capita allocation. The population of the MDB consists of about 9% of the population of NSW, Vic, Qld, ACT and SA, whereas the amount going into these areas is between 24% and 44% of the total grant, depending on the round. This is probably because many areas in the MDB have higher need per capita, or are drought affected – most grant allocation processes, like the Commonwealth Grants Commission's process, rely on estimates of need, rather than equal per capita distribution.

State's also provide funding through grants for regional areas, mainly for infrastructure, but also focussing on jobs in regional areas. Recent audits of State regional grants have been mixed – the Victorian audit office was critical of the management and evaluation of projects in Victoria; while a NSW audit was more positive.

Contrary to general on request grants, expenditure on infrastructure in the Federal Budget each year provided significant benefit to regional areas, however little benefit to the MDB. The total infrastructure spend in the 2018/19 budget was about \$20M, and \$12M went into regional Australia, with only \$270K going into the MDB. In the 2019/20 budget, using a slightly different measure of spend over the next 5 years rather than spend in the current year, this was much higher (\$38.2M going into the MDB), but this was mainly because the infrastructure spend in the 2019/20 budget was much higher (\$6.9B over 5 years).

Analysis of the modelled impact of the 2019/20 Budget changes in the tax and transfer system shows that the majority of areas in the MDB are in the bottom 2 quintiles of winners. This is mainly because the tax rates proposed in the 2019/20 budget benefitted very high income people, who mainly live in Australian cities.

The National Drought Agreement signed by COAG in December 2018 and the Regional Deals starting in April 2019 with Barkly focus on long term sustainability of regions, rather than short term financial support. This reflects the need to respond to drought and other external factors affecting regional communities in a sustainable way, enhancing the resilience of the community rather than providing a short-term injection of funding to prop up an industry in a town.

We find that the core gap in the policy space is separating the impact of policy from the normal change in economic conditions or demographics in an area. For example, if employment is declining in an area before a policy is introduced, and increases after the policy is introduced, is this due to the policy? Or general economic growth in the surrounding areas, Australia or internationally? Or better agricultural prices? These effects all need to be untangled before we can safely estimate the impact of a policy.

Further, we find that while place-based approaches are becoming the norm in Australian policy, there is a potential for place-based approaches to revert back to short term subsidies to prop up local industries. From an economic perspective, longer term solutions need to be identified that help regional areas become economically self-sufficient in the long term. The National Drought Agreement, the Building Better Regions Fund and the Regional Deals all reflect this long-term perspective in their aims and intentions.

We next focus on the economic conditions in the MDB, using academic literature, reports from the Productivity Commission (PC), and other reports. These reports (in particular the PC report) show that most areas in the MDB are doing alright in terms of employment, some areas are suffering greater than others, as expected. Other papers suggest that fly-in fly-out mining workers (or drive-in drive-out) provide some benefits to the local community, but also present challenges.

A 2015 report from ABARES suggests that food prices had reached a minimum, and that prices for commodities would increase over time, suggesting a positive outlook for farming in the MDB. Further evidence of this can be seen in the latest historical data on commodity prices from ABARES, showing an increasing trend from 2016/17 in prices for all commodities except livestock for slaughter. Economic benefits from farm consolidations, and more efficient growing processes, may also contribute to greater profitability for farmers in the MDB.

On the less optimistic side, much of the literature highlights the negative economic impacts of drought, not only for farmers, but for the towns dependent on agriculture industry (e.g., where the farmers are no longer buying agricultural equipment and fertilisers, feed, etc. While the consolidation of farming may mean that the farms are becoming more efficient and resilient, farms will still cut back their expenditure in drought, which flows through to reduced secondary expenditure in towns and villages.

In terms of the modelling done so far in the MDB, much of this has been CGE modelling. While there is a place for CGE models in national economic analysis, we would argue that while the assumptions made in these models about representative households; long-term economic equilibrium; and the focus on economic outcomes may be suitable for the national economy, they are not as suitable for small communities. There is recent work in Australia and overseas on relaxing some of the assumptions of CGE models that need to be considered to make them more appropriate for community level analysis, and this work is highlighted in this review.

In terms of the availability of economic data in the MDB, there is data available from Census; the ATO; and the ABS National Regional Profile. These data include incomes; employment and unemployment; and housing costs. The main issue with Census and ATO data is that Census data is only collected every 5 years; and ATO data is released a few years after it is collected. So current data on conditions in the MDB (e.g., how has the drought affected incomes) are only available through surveys like the Regional Wellbeing Survey conducted by the University of Canberra (UC).

Small area modelled statistics like poverty rates, housing stress and inequality are also available from either the Australian Urban Research Infrastructure Network (AURIN), which has more than 5000 spatial datasets across Australia; or the National Centre for Social and Economic Modelling (NATSEM) at UC. NATSEM also has processes for dynamically updating data using demographic projection, wage inflation, etc., so can project the 2016 Census data forward to a 2019 best guess. Hence, the main gap in data is data on the sustainability and profitability of businesses in the MDB; as well as the timeliness of existing data sources (as highlighted above).

# Introduction

This report has been written by staff at the National Centre for Social and Economic Modelling (NATSEM) at the University of Canberra for the Murray Darling Basin Authority (MDBA). The report uses a literature review of academic and "grey" literature to identify the policies affecting regional Australia and the Murray Darling Basin (MDB) (including fiscal policy and grant programs); summarise the economic experience of basin communities, relative to other regional communities in Australia; and provide information on what economic data is available for the MDB and regional Australia.

In answering this question, we have looked at:

1) What budget funding might have impacted the Murray Darling Basin – for example, large infrastructure projects (outside Water reform);

2) What Government economic policies may have had an effect on the MDB, and what policies might have an effect in the future (e.g., Regional Deals); and

3) What data are available that will provide indicators on the economic conditions in the MDB, and identifying key gaps in these indicators.

We have used the literature in these areas, but have also used our own expertise and extensive knowledge on Government fiscal policy and how it affects different groups in the population.

Note that this literature review does not collect any data on the economic conditions and policies in the MDB, it merely presents what information is available. In terms of impacts of policy, we have shown examples of what can be done with NATSEM's spatial policy modelling techniques, based on the 2019/20 budget, and shown how different infrastructure programs have affected the MDB compared to other areas across Australia.

# How has policy impacted on the MDB?

This section identifies what of the major Government policies impacts on the MDB, and for some of these policies, shows how we can estimate the impact of the policy. We have focussed on major policies with an effect on the MDB, and have not looked at policies that might have a minimal impact on the MDB. In particular, the policies that we have looked at that we think have a large impact on the MDB are regional policy; structural adjustment policy; fiscal policy (Government spending, based on the annual budget); service provision; drought policy; and immigration policy.

### Regional Policy in Australia and Internationally

The way that policy used to be implemented in Australia was nationally, with no account for different places having different requirements. In 2003, Freebairn wrote:

*"For the most part it is argued that economy-wide policies, rather than region or industry specific policies, are appropriate.* Progressive income taxation, means-tested social security payments and government funded education, health and other services directly and efficiently redistribute to support equity. Subsidies for particular industries in RARA, such as dairy, and input subsidies targeted at RARA, such as community service obligations, misallocate resources and are ineffective in meeting equity goals." (Freebairn 2003)

Even recently in 2017, in the Productivity Commission's "Transitioning Regional Economies" report (noting that "regional" in this report meant all regions, not just regional Australia), they said:

"Governments should avoid providing <u>ad hoc</u> financial assistance to regions because it is rarely effective. It does little to facilitate transition and long-term development. Governments should also better coordinate and evaluate their activities that affect Australia's regions. Specific adjustment assistance to individual regions should be reserved for extreme events that are likely to result in high levels of permanent disadvantage in a community. Even then it should be targeted at assisting the most vulnerable families and individuals, in particular to help them secure employment. There is unnecessary overlap in the regional development roles of all three tiers of government, contributing to concerns about the effectiveness and value for money from the large outlays on regional development programs." (Productivity Commission 2017)

This hands off economic philosophy is now being challenged and regional policy (and city policy) in Australia and internationally is becoming focussed on place, recognising that all regions (city or not) are different and have different requirements for infrastructure, etc. The migration of jobs and workers into cities; the consolidation of agriculture from small farms to larger, more efficient farms; the increase in resource extraction in rural Australia; and the ageing population profile across Australia has left many smaller regional towns in Australia struggling. Despite this, many larger regional towns are growing. Policies need to recognise that every town is different.

Place-based approaches are becoming the norm in terms of Government policy. A place-based approach aims to put community-identified priorities at the centre. Their implementation in Australia's regions follows the recent successful City deals in the UK and Australia (Department of Infrastructure, Transport 2019a). Regional deals bring together all levels of government around a clear set of objectives. They are tailored to each region's comparative advantages, assets and challenges and reflect the unique needs of each area.

The Barkly Regional Deal, covering the Tennant Creek region in the Northern Territory, will be the first regional deal in Australia. Negotiation of the Hinkler Regional Deal, covering the Bundaberg and Hervey Bay region in Queensland, is underway. A Regional Deal for Albury Wodonga was announced on 20 March 2019.

### Barkly Regional Deal

Barkly is the first regional deal, signed on 10 December 2018. Barkly is a local government area of 322,514 square kilometres and over 6,500 people in the Northern Territory. It's main town is Tennant Creek.

