Social Research Project: Assessing the Social Impacts of the Murray Darling Basin Plan on the Communities of Northern Victoria

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1. Executive Summary

In October and November 2017, the six Murray River Group of Councils (MRGC) engaged Ruth McGowan Pty Ltd to conduct a research project examining the socio-economic impacts of the Murray Darling Basin Plan on Northern Victorian communities in parts of the Goulburn Murray Irrigation District (GMID) and the Sunraysia irrigation district.

Recent years have seen a rapid pace of change in water policy regulation requiring significant adjustment by irrigators, and the farming communities in these irrigation districts, the most significant of which has been the 2012 Murray–Darling Basin Plan (the Basin Plan). In implementing this Plan, the Murray Darling Basin Authority has stated that “there must be a balance between water for the environment and water for communities and industries”. How and to what extent the Basin Plan has achieved this balance is contested and controversial.

Empirical evidence of the Basin Plan’s negative (and primarily) economic impacts has been consistent with informal and anecdotal information garnered by the MRGC from their communities about less desirable effects resulting (at least in part) from the Basin Plan. Three recent reports have documented some of the effects of water policy changes on MRGC communities and the findings of these previous studies inform the discussion of this report. This Project was designed to further identify and explore the main social impacts that a selection of Murray River community members associate with the implementation of the Basin Plan.

Study approach

This Project took the following approach:

- A qualitative research methodology was used to identify what social impacts a small sample of people in the Murray Darling Basin believed resulted from the design and implementation of the Plan.
- Recent reports on the Plan’s economic impacts and a seminal social impact framework (Vanclay 2002) were used to structure the inquiry.
- A non-probabilistic sampling approach was utilised to select a relatively small number of people (24) to participate in interviews and in the making of a short documentary film.
- Participants were asked how they believed the Basin Plan affected their well-being, living environment, financial situations, family and community relationships, community’s heritage and identity, participation in Basin Plan processes, and any wider gender issues.

It was not the purpose of this Project’s methodology to investigate the ‘accuracy’ of respondents’ views about how much of what they were experiencing could be attributed wholly or partly to the Basin Plan and several participants talked about impacts that are likely to be related more to broader water market reforms than directly attributed to the Basin Plan’s design and implementation.

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1 Three key reports: Basin Plan GMID socio economic impact assessment (RMCG, 2016), Social and economic impacts of the Basin Plan in Victoria (Tim Cummins & Associates and Frontier Economics, 2017), Social Sustainability In Dairying Communities Impacted By The Murray Darling Basin Plan (Dr Josephine Clarke, Professor Margaret Alston OAM & Dr Kerri Whittenbury of Monash University, 2017)
Summary of perceived key impacts

Most participants were overwhelmingly supportive of the need to improve the health of the Murray River and recognised the role of the Basin Plan in achieving this.

Participants talked about both positive impacts (beneficial effects on individuals, business and communities) and negative impacts (significant cost to individuals, businesses and communities) they believed resulted from the Basin Plan. Participants talked about ‘winners and losers’ in terms of access to water, irrigation restructure funding, and employment opportunities. When asked to describe what impacts the Basin Plan has had, participants discussed positive and negative effects:

Positive impacts:

- the new horticultural industries in Northern Victoria were seen as an opportunity to build the Region’s economic resilience through increased employment opportunities, cultural diversity, and expanded tourism.
- improved environmental conditions (e.g. rivers, lakes, and wetlands, lowered salinity) resulting from increased environmental watering.
- the injection of government funds for water buy-backs and infrastructure investment as a positive boost of funding for rural communities that benefited a range of businesses.

Negative impacts:

- Participants talked about increased stress, anxiety and depression in the region. This was due in part to increased uncertainty and complexity of decision-making, particularly for the irrigation farmers who must now make decisions about purchasing water on the temporary market.
- Fragmentation of community and decline of population because of the reduction of primary producers in some regions, particularly in the GMID
- On-farm environments suffering from environmental water return. Some participants felt that less water for consumptive use caused some properties to be left to run down with a few saying the landscape resembled ‘swiss cheese’; that is, ‘holes’ between the irrigated farms in the landscape surrounded by non-irrigated or ‘neglected’ farms.