The Barkly Regional Deal aims to improve the productivity and liveability of the Barkly region by stimulating economic growth and improving social outcomes, including reducing overcrowding and improving child safety. The total value of the Deal is \$78.4M and includes \$45.4M from the Australian Government, \$30M from the Northern Territory Government and \$3M from the Barkly Regional Council. While the deal has a 10 year timeframe, the majority of the new investment will be expended over the first 3 years

These Regional Deals and place-based approaches follow an international trend. In a recent report from the <u>OECD</u>, they state that:

"<u>Rural policy is beginning to take into account the diversity of rural region types.</u> On the aggregate, rural regions face problems of decline with out-migration, ageing, a lower skill base and lower average labour productivity that then reduce the critical mass needed for effective public services, infrastructure and business development, thereby creating a vicious circle. However, there are many rural regions that have seized opportunities and built on their existing assets, such as location, natural and cultural amenities, and social capital. The success of such dynamic rural regions is evident in regional statistics. Promoting integrated rural development poses numerous policy and governance challenges. It requires a less "defensive" approach to rural policy and <u>stronger co-</u> ordination across sectors, across levels of government, and between public and private actors. It also requires a new focus on places rather than sectors and an emphasis on investments rather than <u>subsidies." (OECD 2006)</u>

The question for Government is then how to generate economic growth in regions, as economic growth creates jobs so that residents will stay. We see in Australia that some regions grow faster than others, often in ways that don't follow traditional economic theory. Work by the OECD suggests that simple concentration of resources in a place is not a sufficient condition for sustained economic growth. The key is how assets in the area are used, how different groups in the area interact and how synergies between these groups are exploited. They find that infrastructure investment is effective in providing economic growth in a region when combined with other forms of investment, notably in education and skills. For innovation, it is not simply the number of researchers or the level of R&D investment that count, but how the innovation as a whole functions.

This then leads to very different policy considerations from those that derive from the assumption that concentrating resources in one area alone will automatically generate economies of scale. It also suggests a role for public policy in ensuring that growth is maximised from the assets present in a region, and that the "invisible hand" of the market does not achieve this alone.

In order to maximise the contribution of Government policy and infrastructure spending in regional areas, <u>public policy needs to embrace reform and continue a transition away from market-distorting subsidies to policies that unlock the potential of regions and that support long-term economic, social and environmental objectives (OECD 2009). This is very much the aim of the infrastructure grants and drought agreement outlined in this section – a move from short term support to place-based funding aimed at long term sustainability.</u>

#### Structural Adjustment policy

While structural adjustment policy could be placed under Fiscal policy as they are usually funded by grants, which are part of the Budget, we have looked at them separately as they are an important part of the longer term strategy of adjustment to water cuts in the MDB Plan.

One of the key elements of the Basin Plan was structural adjustment to assist MDB communities adjust their local economies to a more water constrained environment. This was from the relevant MDB State and Federal Governments.

The Australian Government has committed, through the Murray-Darling Basin Regional Economic Diversification Program, \$73M to assist Basin communities with structural adjustment, with specific projects selected by Basin States, in consultation with the Australian Government Minister for Regional Development. For example, in Queensland, funding has been used to develop the horticulture industry (Queensland Government 2017). In New South Wales, projects have supported a diverse range of industries, including manufacturing, cheese making, aquaculture and grain processing.

Specific structural adjustment grants grant programs have also focussed on the MDB, including the Murray–Darling Basin Economic Development Program, which provides up to \$24.4M of funding over 4 years (2018/19 to 2021/22) for economic development projects that support communities most impacted by water recovery under the Basin Plan. Funding is aimed to assist eligible communities to develop their economics, increase job opportunities and enhance their resilience to manage current and future economic challenges (Australian Government Department of Agriculture and Water Resources n.d.).

The communities covered by this program are:

- Berri, SA;
- Cobdogla-Barmera, SA;
- Colignan, VIC/NSW;
- Loxton, SA;
- Lower Lakes, SA;
- Merbein, VIC;
- Red Cliffs, VIC;
- Rochester, VIC;
- Swan Reach, SA;
- Wakool, NSW;
- Collarenebri, NSW;
- Cunnamulla, QLD;
- Dirranbandi, QLD;
- St George, QLD;
- Warren, NSW.

#### **Fiscal Policy**

One of the main policies that affects regional areas (and any area) is fiscal policy, as applied through the budget. This includes tax and transfer policy; new grant programs; infrastructure expenditure; remote area allowances; assistance through concessional loans; etc. This section analyses some of the major fiscal policy seen in the last few years – the 2018/19 Budget; the 2019/20 Budget; and some specific grant programs from these budgets.

#### Zone tax offset, FBT remote area concessions and Remote Area Allowance

There are a number of payments and concessions made through the tax and transfer system to people living in regional and remote areas. These are the zone tax offset; the remote area concessions; and the remote area allowance. The key features of each are shown in Table 1.

The zone tax offset is a tax offset for people living and working in remote areas, to assist with higher costs of living in these areas. To be eligible for the zone tax offset, your usual place of residence throughout the year must be in a zoned region. This means that fly-in-fly-out workers are not eligible to claim the offset unless their usual place of residence is also zoned.

The zoned regions were decided in 1945. A map of the areas where the tax offset applies is shown in Figure 1. There were no areas of the MDB in Zone A, while some areas of the MDB are in Zone B. The zone tax offset in each zone is:

- Zone A: \$338+ 50% of dependent rebate (max. \$188 per child) a yea
- Zone B: \$57 + 20% of dependent rebate (max. \$75.20 per child) a year
- Special zone areas: \$1,173 + 50% of dependent rebate (max. \$188 per child) a year

In 2016/17, there were about 487 000 claimants for the zero tax offset, and it cost \$156M (Productivity Commission 2019).

The FBT remote concessions were introduced when the fringe benefits tax was introduced and were designed to reduce the impact of the Fringe Benefits Tax on business operations in remote locations. These remote locations covered the ZTO zones (A, B and special areas) with exclusions in major towns, and regional areas outside the zones sufficiently distant from large urban centres. Various exemptions or concessions apply including exempting employer-provided housing and fly-in fly-out travel from FBT and reducing the taxable value for FBT by 50% for housing subsidies and residential fuel and holiday travel. The estimated cost in 2016/17 was between \$120M and \$1.2B (Productivity Commission 2019).

The remote area allowance (RAA) is an extra allowance for income support recipients living in Zone A and special areas. It amounts to \$18.20 per fortnight for a single person (\$473 as an annual rate); \$15.60 per fortnight for each member of a couple (\$406 as an annual rate); and an additional \$7.30 per fortnight (\$190 as an annual rate) for each dependent child (Productivity Commission 2019). In 2017/18, about 105 000 people received the RAA.

The Productivity Commission is currently reviewing the zone tax offset and other benefits in remote and regional areas, with an aim to determine the appropriate ongoing form and function of the zone tax offset, FBT remote area concessions, and Remote Area Allowance (Productivity Commission 2019).



#### Figure 1: Zone Tax Offset areas

Note: <sup>a</sup> Zone A also includes Macquarie Island, Norfolk Island, the Territory of Heard Island and McDonald Islands, the Australian Antarctic Territory, the Territory of Cocos (Keeling) Islands, The Territory of Christmas Island and Lord Howe Island. Special areas are approximate only. <sup>b</sup> Data in this figure are from unpublished 2016-17 ATO data and include claimants of the overseas forces offset.

Source: Productivity Commission (2019)

#### Table 1: Key features of remote allowances

	Zone Tax Offset (ZTO)	FBT remote area concessions	Remote Area Allowance (RAA)
Recipients	Income taxpayers (employees)	Employers	Income support recipients
Original objectives	Compensating employees in remote areas for the disadvantages of uncongenial climate, isolation and high cost of living.	Lessening the impact of the (then new) FBT on business operations in remote locations	Equity with recipients of the zone tax offset
Area	Zone A, Zone B and special areas	Covers the ZTO areas (with exclusions in major towns) and regional areas outside the zones sufficiently distant from large urban centres	Zone A and special areas
Rates	Special areas: \$1173 + 50% of dependent rebate (max. \$188 per child) a year Zone A: \$338 + 50% of dependent rebate (max. \$188 per child) a year Zone B: \$57 + 20% of dependent rebate (max. \$75.20 per child) a year	Various exemptions or concessions may apply Some benefits, such as employer-provided housing and fly-in fly-out travel, are exempt from FBT For other benefits, such as housing subsidies, residential fuel and holiday travel, the taxable value may be cut by 50%	For a single person: \$18.20 per fortnight (\$473 as an annual rate) For each member of a couple: \$15.60 per fortnight (\$406 as an annual rate) Add \$7.30 per fortnight (\$190 as an annual rate) per dependent child
No. of recipients/claimants	Approx. 487 000 claimants (2016-17)	Not available	Approx. 105 000 recipients (2017-18)
Cost	\$156m (2016-17)	Est. \$120m–\$1.2b (2016-17)	Not available

<sup>a</sup> Data for the ZTO are for the number of claimants and total value of claims, but some claimants may not utilise any or all of the claim amount due to insufficient gross tax liabilities. These data also include overseas forces tax offset claims. <sup>b</sup> The cost estimates for the FBT concessions are the sum of the upper and lower bounds of the order of magnitude estimates for the various FBT remote area concessions in Treasury's Tax Benchmarks and Variation Statement.

Sources: ATO (2018a, unpublished ATO data); DHS (2018); DSS (pers. comm. 7 March 2019); Treasury (2019).

Source: Productivity Commission (2019)

#### Other assistance for farmers

There are other farm household allowances and concessional loans available for farmers.

The farm household allowance is available to farmers who are Australian citizens or permanent residents; are at least 16 years of age; and own and use the land for a farm business. The farm needs to have a significant commercial purpose or character. The farmer must contribute a significant part of their labour and capital to the farm business and enter into a financial improvement agreement or have one in place already. Each application is assessed on a case-by-case basis.

A farmer cannot apply for FHA if they currently receive other pensions or social security benefits, or have already received the payment for 4 years, so there is a maximum payment time of 4 years.

As at 21 December 2018, there were 5,136 people receiving a payment (Lawrence et al. 2019).

The FHA was reviewed in 2018 with the report released in February 2019. This report recommended separating the FHA from the social security legislation to tailor access and delivery, recognising the unique, and often complex, financial and business nature of Australian agriculture businesses. The FHA needed to be more farmer centric with mutual obligations that will allow farmers to work with the Rural Financial Counselling Service to plan a path through their financial situation or to make informed decisions about their long term viability. The redesigned program needed to be flexible enough to acknowledge the wide range of reasons people access income support and needs to not hinder structural change or create welfare dependency (Lawrence et al. 2019).

Concessional loans for farmers are delivered through the Regional Investment Corporation (RIC). The RIC offers three loan products for farm businesses – Farm Investment Loans, Drought Loans and AgRebuild loans. Farm investment loans are for farmers who want to diversify your markets or prepare for, manage or recover from drought. Owners of Australian farm businesses who need financial help can apply, and they must sell (or want to sell) into supply chains outside their state or territory. The concessional interest rate is 3.11% and the loan can be for up to \$2M.

Drought loans are for farm business owners affected by drought, or who want to prepare for drought. Owners of Australian farm businesses who need financial help can apply and the farm must be located in a drought area based on the United Nations Convention to Combat Desertification. A map of eligible areas is at <u>https://www.ric.gov.au/farmers/drought#eligible-area</u>. The concessional interest rate is 3.11% and the loan can be for up to \$2M.

AgRebuild loans are a disaster recovery loan to help Queensland farmers directly impacted by the North and Far North Queensland Monsoon Trough from 25 January to 14 February 2019 (North Qld flood) restock, replant and recover. Farmers located in eligible Local Government Areas can apply for loans of up to \$5M at concessional interest rates. These loans will be available up to 30 June 2020.

#### Infrastructure spend in the 2018/19 Budget

This first set of analysis looks at identified infrastructure spending and looks at how much infrastructure spend went into the MDB; and how much went on areas outside the MDB.

The infrastructure spending we have looked at is specific items committed in each budget (e.g., new roads, bridges, airports, etc.); and the Building Better Regions Fund (BBRF) infrastructure and community programs, which are on request programs. These are used as an example of how different infrastructure can be targeted to particular communities under a place-based approach.

An analysis of the 2018/19 budget infrastructure spend shows that a majority of the spend was outside capital cities (Figure 2); but of the \$12M spend outside capital cities, \$270K was spent in areas within the Murray Darling Basin (Figure 3). The table of infrastructure spend is shown in Appendix 1. Because the infrastructure announcements were for particular sections of roads or rail, it was reasonably easy to assign to within the MDB and outside.

In the 2019/20 budget, there was a large amount of general infrastructure spend (e.g., "Infrastructure Investment Program – NSW"), so it was harder to assign to the MDB. For infrastructure which could have gone into the MDB (general infrastructure spend in SA, NSW, Qld and Vic), we have called this "Y (Part)", and for general national programs that might benefit the MDB (e.g., "Regional Airports") we have called this "Possibly".

In the 2019/20 budget, the total infrastructure spend was \$30.8B (Figure 4), but some of this had already been announced in previous budgets; and some was beyond the 5 year forward estimates. New announced infrastructure spend over 5 years was therefore \$6.9B. Of this, Figure 4 shows that \$38.2M was committed to areas in the MDB (ACT Infrastructure Investment Program; and Albury-Wodonga regional deal). There was a total of \$3.2B of general State infrastructure grants where part of the funding may end up in the MDB; and \$1B of national programs where some of the funding may end up in the MDB.



Figure 2: Budgeted infrastructure expenditure by Capital City/Outside Capital City, 2018/19 Budget, \$B



Figure 3: Budgeted infrastructure expenditure in Murray Darling Basin, 2018/19 Budget, \$B

Figure 4: Budgeted infrastructure spend in Murray Darling Basin, 2019/20 Budget



# Impact of the Building Better Regions Fund (BBRF) Infrastructure and Community programs on the MDB

One of the largest grant programs in Australia (albeit not regional or MDB specific) are the Commonwealth Government Building Better Regions program (\$841.6M) and the Regional Growth fund (228.7M committed to specific projects so far). For the regional growth fund, where specific projects are listed on the website, none of the projects were in the MDB.

The BBRF is split between an infrastructure stream; and a community investments scheme. Some analysis of the BBRF infrastructure projects in NSW, Vic, Qld and SA (so the States that the MDB is in) shows that the majority of funding in each round went to areas outside the MDB, but an increasing proportion has been going into the MDB, from 32% in round 1 to 44% in round 3 (see Figure 6 to Figure 8).

In terms of the Community grants, it can be seen that again more is going outside the MDB, but the proportion going into the MDB is lower than the infrastructure grants from 24% in the first year and increasing to 36% in the final year (see Figure 9 to Figure 11).

It is not surprising that the majority of BBRF grant funding is going to areas outside the basin, as 91% of the population in these States lives outside the MDB (as of the 2016 Census – see Figure 5). The proportion of these grants going into the basin is actually more than expected given the population living in the basin, ie, the amounts are significantly more than a per capita grant which would have given 5% (Qld), 8% (SA) and 11% (Vic and NSW). This is not surprising, as grants are distributed on a needs basis, rather than an equal per capita basis. Assessing need gives a much more efficient allocation of grant funding, and is used by all major general grant allocating bodies (e.g., Commonwealth Grants Commission, State Grant Commissions, etc.).



Figure 5: Proportion of population in each State living in the MDB, 2016 Census



Figure 6: Where BBRF Infrastructure Round 1 funding (\$150M in NSW, Vic, Qld and SA) went

Figure 7: Where BBRF Infrastructure Round 2 funding (\$157M in NSW, Vic, Qld and SA) went





Figure 8: Where BBRF Infrastructure Round 3 funding (\$392M in NSW, Vic, Qld and SA) went

Figure 9: Where BBRF Community Round 1 funding (\$4.6M in NSW, Vic, Qld and SA) went





Figure 10: Where BBRF Community Round 2 funding (\$6.7M in NSW, Vic, Qld and SA) went

Figure 11: Where BBRF Community Round 3 funding (\$5.7M in NSW, Vic, Qld and SA) went



# Summary of Federal Government grant programs specific to regional Australia and the MDB

This section provides a summary of grant programs from the Federal Government for the MDB and for regional Australia. The initial table for MDB funding was adapted from Lisa Yu-Ting Lee and Tihomir Ancev, 2009. Table 2 lists those specifically for the MDB, while Table 3 shows those available for regional areas in Australia, so areas in the MDB can also apply. For the largest general grant (the BBRF), the previous analysis shows how much of the NSW, Vic, Qld and SA funding went into the MDB. Table 3 shows the amount for all States.

Programs for the Murray-Darling Basin	Funding (\$M)	Timeframe
National Competition Policy (inc. Water Reform)	3,900	1997–2004
The Living Murray First Step (TLM)	500	2004–09
— Water Recovery	150	2003–11
- Environmental Works and Measures Program		
Commonwealth Supplementary Contribution to TLM	500	2006-11
National Water Initiative	2,000	2004–10
— Australian Water Fund		
Water for the Future (formerly National Plan for Water Security)	12,900	2007-17
Joint Works Program (Basin Salinity Management Strategy)	60	2001-2015
Natural Heritage Trust and National Action Plan	400/yr	2001–08
	(tot. $\approx$ 3,000)	
Caring for our Country (Natural Heritage Trust 3)	2250	2008-11
Retiring properties in Queensland and NSW	50	2008
Murray–Darling Basin Economic Development Program	20	2018/19 – 2021/22
Murray-Darling Basin Regional Economic Diversification Program	72.65 Qld=15.055 NSW=32.573 Vic=25.028	?

#### Table 2: Summary of government initiatives and funding arrangements for the MDB

Adapted from Lisa Yu-Ting Lee and Tihomir Ancev, 2009

Programs for regional Australia	Funding (\$M)	Timeframe
Building Better Regions Fund (Infrastructure and Community)	841.6	2017/18 - 2021/22
Regional Growth Fund	272.2	2018/19 - 2021/22
Community Development Grants Program	936.8	2013/14 - 2019/20
Bridges Renewal Program	640.0	2015/2016 - 2022/2023

Table 3: Summary of Federal government initiatives and funding arrangements for regional Australia (excluding waterinfrastructure programs)

#### Summary of State Government grant programs

The States that the Murray Darling Basin is in also provide grants to regional communities, as well as th areas in the Basin in their State. These are linked in Appendix 2, and the main grants to the regions are summarised in this section.

In NSW, from 2011 to 2017, the Government allocated \$1.7B through the Regional Growth Fund for infrastructure in regional areas, with an additional commitment of \$1.3B to be allocated by 2021. The regional growth fund aims to fund infrastructure to support growing regional centres, activate local economies and improve services. The fund invests in projects that aim to support arts and culture, enhance and build sporting infrastructure, improve regional voice and data connectivity, invest in our mining-impacted communities, spur job creation and deliver local infrastructure.

The NSW Auditor Generals Office reviewed the programs in 2018, and overall found that

"Infrastructure NSW effectively manages how grant applications for regional assistance programs are assessed and recommended for funding. Its contract management processes are also effective. However, we are unable to conclude whether the objectives of these programs have been achieved as the relevant agencies have not yet measured their benefits" (Audit Office of NSW 2018, p. 1)

The main Victorian grant is the Regional Jobs and Infrastructure fund, administered by Regional Development Victoria. This fund has three programs: the Regional Infrastructure Fund, the Regional Jobs Fund and the Stronger Regional Communities Plan. The objective of the fund is to grow jobs, build infrastructure and strengthen communities in regional Victoria.

A review of the fund published by the Victorian Auditor General in early 2019 was critical of the management and evaluation of the fund, stating that:

"Overall, RDV's evaluation framework carries significant risks that indicate RDV is unlikely to be able to undertake a localised, program specific or fund-level analysis of RJIF. Unless RDV addresses these issues, it will once again be unable to demonstrate the benefits of its regional grant fund and set up an evidence base for any future fund development." (Victoria Auditor-General's Office 2019, p. 9)

Further, nearly 59% of the RJIF were projects delivering election and budget commitments:

"The most funded projects were those delivering election and budget commitments that were allocated to RJIF. Election commitment projects consumed \$191 million and budget projects \$101 million—58.5 per cent of the fund—to 31 December 2018." (Victoria Auditor-General's Office 2019, p. 11) For the other 41.5% of funding, "there was no evidence that RDV uses available social and economic data—for example population and job growth figures—to target the remaining funds to where they might have the greatest impact" (Victoria Auditor-General's Office 2019, p. 11)

In Queensland, the main grant is the \$175M Jobs and Regional Growth Fund. The program aims to stimulate private sector investment and create jobs across the state. The fund focuses primarily on regions outside South East Queensland however, projects located in all areas with higher than average unemployment may be considered.