The findings from this Project provide valuable additional information about the type of positive and negative effects on communities that can be attributed to the Basin Plan’s implementation. The research team notes, that given the current and future implementation of the Basin Plan depends on it having predominantly neutral or positive social and economic impacts, there appears to be a need to do more to mitigate against negative Basin Plan impacts and facilitate a wider distribution of Plan benefits.

In order for Government and authorities to develop effective strategies to mitigate undesirable effects and enhance positive impacts of the Basin Plan, it is suggested that further research explore the extent to which these project findings represent perceived impacts more broadly across communities in the MRGC’s catchment area. Such an investigation would necessitate use of a larger, randomly selected sample size of people from Victoria’s Basin communities and would examine the (quantitative and geographic) distribution of effects identified by this Project.
2. Introduction

Background

Northern Victoria is part of the iconic Murray–Darling basin, which supplies irrigation water to one of the most significant agricultural areas in Australia. Since the latter part of the 19th century, irrigation has played a significant role in the life of northern Victorian communities. Towns, businesses, farming and the social life of communities have prospered as a result of irrigation and water is often referred to as ‘the life blood of this community’.

However, it is recognised that the way irrigation developed and was being managed over time, led to a range of unintended and at times unforeseen environmental problems, such as soil salinity, loss of suitable water flows and functional habitat for native flora and fauna. There has been a range of policy and management initiatives put in place over the years in an effort to address these environmental problems in the Basin, culminating in the establishment of the Murray Darling Basin Authority (MDBA) in 2007, tasked with responsibility for preparing a comprehensive water management plan for the entire Murray Darling Basin.

The Murray Darling Basin Plan (the Basin Plan) establishes long-term average limits on the amount of water that can be extracted from the Basin for irrigation: the Sustainable Diversion Limits or SDLs. It also established water trading rules and expanded water markets to allowing for water trade across the Basin.

The Basin Plan additionally introduced mechanisms for restoring the environmental health of the Basin including frameworks for managing environmental water, water quality and salinity. In terms of environmental goals for the Basin, the MDBA (2014a) has stated “We are trying to achieve improvement in the health of the river system — through more natural and variable flows”. The outcomes are further described in that framework for river flows and connectivity, vegetation, waterbirds and fish. As reported by Cummins (2016) the Victorian State Government is also working with the Commonwealth to ensure that ‘all future water recovery from Victoria is based on robust evidence that it can be done with neutral or positive social and economic impacts’.

Since implementation commenced in 2012, significant volumes of water have been transferred from the “consumptive pool” – that is, water available for irrigation - to the environment. This has been achieved through a range of measures including ‘buy-backs’ - purchase of water entitlements by the Commonwealth, investment in irrigation infrastructure to reduce system losses such as evaporation and seepage, and investment to improve on-farm water use efficiency. These water recovery measures have resulted in water entitlements being transferred to the Commonwealth Environmental Water Holder. These growing environmental water holdings are used to provide water to meet the Plan’s environmental objectives, such as filling wetlands and lakes, inundating floodplain forests, supporting fish movement and spawning.

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The Basin Plan sets new limits on the amount of water that can be taken for consumptive use (such as irrigation) and allocates water to environmental purposes with an aim to remove 2,750 gigalitres of water from irrigated agriculture, and return that to the river system.

The Victorian share of this target is 1052.3GL. According to the Murray Darling Basin Authority, as of 30 September 2017, 800.5GL of water has been recovered for the environment from the Victorian part of the Basin.