Financial assistance ranging from \$100K to over \$10M is available.

No recent audit of the program was identified.

In South Australia, The Regional Growth Fund has been established to unlock new economic activity in regional SA; deliver critical economic infrastructure to create direct benefit across regional industries; and strengthen regional communities.

The SA Government has committed \$150M over 10 years, \$15M a year (starting in the 2018/19 budget) to support regional South Australia.

As this is a new program, no audit has yet been conducted.

#### Impact of Tax and Transfer policy on the MDB

Tax and transfer policies are national policies (so the rules applied are not place-based, as many grants are) but still have a different impact on different areas, due to the fact that in a progressive tax system, different tax rates are applied at different income levels; and benefits are paid based on number of children of a certain age, income levels, etc. Every area has a wide variety of incomes and families, so every area will receive or pay a different amount, on average, from the tax and transfer system.

Because of these complex systems, they are very difficult to model. However, tax and transfer microsimulation models can apply the rules from the tax and transfer system to unit record data (individuals) from surveys. The method allows the user to observe the impact of a tax or transfer policy change on a particular groups in the population. The models work by applying the change in rules to all people on the survey microdata, and then aggregate up to national results to observe the impact on incomes, poverty rates, inequality, etc.

There are a number of tax/transfer microsimulation models in Australia, including some used by Commonwealth Treasury and others used by academics and consultants. NATSEM has been developing tax/transfer microsimulation models since 1993, and in recent years, they have joined their tax/transfer microsimulation model with their spatial microsimulation model to derive estimates of a change in tax/transfer policy on small areas across Australia (R Tanton et al. 2009). An example of this modelling is shown in Figure 12, which shows the change in per capita disposable income as a result of all the tax and transfer changes in the 2019/20 budget, in 2019/20 (estimates can also be made for all the forward estimates to 2024/25) by Statistical Area Level 2. It can be seen that across the MDB, most households were in the second worst group (light blue areas). Note that in this budget, everyone gained due to the tax cuts. This analysis can be done for any area – so it can potentially be done for households in towns in the MDB only, or across the whole of the MDB compared to the rest of Australia.

The model also allows the impact of any tax or welfare change to be modelled, and can look at impacts for particular groups in the population – for example, Figure 13 shows the impact of the 2019/20 budget on different family types. This shows the impact of the tax cuts proposed for 2024/25 on high income and low income families, with high income families gaining \$5,995 on average per year and low income families gaining \$690 per year. Many of these lower income families live in regional areas, including the MDB, which is why Figure 12 is showing the lowest and second lowest benefits going to regional Australia and the greatest benefits going to cities, where higher income workers live.

This is a powerful model that allows us to answer "what if" questions – for example, what if we increased Newstart allowances? What would be the impact on towns in the MDB and outside? And which areas, and who, would benefit most?







Figure 13: Change in annual household disposable income by types of household, impact of 2019/20 budget by year

This modelling has also been done using the Regional Wellbeing Survey from the University of Canberra to look at the impact of the milk price change on poverty in farmers in Victoria. As an example, this is shown in Figure 14. The impact of a change in drought assistance; change in terms of trade (Rao et al. 2015; Vidyattama et al. 2014).





#### Service Provision

In a 2015 report by the Regional Australia Institute, they found that while the number of service delivery professionals in some towns had greatly improved, this growth was limited mainly to inner regional areas. Between 1981 and 2011, the number of professionals in inner regional small towns grew by 85 per cent, but there was growth of only 7 per cent in small towns in remote and very remote areas. This is despite the fact that education and health outcomes are consistently worse in remote and very remote areas.

Their research found that most towns were more likely to have a nurse or a primary school teacher than any other type of service delivery professional, including police officers and health specialists. Small towns are ten to twelve times more likely to have a nurse in their communities than a GP, and three times more likely to have a primary school teacher than a police officer. Very few small towns have health specialists within their communities, including psychologists and dentists (Bourne et al. 2017).

While this research did not split between MDB and non-MDB towns, we would expect that the patterns would be similar.

#### **Drought policy**

Drought assistance is provided by both State and Federal Governments, so is a complex area. This review has mainly reviewed the Commonwealth program, and touched on the recent Queensland review of their programs.

Up until 1992 in Australia, drought assistance was provided as a response to an emergency (an "exceptional circumstance"), so the aim was short term assistance to assist those in short term need. In 1992, Australia's Commonwealth and State governments announced the introduction of a National Drought Policy adopting an innovative risk management approach, drought has been seen as a longer term condition that needs to be managed.

Justifying this move to a risk based approach, in a 2014 report, the WA Department of Agriculture and Food stated that:

"The more successful farm businesses argue that drought support or assistance gets capitalised as land values. Making it more expensive to achieve economies of scale and for new entrants to purchase land and commence farming, while least efficient farm businesses get support and remain farming only to lose more equity." (Government of Western Australia Department of Agriculture and Food 2014, p. 16).

In 2008, the CSIRO and Bureau of Meteorology released a report forecasting that drought was likely to increase in frequency and intensity from 2010 to 2040. Over this period, it's likely that exceptionally low rainfall, exceptionally high temperatures and exceptionally low soil moisture levels will occur twice as often in most regions of Australia, and four times as often in the South-West of Australia (Hennessy et al. 2008).

In 2009, the Productivity Commission reviewed drought policy and made a number of recommendations, including termination of a number of exceptional circumstance subsidies and payments to farmers; and that a new drought policy should aim to:

- assist primary producers to adapt and adjust to the impacts of climate variability and climate change;
- encourage primary producers to adopt self-reliant approaches to managing risks;
- assist primary producers to manage greenhouse gas emissions and other adverse impacts on the environment; and
- ensure that farming families in hardship have temporary access to an income support scheme that recognises the special circumstances of farmers.

Most recently, the National Drought Agreement (NDA) was negotiated between the Commonwealth and the States in December 2018. The NDA sets out a joint approach to drought preparedness, responses and recovery, with a focus on accountability and transparency. The agreement recognises the need to support farming businesses and farming communities to manage and prepare for climate change and variability. It focusses on measures that will bolster risk management practices and enhance long-term preparedness and resilience.

The policy moves away from exceptional circumstances arrangements and defined areas qualifying for drought support and prioritises objectives and outcomes that enhance long-term preparedness, sustainability, resilience and risk management for farming businesses and farming communities in Australia. It takes a long term view of preparation for long term weather variability, rather than short term band aid solutions.

The main objectives of the policy are to:

- Enable farming businesses, farming families and farming communities to manage and prepare for drought, climate change and variability, by supporting their long-term sustainability and resilience, the adoption of robust risk management practices and sound natural resource management;
- 2. To increase the adoption by farming businesses and the farming sector of self-reliant, sustainable and resilient approaches to manage business risks, through improved skills and business decision-making, and the adoption of new knowledge and tools from research and development; and
- 3. To ensure services to mitigate the effects of drought on health and wellbeing are accessible to farming families and farming communities.

Under the policy, the role of the Commonwealth is to fund and deliver a time-limited household support payment based on individual and farming family needs, including reciprocal obligations that encourage resilience; and case management to support reciprocal obligation requirements. The Commonwealth has also committed to establishing and operating a Future Drought Fund, to enhance drought preparedness and resilience; and providing continued access to incentives that support farming businesses' risk management, including taxation concessions, the Farm Management Deposit Scheme and concessional loans. The Commonwealth will also improve and maintain national, regional and local predictive and real time drought indicator information, drawing on the Bureau of Meteorology's observation network and forecasting. The States committed to encouraging the delivery and uptake of capability-building programs to improve farming businesses' skills and decision making that are flexible and tailored to farming businesses' needs and ensuring animal welfare and land management issues are managed during drought.

Shared roles and responsibilities under the agreement were developing, designing, implementing and funding drought preparedness, response and recovery programs that are consistent with the agreement; encourage robust risk management and seek to avoid market distortions; developing capability-building programs, tools and technologies to inform and improve farming businesses' decision-making and promote resilience; providing rural financial counselling services and support to mitigate the effects of drought on the health and wellbeing of farming families and farming communities; sharing, coordinating, collaborating and communicating information on drought preparedness, response and recovery policies and programs being developed and implemented; and ensuring information on assistance for drought preparedness, response and recovery is accessible and readily available; ensuring consistency of drought policy and reform objectives and complementarity of drought preparedness, response and recovery programs; and contributing to the development of quality, publicly available data.

The agreement has a 5 year life and is due to expire in 2024.

Under this policy, the Drought Communities Programme (with \$144.5M since 2015/16 to provide immediate economic stimulus for drought-affected communities) provided initial support of \$1M to 60 eligible councils in 2018–19 to support local infrastructure and other projects for communities and businesses who have been impacted by drought.

In October 2018, a further 21 councils became eligible for the program; in March 2019, an additional 15 councils became eligible for the program; and during the 2019 election a further 14 councils became eligible for the program, with total funding increasing to \$110M over 2018/19 and 2019–20.

Funding is available to eligible councils for local infrastructure projects and other drought-relief activities. Project funding is intended to provide short-term support, including by boosting local employment and procurement, and addressing social and community needs (Department of Infrastructure, Transport 2019b).

As stated earlier, this review hasn't covered State Government drought policy to the same extent as the Federal Government policy. However, a 2014 review of the drought programs in WA stated that:

"As you would expect, people's opinions vary when it comes to the efficiency of government drought assistance measures. Yet the reality is there will always be a difference of opinion when it comes to balancing the welfare of farm families with the responsibility of farm businesses.

With this in mind, the Western Australian Government will continue to make evidence based policy decisions that are aligned to the principles of the Intergovernmental Agreement on National Drought Program Reform. These decisions aim to focus on improving farm businesses' drought preparedness by providing more options for business training, enhanced risk management tools and better social support for farm families in hardship.

With climate variability set to increase, all drought policy decisions will need to take into account the outcomes of the past, as well as the outlook for the future if they are to truly support a resilient, sustainable and profitable agricultural sector." (Government of Western Australia Department of Agriculture and Food 2014, p. 35)

A review of Queensland's drought policy published in February 2019 identified a number of limitations inherent with the current programs, including:

- programs inconsistent with the National Drought Agreement, in that they do not encourage producers to adopt strategies to better prepare for drought;
- an inability for producers in industries other than extensive livestock production to obtain comparable assistance;
- an inability to limit assistance to those most in need, such as through means or assets testing;
- the design of some programs encouraging producers to adopt behaviour to increase access to the scheme, when perhaps other management options may be better in addressing drought risk; and
- the objectives of many of the programs taking no account of other priorities of the government, particularly in the area of animal welfare, natural resource management and sustainability (Wade and Burke 2019, p. 2).

Queensland drought policy is based on the concept of self-reliance, in line with the National policy agreed between the States and the Federal Government through COAG. The Queensland policy is that primary producers should adopt risk management strategies to minimise the impact of drought on their enterprise. However, it is also recognised that prolonged and severe events may be beyond the ability of many producers to cope with financially and physically. Queensland's assistance policy (the Drought Relief Assistance Scheme) provides subsidies on the transport of fodder and water for livestock during drought, and on returning from agistment and restocking in the recovery period, as well as the Emergency Water Infrastructure Rebate to assist primary producers provide urgently needed water for animal welfare needs.

#### **Immigration policy**

Australia has a Regional Sponsored Migration Scheme (Subclass 187) visa that lets skilled workers, who are nominated by their employer in regional Australia, live and work in Australia permanently. For this visa, the person must be nominated by an Australian employer; they must work for the nominating employer in regional Australia; their occupation must be on the relevant list of eligible skilled occupations; and they must have at least Competent English.

However, the resettlement of migrants permanently into regional areas is not a simple process, and is a two way (migrant and community) process. For it to be successful, it relies on viable communities that accept different people and cultures.

Other migration policies in Australia are more short term, rather than long term migration, and are called working holiday visas (subclass 417 and 462). Up to three working holiday visas can be

requested. A focus on regional areas is that visa holders who carry out 6 months of specified work in regional areas while on their second visa may be eligible to apply for a third visa. Eligible types of work and regional areas will correspond with the requirements for the second visa. These visas can provide a short term labour force during peak horticultural times (e.g., fruit picking). These programs can provide significant economic benefits into communities by providing short term labour and secondary expenditure (backpackers need to eat, drink, buy accommodation, etc.).

#### Identifying the impact of policy

While many of these new policy initiatives introduce a place-based approach to policy development, there is still a question that comes up with any policy (place-based or not), which is how do we separate the impact of the policy from the myriad of other economic factors impacting on a community. As an example, in 1999, the PC reviewed the impact of National Competition Policy (NCP) on Australian regions and came to the conclusion that:

- Communities in rural and regional Australia are being affected by a range of beneficial and adverse influences, of which NCP is one.
- Most of these influences are of a long-term nature and largely beyond government control (eg declining terms of trade for agriculture, changes in technology and in consumer tastes).
- Such long-term factors are mainly responsible for the declining share of primary industries in Australia's economy and the associated drift of population away from inland country areas. (Productivity Commission 1999)

The same is true with any policy – in determining the impact of a policy, the base case needs to be the world if the policy hadn't been implemented; but we don't know what this world would have been.

Recent research at NATSEM has used modelling called synthetic control methods to identify this base case. These methods use a combination of similar areas to that being studied that have not been affected by the policy to construct a 'synthetic' area which resembles relevant economic characteristics of the policy affected area before the policy was implemented (Gong and Rao 2016). As an example, to test the economic impact of the MDB Plan on the MDB, the counter-factual might use average economic performance of similar areas outside the MDB to identify the economic and demographic changes not due to the MDB plan, and then remove similar amounts from MDB areas to identify the impact of the plan.

Another method used in the UK is to use complex agent based and microsimulation modelling to track historical economic and demographic conditions in the area, and then apply these to the population just before the policy was implemented, to model a synthetic non-policy affected population. This is currently being tested in the UK with the Centre for Complexity across the Nexus (<u>https://www.cecan.ac.uk/</u>). This is an area that NATSEM is talking to researchers at CECAN about, and while it is complex and cuts across economics, demographics, environment, etc., the overseas work from CECAN suggests it is possible.

While none of these methods solve the problem of separating the impact of policy from all other economic impacts on a community, they do make some attempt at providing a better baseline for

estimating the impact of the policy. As with any research, a lot still needs to be done, but this work is currently at the cutting edge of evaluating the impacts of policy.

#### Core gaps

The core gap in the policy space is estimating the impact of any policy beyond the normal change in economic conditions in an area. For example, if employment is declining in an area before the policy is introduced, and increases after the policy is introduced, is this due to the policy? Or general economic growth? Or demographic change unaffected by the policy? This is a complex area where international research has developed, and Australian research has started, but much more work needs to be done.

Place-based approaches are becoming the norm in Australian policy, but there is a potential for place-based approaches to revert back to short term subsidies to prop up local industries. From an economic perspective, longer term solutions need to be identified that help regional areas become economically self-sufficient in the long term. The most recent drought agreement, the BBRF and the Regional deals reflect this long-term perspective.

# What are the economic conditions in regional Australia and the the MDB?

This section identifies the literature on the economic conditions in regional Australia, and the MDB.

#### What are the economic conditions in regional Australia?

Probably the most extensive economic review of regional Australia in recent times has been the PC 2017 report on transitioning regional economies. The PC found that overall, the Australian economy has shown considerable flexibility and resilience over the past 30 years, with a large majority of regions (77 per cent) experiencing positive employment growth over the past five years. Employment in mining remains more than double pre-boom levels (Productivity Commission, 2017).

They also found that even though overall employment growth has been positive, as expected, economic growth varies by region over time, and most regions will experience experiencing falls at times. Over the past five years, reductions in employment and population are more evident in some agricultural regions and a number of marginal mining regions. Despite this, there was emerging evidence of rising incomes in agricultural regions.

Work in 2015 by the Regional Australia Institute suggests that a spatial perspective shows that far from being a drag on national prosperity as commonly assumed, regions outside our major cities are an important source of Australia's economic growth. The regional workforce accounts for one third of employment in Australia, 40% of national economic output, and is at the forefront of output per worker in over a third of industries.

Since 2001, regional Australia has gained ground on metro areas in productivity terms in every industry except mining. The importance of regional Australia to the national economy means that realising the potential of regions remains critical to securing future prosperity for all Australians (Regional AUstralia Institute 2015).

#### What are the economic conditions in the MDB?

Over a number of years, the MDB has been transitioning from small towns servicing local farmers, to larger regional centres servicing larger farms. Much of this has been driven by consolidation of farms as small farms are bought out by larger, more efficient farms; some has been driven by more frequent and extreme weather conditions (droughts and floods); and some has been driven by demographic change as older farmers sell their farms to move into town and children don't want to take on the responsibility of the family farm.

Reflecting the discussion on place-based policy, it needs to be recognised that economically, every town in the MDB (and in regional Australia) is different. Some will be experiencing short term growth due to mining, but this may not be sustainable. Some will have a good transport network and will be capitalising on this for their economic growth. And some might have a particular tourist attraction or industry that employs people.

As evidence of this, Tonts et al (2012) designed and tested a number of empirical models to account for the variability in socio-economic performance across different mining towns in WA. The results of the analysis suggest that socio-economic wellbeing in these towns is highly variable, and contingent on a range of factors including the nature of the particular commodity, company structure, and location (Tonts et al. 2012).

One thing that might be attractive in regional towns is the level of "connectedness", or social capital. This is usually separated into "bonding" (within a group) and "bridging" (between different groups), and it is usually recognised that some towns have more bonding social capital than others – the people are more friendly and accepting of newcomers to town. While this is not normally associated with economic growth, a study of 2 towns in regional Australia between 2001 and 2002 found that social capital exerts a positive causal influence on economic development. The study provided empirical evidence to suggest that both bonding and bridging social capital are important for successful community economic development outcomes (Woodhouse 2006).

In terms of identifying economically vulnerable communities in regional Australia, work for the MDBA previously has shown that the most vulnerable communities are those that combine small population, high dependency on agriculture and high irrigation spend per capita. However, even larger towns such as Shepparton which provides significant services to a wide range of communities across northern Victoria and southern NSW may be at risk of economic instability due to their reliance on communities outside the area. Once these outside areas start to cut back spending due to drought or water cuts, large regional centres like Shepparton are then adversely affected. (EBC et al. 2011)

The impact of drought is an external influence that can have a significant economic impact on the economies of regional towns as farmers cut back expenditure, which then influencers agricultural providers in the larger towns, which then flows through to other services in the towns. A paper looking at the economic and financial implications of drought in regional Australia shows a large impact of drought on financial hardship household financial position— especially for farmers and farm managers who reported that the current drought had reduced property output substantially. The paper also identifies mobility within many drought-affected households (Edwards et al. 2008a).

This paper found that being in drought was estimated to reduce farmers' equivalent household income by \$20,483 per annum, compared to those who had not experienced drought in the last 3 years. Having been in drought in the last year (but not being currently in drought) was estimated to reduce farmers' equivalent household income by \$10,784 per annum (Edwards et al. 2008b).

On a more positive note, ABARES analysis in 2015 suggested that agricultural export prices are likely to trend upwards over coming decades reversing a long historical decline. Their analysis shows that Australia's total output of food and fibre can increase – even in scenarios with significant shifts of land out of agriculture – if agricultural productivity growth is restored. However, they did not fully explore the potential impacts of future climate change and extreme events on farms, sectors, and regions. They state that the scale and multiple complexities of these potential changes could raise unprecedented challenges for landowners and regional communities (Hatfield-Dodds et al. 2015). Analysis of the most recent commodity prices, shown in Figure 15, shows that prices for all commodities except livestock for slaughter, have been increasing since 2016/17, a year after the ABARES report was published.