The terms of the Basin Plan state that “there must be a balance between water for the environment and water for communities and industries”. How and to what extent this ‘balance’ is being achieved in 2017 remains a point of contention. Some stakeholders argue that insufficient water has been allocated to environmental flows to restore environmental health. While others argue that the flow-on social and economic effects from reduced water availability and expanded markets are damaging Basin communities.

Project Brief

The purpose of this Project was to undertake a qualitative research project into the effect of the Murray Darling Basin Plan on the communities of northern Victoria by interviewing individuals and organisations within the MRGC area to investigate some of the impacts of the Basin Plan and to present the findings using documented case studies and edited video vignettes.

The research report will be used by the MRGC to inform its advocacy work and future policy development. The main audiences for the Project are Federal and State Water Ministers and politicians, the Murray Darling Basin Authority, and communities in the Murray River Group of Councils region.

In October 2017, the Murray River Group of Councils (MRGC) engaged Ruth McGowan Pty Ltd to conduct a social research project to assess the Impact of the Murray Darling Basin Plan on the MRGC’s Northern Victorian communities. The Project team also involved Dr Nicki Mazur, ENVision Environmental Consulting and Josh Janssen, Full Stack Films Pty Ltd.

This Project was conducted from October to November 2017, with funding support of the MRGC and the Department of Environment, Land, Water and Planning (DELWP).

The project brief referred to three previous reports (Clarke (2017), Cummins (2017) and RMCG (2016) which noted that since the Basin Plan was implemented in 2012 there has been a reduction in the numbers of irrigated dairy farms in northern Victoria and an expansion of horticulture in the north west of the project study region. Collectively, those reports found that:

- The loss of productive water has had significant effects to date across the GMID, including an estimated loss of 1,000 jobs with half in irrigation and the rest in the wider regional economy.
- A high proportion of nearly 300 irrigators surveyed, considered that the Basin Plan would have a ‘very negative’ impact on the economy and communities of where they worked and

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4 As of 30 September 2017, Murray–Darling Basin Authority estimates that the contracted water recovery in the Murray–Darling Basin, is 2,106.5 gigalitres (GL), which is 76.6% of the way toward meeting the 2,750 GL surface water recovery target outlined in the Basin Plan. https://www.mdba.gov.au/managing-water/environmental-water/progress-water-recovery


lived. Furthermore, 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, which is increasing the exposure and vulnerability of dairy farmers in particular.

- Feelings of unfairness, a sense of mistrust, stress from ongoing uncertainty, and reduced wellbeing, dissatisfaction with Basin Plan governance processes and related water reforms were identified as significant.

**Visual outputs**

The Project team also produced a short documentary film of interviews with 13 people regarding their perceptions of the social impacts of the Murray Darling Basin Plan on Northern Victorian communities. Documentary film maker Josh Janssen and Ruth McGowan travelled through Northern Victoria from October 28 – October 31, 2017 to conduct the filming, visiting businesses, farms and communities. In addition to the film, a series of vignettes have also been produced, suitable for social media providing a visual story about some of the identified impacts of the Basin Plan.

**Project setting**

According to the Victorian Government, the Basin is home to more than two million people, including about a half million Victorians. Within the Victorian part of the Basin, the two main irrigation districts are the Goulburn Murray Irrigation District (GMID) and the Sunraysia Irrigation Area.

The GMID is the largest irrigation district in the Murray Darling Basin. It covers 9,950 square kilometres and accounts for almost 90 per cent of water used in irrigation across the State. The GMID hosts dairy, cropping and horticulture farms, and produces 21% of Australia’s milk, more than half of Victoria’s stone fruit, and three quarters of Australia’s pears.

In north western Victoria on the south bank of the Murray River, the Sunraysia irrigation region is based around the municipality of Mildura Rural City Council and comprises an irrigation district and private diverters – those producers with rights to pump directly from the river. The Sunraysia region is a significant producer of dried fruit, table grapes, wine grapes, almonds, pistachios, citrus and vegetables, and exports about $340 million of agricultural exports annually.