Source: ABARES agcommodities-sep-2018-stats.xlsx, retrieved from http://www.agriculture.gov.au/abares/research-topics/agricultural-commodities/sept-2018/wheat

#### What was the modelled economic impact of the plan?

A number of reports were conducted on the economic impacts of the plan. Some of these were commissioned by the MDBA, and some were independent. A summary of the analysis can be found in the MDBA report *The Socio-economic implications of the proposed Basin Plan* (Murray-Darling Basin Authority ,2012).

Much of the modelling so far has used Computable Generalised Equilibrium (CGE) models. These models use aggregate economic data on inputs and outputs between Industries in an area, so it is difficult to identify outcomes for different households – they are not distributional. They are also purely economic, only showing impacts on incomes and industries. They model optimal economic choices, subject to preferences, technologies and budget constraints. Their focus is on long-run economic equilibrium, when many regional towns may not see economic equilibrium. Recent work in New Zealand has extended CGE models to work without the economic equilibrium assumption using systems dynamics (Mcdonald et al. 2017).

The other issue with CGE models is that they assume a set of representative households, which averages household behaviour. This means that the CGE model doesn't take into account much of the household level variability in an area. Recent work in the microsimulation field has suggested methods that bring together microsimulation and macro-economic models together, to allow this variability to be incorporated (Davies 2009; Rao et al. 2015).

Goesch et al (2011) estimated the impacts on economic activity at a Basin and broad regional level. While these were estimated to be relatively modest, the effects on smaller local areas may be more significant. Each of the Basin regions contain a mix of small and medium-sized towns, as well as larger regional centres. Larger regional centres tend to have a broad economic base, which will act to cushion the impact of the plan. The impact of the plan was likely to be more substantial in smaller regional towns heavily dependent on irrigation than in larger regional centres (Goesch et al. 2011).

Wittwer (2010) used a regional CGE model to estimate the impact of different water targets on the economic conditions in the MDB. Three scenarios were estimated:

- Scenario 1 SDL target of 3500 GL. Assumed that farmers sell permanent water to the government from 2011 to 2022, with sales suspended in two years of moderate drought. Results were that there were slightly worse GDP outcomes in most regions. This was because the removal of water from irrigation production depressed farm land and capital rents, which in turn reduced farm investment relative to forecast slightly. Consequently, farm capital in the basin fell relative to the baseline forecast. There was also a small reduction in employment in each region over time (500 jobs in total). Real GDP declines were estimated across the basin, but only 0.2 percent below that forecasted by 2026
- Scenarios 2 and 3 varying SDLs to 3000 GL and 4000 GL. As long as the Commonwealth compensates farmers, the economic changes are as estimated in Scenario 1.
- Scenario 4 no compensation for SDLs. Over time, the services sectors decline in each region relative to scenario 1. If farmers are not compensated for SDLs, over 800 jobs are lost across the MDB relative to forecast by 2026. Since a no-compensation scenario would not be voluntary, the economic consequences could be far worse than modelled due to the absence of compensation which would bring with it considerable uncertainty, impacting adversely on regional investment in both farm and non-farm sectors. In the no compensation case, regions with a high water value to GDP ratio in the initial database do relatively worse than other regions. Lower Murrumbidgee, for example, goes from the biggest winner in scenario 1 to one of the bigger loser in scenario 4. (Wittwer 2010)

Victoria has had work done on the economic impact of the plan, mainly around reduced the economics of water trading. They find that using Census data, a common trend is the declining role of agricultural jobs in total employment over the period to 1991 to 2011. However, this might not be entirely due to the plan as there had been a decline in agricultural jobs a number of years before the plan was implemented.

A key finding of the report was that Victorian irrigators who sold water entitlements to the Commonwealth are now more reliant on allocation purchases than they would have been without the Basin Plan (Tim Cummins and Associates and Frontier Economics 2017).

Barr (2009) explains the ongoing decline of most small towns in Victoria as well as the continued, consolidated growth, for various well explained reasons, in several key centres in regional Victoria. The Basin Plan may accelerate some of these trends, and slow others, but it did not cause them.

The MDBA also produced a number of reports on the economic impacts of the MDB plan (Murray-Darling Basin Authority 2011a, 2011b), and found that although it was difficult to quantify, the evidence indicates that the long-run social, economic and environmental benefits of the Basin Plan were likely to outweigh the long-run costs. At the Basin level, the costs were expected to be relatively small. Models estimated that the level of total production in the Basin (gross regional product) would be reduced by less than 1 per cent and that this was expected to be more than offset by broader economic growth over the transition period to 2019–20. However, they also recognised that some towns in the Basin may face more significant adjustment as a result of the Basin Plan.

Given the potential impacts, they said that it was imperative that implementation of the Basin Plan was managed carefully. To aid the transition, the Authority proposed a review point in 2015 where progress towards sustainable diversion limits would be assessed. Central to this review would be consideration of how revised river management arrangements and new environmental works and measures could improve the efficiency and effectiveness of water management, and reduce the social and economic impacts of the plan.

A consortium led by Marsden Jacobs Associates (MJA) also conducted an economic and social assessment of the impact of the plan. Rather than using a CGE model (as many of the economic modelling has), the MJA consortium used a tool called an *Economic and social profiles and impact assessments* (ESPIA). This method aims to first understand the baseline situation; then identify the geographic scope of the policy shock; then identify first round impacts of the shock (e.g., on the value of production output, employment, etc.), and the second round impacts (such as impacts on economic activity in a region as a result of changes to consumption and production spending/activity). The approach concentrates on identifying threats, and then imposing measures to overcome them (Marsden Jacob Associates 2010).

The MJA approach used a consultative ESPIA which Consultative ESPIA strengthened the conventional ESPIA approach by placing greater emphasis on understanding regional vulnerability and adaptive capacity; used standardised indices to measure the community vulnerability; placed a much stronger emphasis on the role of broader contextual factors, and on the values and beliefs of individuals and communities, in developing risk profiles, assessing vulnerability, and understanding adaptive capacity; and importantly built in grassroots participation as a fundamental part of the

economic and social profiling and impact assessment process (so it used a place-based approach) (Marsden Jacob Associates 2010).

The MDBA commissioned a report on the appropriateness of the economic modelling conducted for the plan. This report mainly assessed the CGE and water modelling, and found that:

"The approaches employed to model the socio-economic impacts are considered to be appropriate. However, the ultimate efficacy of having modellers working independently using different modelling frameworks and different baseline assumptions, is more difficult to review. Each team has brought forward considerable and differing expertise to the analysis. The independent work conducted so far has provided many insights, but has been conducted in such a way that comparison between results from the studies provides limited information. A benefit of the independent approach is that it has highlighted the areas of strength and the limitations of each approach.

For future modelling work, it is our recommendation that the MDBA take the lessons of the work conducted so far and invest resources in pulling together a team of researchers to pursue a common, integrated research agenda. Part of this process would be the development of a modelling framework using the key strengths of these models, and others, built around a dynamic, regional CGE model. This would constitute best-practice for the next phase of the MDBA's research agenda. With the focus on socio-economic impact modelling, a well-specified dynamic CGE model with either (a) the ability to interface with a detailed hydrological model of the basin or, (b) internal watermodelling capacity (at least in terms of specifying water costs in production functions) is essential to adequately capture the necessary interactions and responses.

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The latest review of the Southern and Northern Basin contained models developed by KPMG, using community profiles and estimates of employment by industry developed by NATSEM using Census data from 2001 to 2016. Particular groups of industries were used, in consultation with the MDBA and KPMG, and defined areas were used across the MDB, with NATSEM concording the SA2 level and postcode level 2001 data to the specific defined areas and industries. KPMG then developed an econometric model (rather than a CGE model) which was a simulation model that relates for 21 communities in the Northern basin and 40 in the Southern. Changes in employment were modelled for 5 sectors in the Northern basin and 12 sectors in the Southern basin. The simulation model took the crop-specific projections of irrigated agricultural production as given and determined the employment consequences for the communities under each scenario defined by MDBA.

The simulation model was designed to quantify the impact on jobs in each of the sectors in each of the communities following a change in water availability under a number of scenarios of water reduction. The model for each community used a historical baseline extending from 1999/00 to 2013/14, which was used to quantify the impact on jobs in a particular community over the period 2001/02 to 2013/14 if the recovery of water for the environment led to a change in irrigated agricultural production in the context of climate variability, productivity improvements and other factors affecting each community.

In the Northern basin, they found that the impact of the water recovery scenarios on aggregate employment was relatively small for most communities. Dirranbandi, Collarenebri and Warren showed the largest reductions in aggregate employment. For Collarenebri the reduction in irrigated production was the same in all scenarios, hence the reduction in aggregate employment, which averages about 20.8% over the wet years, is the same in all scenarios. The average reduction in aggregate employment in Dirranbandi ranges from -9.3% in scenario 278GL to -19.4% in scenario 415GL. For Warren the range is tighter with the average reduction in aggregate employment projected to range from -6.1% in scenario 321GL to -11.7% in scenario 415GL (KPMG 2016).

In the Northern basin, the size of the employment results for each community were highly correlated with the size of the shocks to irrigated cotton production. Walgett and Gunnedah were examples where the proportionate aggregate employment response is muted relative to the proportionate size of the reductions in irrigated cotton production. For these two communities the irrigated farm sector in terms of job numbers appears to be a relatively small share of their economy as they record the two lowest shares of irrigated farm workers to aggregate employment in the baseline.

In the Southern basin, the model found that relative to the baseline, environmental water recovery under the Basin Plan has had a negative impact on employment. Under the Basin Plan scenario aggregate employment in all 40 Southern Murray Darling Basin communities was projected to contract relative to the baseline. In the Southern basin, communities that were most impacted by the Basin Plan included Robinvale (employment down 37%), Cobdogla-Barmera (down 23%), Waikerie (down 15%) and Swan Reach (down 135).