The regional economy of the MRGC six local government areas is largely dependent on agriculture, manufacturing and food processing as well as tourism. Of the approximately $7 billion gross regional product, some $1.2 billion of production is from agriculture. Agriculture is also the dominant employer across the MRGC region with retail, manufacturing and health and social care also significant sectors for jobs.

The MRGC states that water is its number one advocacy priority. It states that it formed in 2006 in response to water reforms in order to advocate for the benefit of its communities. The MRGC states that its member councils ‘support the balanced implementation of the Murray Darling Basin Plan as the best way to secure both the long-term prosperity of our vibrant communities and the unique riverine environment in northern Victoria and along the length of the entire system’. Through this qualitative research, these councils seek to add to their understanding of the effect of the Basin Plan on individuals, families, businesses and communities across their municipalities.

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8 Source: MRGC member councils
In this setting, the Murray River serves as a significant icon for many people in Northern Victoria. Many participants spoke with affection about the River, recalling childhood days spent swimming and taking the water for granted. Most voiced their perspective on the need to ensure the River remains healthy. The health of the Murray was seen as central to the long-term prosperity of the region “The river is the heart of everything. Without the river there would be nothing. The town would close down. It feeds our entire existence”.

Context of changing water reform

Many of the subjects interviewed for this study had lived or farmed in Northern Victoria for several decades and have experienced notable change in irrigation development over the past half century. As noted by RMCG the growth of irrigated agriculture over the past 50 years can be categorised by four main time periods as below (and discussed further in their report).9

- 1970 -1985: Dams and growth
- 1986 - 2001: Cap and trade
- 2002 - 2010: Drought and buy back
- 2012 - 2015: Recovery

These periods of significant drivers of change are an important context to the perspectives of people participating in interviews for this Project’s. Negative social impacts attributed to the Basin Plan by participants are likely to have been informed by the rapid pace of change. As discussed further in this report, participants who attributed negative impacts of their experience with the Basin Plan were doing so within the context of these broader changes.

Previous assessments of the impact of the Basin Plan

The recovery of water for the environment and redistribution of water resources under the Basin Plan has been ongoing since 2012. The socio-economic impacts of recovery undertaken to date in Northern Victoria have been reported in the Basin Plan GMID socio economic impact assessment by the RMCG consulting group in 2016 and in Social and economic impacts of the Basin Plan in Victoria (Tim Cummins & Associates and Frontier Economics, 2017). These reports were analysed as part of this study, through a desk-top study by the Project Team.

The RMCG report focused only on the impact of the Basin Plan on the Goulburn Murray Irrigation District. It revealed that the loss of productive water due to the Basin Plan has had significant effects to date in the GMID. RMCG found that total available water in the GMID has been reduced by 300GL, with most water lost from the dairy sector. Dairy producers were found to be more exposed to the temporary water market and therefore more volatile water prices. Dairy production and dairy processing output has reduced by some $360 million with total agricultural production reduced by $580M/yr. Another key finding was that this loss in production has come at the cost of some 1,000 jobs across the GMID10. RMCG analysis also revealed an increase in the percentage of total available water now utilised by the horticultural sector and that the significant investment ($2bn in the Connections Project alone) in irrigation modernisation and on farm infrastructure had masked some

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of the impact from water recovery and that this investment had been unevenly distributed, creating winners and losers across the GMID.

Cummins (2017) assessed the impact on the whole of northern Victoria. This analysis similarly found that horticultural demands for water have increased considerably. The findings of this report clearly illustrate that the dairy sector is more exposed to the temporary water market and that this has increased farming risk in the sector. A further finding of the report was that the decrease in deliveries within the GMID had caused the fixed delivery charges for the remaining irrigators to increase.

Interestingly as part of the report, 285 Victorian irrigators were surveyed on the expected impacts of the plan and a high proportion of respondents considered that the Basin Plan would have a ‘very negative’ impact on the economy and communities of the MDB and the household/business/community that they worked in. The report did note that the funding provided from the Basin Plan totalled $3.15 billion. This was viewed as a welcome injection into a financially stressed community with a prediction it would generate 750 short term jobs mainly in the Shepparton area.