They also found that the proportional deviation in employment from the baseline levels for each community was correlated with: (a) the size of the reductions in irrigated production emanating from the water recovery policies; (b) the mix of irrigated production activities (crop types) in each community; and (c) the relative importance of irrigated farm activities to the community (KPMG 2018).

Other work developing a framework for identifying the impacts of an external shock on communities using a "Community Adaptablity Tool" shows how important identifying an economic basis for the community is in terms of adaptability. This work was similar to the MJA approach (the lead in this project, Hogan, was also a part of the MJA consortium). The work identified supply chains in the area, and modelled local economic adaptation based on a local production systems approach, drawing on data collected from local growers, crop handlers and value-adders. This data included employment and turnover. The project highlighted the importance of a place-based approach for economic evaluation (Hogan, Carson, Cleary, Carson, et al. 2014; Hogan, Carson, Cleary, Donnelly, et al. 2014). While this modelling did not model the impacts of the plan, the place-based approach used, and specific data collected from communities, shows a non-modelling approach to assessing the impact of an external shock, like a policy change.

#### What is the economic impact of mining and temporary employment (FIFO)?

In many areas of the MDB, temporary employment is important. This has already been covered in the section on Migration policy, but the economic impact of temporary workers (whether horticultural or mining) can be important for a regional town.

In many regional towns, resource-based activity provides a strong economic stimulus, largely through higher incomes paid to employees, plus the high secondary expenditure supporting local business. However, fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) workers also create a range of pressures on the host communities, mainly difficulties planning for, and investing in, the infrastructure required to meet the demand from the temporary residents. The temporary residents are also not counted in the permanent population, which may mean the region won't show baseline population growth, and may lose out on funding based on a per capita distribution.

Evidence of these impacts is shown in a paper by Rolfe and Kinnear (2013). They present a case study illustrating the value of resource activity in stimulating local population growth in Central Queensland, and how the strength of the stimulus varies with a different resident and non-resident workforce. Demographic modelling suggests that in excess of up to 180,000 additional people could move into the region by 2018 in direct response to resource sector growth, if the workforce was fully resident. However, the extent of population in-migration – and consequent economic growth – reduces as the proportion of non-resident workforce increases. Under predominantly DIDO or predominantly FIFO scenario, the regional population boost is decreased by up to 23% or 44%, respectively (Rolfe and Kinnear 2013)

In another paper, the theory that high incomes associated with the mining sector leads to greater inequality was tested. The paper describes an empirical analysis of mining activity and income inequality in regional Australia. The Gini coefficient (a measure of inequality) was found to be significantly associated with levels of mining employment. However, the relationship was not linear. They found that income inequality initially increases with mining activity, before decreasing at medium to high levels of mining employment. Looking at men and women separately showed very different patterns. Among men, inequality initially increases as mining employment in a region increases, but then sharply decreases; at high levels of mining activity, income inequality among men is lower than is typically observed in non-mining areas. Among women, income inequality increases with mining activity throughout its range. This suggests that income inequality is most likely to be a problem in areas with intermediate levels of mining activity and that it affects men and women differently (Reeson et al. 2012).

The productivity commission, in their report on transitioning regional economies, found that over the past 5 years, a mobile workforce (including fly-in, fly-out) has spread the benefits of the boom across workers living in other regions, as well as reduced the cost of both the investment phase and the ongoing production phase of mining (Productivity Commission 2017).

#### What data are available for economic indicators in the MDB?

This section outlines what economic data we have identified as being available for the MDB. A full list of datasets is in Table 4.

#### Census and Tax data

The main source of reliable economic indicators for communities is the Australian Bureau of Statistics Population Census, conducted every five years. The Census provides economic information on individual, family and equivalised household income (grouped); employment status; industry of employment; occupation; place of work; travel to work; hours worked; education (highest education level); highest year of school completed; unpaid domestic work; housing costs (rent and loan

payments); housing tenure; number of motor vehicles; and demographic data on age, sex, indigenous status, family type, and household type.

The ABS made extensive use of Census data in their socio-economic assessment of the MDB, conducted for the MDBA in 2009 using 2006 Census data (Australian Bureau of Statistics et al. 2009). This report used Census data for economic wellbeing, including labour force (age, hours worked, unemployment); Educational qualifications; Occupation (Number, Age Hours Worked and Education of farmers); Income (farmers and all); and Wealth.

Incomes for postcodes is also available from the ATO (latest available data is from 2016/17 financial year released March 2019), and this also provides information on source of incomes. Other administrative data on welfare recipients by postcode is also available from Centrelink.

#### Survey data

While there are many surveys which can provide economic data for Australian States, and capital city/balance of State, most are not designed to gather data for communities. Many of the ABS surveys have no sample in remote areas, including remote areas of the MDB. So these surveys cannot be used reliably to derive community level data in the MDB.

The University of Canberra runs a regional wellbeing survey (RWS), which is designed to provide reasonable estimates of economic information (incomes, employment, etc.) for some areas in regional Australia. NATSEM has also used the RWS in their spatial microsimulation model when modelling farmer incomes for communities and the impact of different policies on poverty rates, using 2016 Income data. The flexibility of NATSEM's dynamic microsimulation modelling means that the most recent ATO postcode level income data could be used with the latest RWS to derive reasonably current estimates of incomes, and then these reasonably recent estimates could be further projected using dynamic microsimulation techniques that Assoc Prof Jinjing Li at NATSEM is an expert in (Li and O'Donoghue 2013) to 2019. This means economic indicators like poverty rates and inequality could be estimated for 2019. This work has already been published by NATSEM (Harding et al. 2011; Vidyattama and Tanton 2010).

#### Other Data

The ABS produces the National Regional Profile, which provides a large amount of economic data from a variety of sources for communities across Australia. The NRP provides economic data for all SA2's in Australia on:

- Agricultural Commodities Total Number
- Building Approvals
- Business Entries
- Business Exits
- Employment by Industry
- Gross Value of Agricultural Production
- Mean Household Net Worth
- Number of Businesses
- Number of Businesses by Industry
- Occupations of Debtors Entering Business or Non-Business related personal insolvencies
- Patents and Trademarks

- Personal Insolvencies
- Registered Motor Vehicles Number by Type of Fuel
- Registered Motor Vehicles Number by Type of Vehicle
- Registered Motor Vehicles Year of Manufacture
- Residential Property Prices
- Selected Causes of Personal Insolvencies
- Tourist Accommodation Establishments

#### Modelled data

The University of Canberra does have extensive datasets for regional Australia, including the MDB, due to NATSEM's complex spatial microsimulation models (the same model used for the small area policy modelling described above) (Robert Tanton et al. 2011). This model brings together Census and survey data to derive modelled community level estimates of poverty, income inequality and housing stress. These are modelled estimates, which provide a guide to what the level of the indicator in the community would be; but don't take into account the local context at the time. They use Census income data, collected every five years, to create a "synthetic" population from a survey, so the aggregate incomes will reflect what the Census shows. This may not be what the current conditions are – for example, the current drought would not be reflected in incomes from the 2016 Census.

NATSEM has also been working recently on a synthetic census, and then using imputation methods to impute other datasets onto this dataset (Namazi-Rad et al. 2017). This synthetic census could be used to derive a synthetic population across the whole of the MDB to then impute other data not available on the Census (e.g., health, social connectedness, etc.). This method can be used to provide more recent indicators than the original spatial microsimulation method as it can use later datasets to match and impute newer data onto the 2016 dataset.

NATSEM also has a number of indexes of wellbeing available across the MDB – for example, the <u>child</u> <u>social exclusion index</u>, youth social exclusion index and <u>index of wellbeing for older Australians</u>. Many of these are indicator based, so economic indicators and indexes for the economic domains are available from these indexes in the MDB (available through the linked maps above).

The Productivity Commission has also produced an index of relative adaptive capacity for small areas across Australia for their Transitioning Regional Economies report (Productivity Commission 2017); and the ABS has the area based Socio-Economic Index for Areas (Australian Bureau of Statistics 2018) and the household based Index of Housing Advantage and Disadvantage (Australian Bureau of Statistics 2019).

Dataset	Source	Timeframe	Geographic Boundaries
Census 2016	ABS	Every 5 years	SA1 (sub-Community) upwards
NRP	ABS	Annual updates	Varies – SA2, LGA
AURIN	AURIN	Regular updates	Varies - SA2 (Community) upwards
ATO Postcode income data	ATO	Annual	Postcode
Secondary and Primary School data	ACARA	Annual	School location (address and coordinate)
Australian Early Development Census (AEDC) - Early Childhood Development	https://www.aedc.g ov.au/data/data- explorer	Every 3 years	AEDC Communities, also at LGA, SA2 and SA3 level.
Motor Vehicle Census	ABS Tablebuilder	Annual	Postcode
Infrastructure (Road, Railway)	Complete for Victoria in <u>https://discover.data</u> .vic.gov.au	Up to date	shapefile
Life table (life expectancy, birth, death)	ABS	Annual	SA4
Fuel price and Vehicle kilometre Travelled estimate	BITRE	2014	SA4
Pension and Allowance recipients	DSS	By request	SA2
Local Government Budget	State governments	By request	LGA
House and Unit Prices	RP data	By request	Postcode, suburbs, LGA
NATSEM Modelled data	NATSEM	Every 3 – 5 years	SA2, Commonwealth Electoral District
Business Longitudinal Analysis Data Environment	ABS sourced including data from ABS and the Department of Industry, Innovation and Science	Annual	Unknown

#### Table 4: List of available data for economic conditions in the MDB

#### **Core Gaps**

The main gap in the modelling done in the MDB is that it has mainly used CGE models. While there is a place for CGE models in national economic analysis, we would argue that the assumptions made make the results for small communities questionable. In particular, the assumption around representative households; and the assumption of long-term equilibrium may be suitable for the national economy, but are not as suitable for small communities. There is recent work in Australia and overseas on relaxing some of these assumptions of CGE models that needs to be considered.

The main gap in economic data for communities in Australia is data on businesses – so profitability of businesses, sustainability, etc. The NRP contains data on number of businesses, entry's and exits, but not on the profitability of business. There are regional economic CGE models which can provide modelled estimates of GDP for an area, and there is the Business Longitudinal Analysis Data Environment (BLADE), however this uses some survey data, so cannot be used for small areas.

Employment and Income data for regions is collected by the Census but is every five years, and the impacts of drought on farms and regional communities happen much faster than this. ATO income data is available annually, but is a few years old when it is released (the latest data released in 2019 is from 2016/17). This means that up to date income data, which can be used to assess the impact of drought or policy, is not available in a timely manner. Dynamic modelling techniques can be used to model this type of data with more currency, and then updated once actual data is available.

## Conclusions

Overall this literature review has identified a variety of literature informing policy and economic outcomes in the MDB. Much of this has been grey literature from the MDBA and the Productivity Commission, although there are some academic papers identified.

We have identified a number of policies that affect the MDB, and highlighted the current approach of place-based policy. Economic conditions in the MDB depend on the area – whether it is in drought, a regional centre with diverse employment (e.g., Wagga Wagga with a University), or a regional city with a range of employment options (e.g., Canberra). This means a "one size fits all" policy is not appropriate to the area.

We find that it is also very difficult to separate policy impacts from other external factors influencing a region. We were able to identify some papers that used CGE models to predict the impacts of the plan, but no models that have evaluated it looking back. Recent modelling for other policies in the UK and an Australian study for Fiji has attempted to separate these factors, with some limited success due to its complexity.

In terms of economic data, we find there is a range of data; but it is usually old by the time it is released, and not as relevant when looking at short term impacts of drought, for example. Again, dynamic microsimulation modelling, or synthetic populations updated with very localised growth factors, may be able to provide more recent data.

Data on businesses in the MDB, in terms of their profitability and life cycle, is also difficult to obtain. Businesses are core to the economics of any area, as they employ locals and bring people into an area. Diversity of business is also crucial for an area to be resilient.

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# Appendix 1: List of infrastructure spend by location, 2018/19 and 2019/20 Budget

#### 2018/19 Budget

		Murray			
Project	State	Darling Basin	Urban/Rural	Road/Rail	Amount (\$mn)
Monaro Highway Upgrades	NSW	Υ	Rural	Road	0.1
Port Botany	NSW	Ν	Urban	Road	0.4
Pacific Highway upgrades	NSW	Ν	Rural	Road	0.971
Nowra - Highway upgrade	NSW	Ν	Rural	Road	0.155
Bruce Highway upgrades	Qld	Ν	Rural	Road	3.3
Nambour Road upgrades	Qld	Ν	Rural	Rail	0.39
Pacific Mway	Qld	Ν	Rural	Road	1
Brisbane Metro	Qld	Ν	Urban	Rail	0.3
Cunningham road upgrades	Qld	Υ	Rural	Road	0.17
Buntine road upgrades	NT	Ν	Rural	Road	0.1
Arnhem Rd	NT	Ν	Rural	Road	0.18
Outback Hway	WA	Ν	Rural	Road	0.16
Gt Ntn Hwy	WA	Ν	Rural	Road	0.22
Bunbury Ringroad	WA	Ν	Rural	Road	0.56
METRONET	WA	Ν	Urban	Rail	1.05
Perth Congestion	WA	Ν	Urban	Road	0.944
Joy Baluch Bridge (Port Augusta)	SA	Ν	Rural	Road	0.16
NS Corridor	SA	Ν	Urban	Road	1.2
NS Corridor	SA	Ν	Urban	Road	0.177
Gawler road upgrades	SA	Ν	Urban	Rail	0.22
Tas Rds	Tas	Ν	Rural	Road	0.4
Bridgewater Bridge	Tas	Ν	Urban	Road	0.461
Traralgon Roads	Vic	Ν	Rural	Road	0.132
NE Link	Vic	Ν	Urban	Road	1.75
Urban Congestion	Vic	Ν	Urban	Road	0.14
Rail Link	Vic	Ν	Urban	Rail	5
Monash Rail	Vic	Ν	Urban	Rail	0.475
Frankston Rail	Vic	Ν	Urban	Rail	0.225
Geelong Rail	Vic	Ν	Urban	Rail	0.05
			1	1	

## 2019/20 Budget

	Full Amount	Additional Amount over next 5 years in this budget	Source (Page Number			
Infrastructure Spend	(\$M)	(ŞMn)	in BP2)	Where	MDB	State
Adelaide City Deal	165	0	123	Adelaide	N	SA
Albury-Wodonga Regional Deal	1.6	1.6	124	Albury-Wodonga	Y	NSW/Vic
Albury-Wodonga Regional Deal	1.6	1.6		Albury-Wodonga	Y	NSW/Vic
Barkly Regional Deal	45.4	14.6	125	NT	N	NT
Building Better Regions	206.2	206.2	125	National	Possibly	National
Community Development Grants	496.2	89.3	126	National	Possibly	National
North Qld Water Infrastructure Authority	9.6	9.6	126	North Qld	N	Qld
Geelong City Deal	30	30	127	Geelong	N	Vic
Hinkler Regional Deal	71	71	128	Qld	N	Qld
Hobart City Deal	529.9	30	128	Hobart	N	Tas
Improving Road Safety	38.5	32.6	129	National	Possibly	National
Indian Ocean Territories	1.5	1	130	IOT	N	IOT
Infrastructure Investment Program - ACT	50	35	131	ACT	Y	ACT
Infrastructure Investment Program - NSW	6100	266.5	131	NSW	Y (Part)	NSW
Infrastructure Investment Program - NT	60	60	133	NT	N	NT
Infrastructure Investment Program - Princes Highway	1000	100	134	NSW/Vic/SA (Coast)	N	NSW/Vic/SA
Infrastructure Investment Program - Qld	2600	313	134	Qld	Y (Part)	Qld
Infrastructure Investment Program - Road safety and upgrade package	2200	800	136	National	Y (Part)	National
Infrastructure Investment Program - Roads of Strategic Importance	1000	450	137	National	Y (Part)	National
Infrastructure Investment Program - SA	1800	134.8	137	' SA	Y (Part)	SA
Infrastructure Investment Program - Supporting Regional Rail	44	44	139	National	Y (Part)	National
Infrastructure Investment Program - Tasmania	68	68	139	Tas	N	Tas
Infrastructure Investment Program - Urban Congestion Fund	3000	1600	140	Cities	N	Cities
Infrastructure Investment Program - Victoria	2800	1200.7	141	Vic	Y (Part)	Vic
Infrastructure Investment Program - WA	932.6	443	143	WA	N	WA
Regional Airports Program	102.8	100	146	National	Possibly	National
Stronger Communities Program	26.8	26.8	146	National	Possibly	National
National Collecting Institutions - Capital Works Funding	8	8	58	National	N	National
Stronger Regional Connectivity Package	220	60	59	National	Possibly	National
Population Package	2100	37.3	64	National	N	National
Stawell Underground Physics Laboratory	5	0	70	Stawell	Y	Vic
Bmet - rain gauges and radars	28	28	73	National	N	National
Climate Solutions Package	3500	333.6	73	National	Possibly	National
Supporting Reliable Energy Infrastructure	75.5	72.3	78	National	Possibly	National
Enhancing national tourism icons	50	50	82	National	Possibly	National
Investing in Health and Medical Research	46	23	98	National	Possibly	National
Supporting our Hospitals - additional infrastructure and services	107.8	78.1	107	National	N	National
Supporting our Hospitals - Community program	1300	0	107	National	Possibly	National
Space Infrastructure Fund	19.5	0	121	National	N	National
Remote housing in SA	37.5	37.5	156	SA	Possibly	SA
-						
Total	30878	6857.1				

# Appendix 2: List of current and previous grant opportunities in the MDB

Limited to infrastructure grants and larger grants (e.g., not \$5 - \$10K to rebuild after natural disaster)

Commonwealth grant programs: https://www.regional.gov.au/regional/programs/community-development-grants.aspx

https://www.regional.gov.au/regional/programs/regional-growth-fund.aspx

https://www.regional.gov.au/regional/programs/building-better-regions-fund.aspx

https://www.business.gov.au/assistance/building-better-regions-fund

https://www.infrastructure.gov.au/infrastructure/water-infrastructure/nwi-development-fund/

https://investment.infrastructure.gov.au/infrastructure\_investment/bridges\_renewal.aspx

MDB Specific programs:

https://www.communitygrants.gov.au/grants/murray-darling-basin-economic-development-grantsprogram

https://www.regional.gov.au/regional/programs/murray-darling-basin-regional-economicdiversification.aspx

Murray Darling Basin Futures CRN (UC)

Water programs: http://www.agriculture.gov.au/water/mdb/programs/basin-wide/mdbwi-program/

State grant programs: *NSW:* <u>https://www.nsw.gov.au/improving-nsw/regional-nsw/regional-growth-fund/</u>

https://www.nsw.gov.au/improving-nsw/regional-nsw/regional-growth-environment-and-tourismfund/

MDB Specific:

Victoria

https://www.rdv.vic.gov.au/about-rdv/regional-jobs-and-infrastructure-fund

https://www2.health.vic.gov.au/hospitals-and-health-services/planning-infrastructure/regionalhealth-infrastructure-fund **MDB Specific:** 

Queensland

http://www.statedevelopment.qld.gov.au/industry/industry-support/jobs-and-regional-growthfund.html

http://www.statedevelopment.qld.gov.au/regions/building-our-regions.html

**MDB** Specific

https://www.business.qld.gov.au/industries/mining-energy-water/water/rural-assistance/fundingmurray-darling

SA:

https://www.pir.sa.gov.au/regions/regional\_growth\_fund

MDB Specific:

https://www.naturalresources.sa.gov.au/samurraydarlingbasin/get-involved/funding-opportunities

Drought assistance: <u>http://www.agriculture.gov.au/ag-farm-food/drought/assistance</u>

https://www.daf.qld.gov.au/business-priorities/agriculture/disaster-recovery/drought/assistanceprograms

Response to GFC https://www.sbs.com.au/news/42-billion-stimulus-package-unveiled