In addition, the research team for this project, also analysed the July 2017 report on Social Sustainability In Dairying Communities Impacted By The Murray Darling Basin Plan by Dr Josephine Clarke, Professor Margaret Alston OAM & Dr Kerri Whittenbury of Monash University. This report found that “The implementation of water policy reform has created fear, anxiety, uncertainty, alienation and an erosion of trust in governance processes and it is these issues that have not been adequately addressed.”

The report also noted that “... there are “significant and fundamental changes underway that may affect the viability of the dairy industry and the ongoing health of communities. These include the declining numbers of dairy families, the loss of expert knowledge, the high numbers of empty farm houses, emerging issues of poverty, mental health issues, critical issues of drug and alcohol dependence, the loss of professionals from communities, and gender disparities”. (Clarke et al 2017).

The MRGC stated that, “the findings of these reports accord with what the six councils are being told by their communities and businesses about the impact of water recovery”. MRGC also stated that “recovering water from the consumptive pool has had negative socio-economic impacts on northern Victorian irrigation communities” and that “the high rate of change experienced by our communities in ten years of water reforms, has amplified the negative impact of those changes and reduced community resilience” (from the project brief).

The following chapters will provide an explanation of the methods used by the Project Team and detail of the interview findings. The results chapter reports on the findings according to seven broad categories of social impacts developed by Vanclay (2002).

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12 Clarke et al pg. 34

13 Background to project brief, Request for Quotation October 2017, Geoff Turner, Executive Officer, MRGC
3. Methodology

This Project utilised a qualitative research methodology to identify what social impacts a selection of people in the Murray Darling Basin believed resulted from the design and implementation of the Plan (2012). Qualitative research can be understood most simply as any kind of research where the findings are not created through any kind of statistical procedure or quantification\(^{14}\). Qualitative research is used to get a better understanding of (mostly social) phenomena in context-specific settings (Golafshini 2003\(^{15}\)). It is often used to explore the nature and variety of people’s perspectives of a range of phenomena and/or ‘problems’ (Berg 2004\(^{16}\)). The data generated from qualitative research are descriptive in nature. Qualitative data analysis focuses on identifying patterns, features and themes rather than statistical relationships, therefore findings are typically limited to the sample of people being studied and are less generalisable to wider populations.

In contrast, the main aim of quantitative research is to determine causality, prediction, and generalisation of findings (Hoepfl 1997\(^{17}\)). Quantitative research often uses experimental methods and numerical measures to test hypothetical generalizations (Hoepfl 1997). Additionally, quantitative research seeks to measure and analyse causal relationships between variables (Denzin and Lincoln 2011\(^{18}\)).

Other key features of this Project’s methods include the following:

- A desk top review of recent select investigations on the socio-economic impacts of the Basin Plan in regional Victoria (RMCG 2016, Cummins 2017, and Clarke et al 2017);
- Use of a seminal social impact framework (Vanclay 2002) to help define different types of ‘social impacts’;
- A set of interview questions (or interview schedule) based on the review and framework; and
- A set of interviews undertaken with a small sample of people living in the MRGC region. (see Appendix B: Research Methodology; interview questions).

Defining social impacts

This Project makes a distinction between economic impacts and social impacts. Economic impacts of a policy intervention affect the production, distribution, and use of income, wealth and commodities. These effects occur at societal, regional, local and family scales. Analysis of economic impacts typically measure changes in business revenue, business profits, personal wages, and/or jobs.

As a social research tool, social impact assessment (SIA), helps managers understand the positive and negative impacts of resource development and formulate plans or strategies to mitigate adverse consequences and enhance the reach of the benefits (Lane et al. 2001). Further, SIA can improve the effectiveness of water resource management, because it complements other scoping, feasibility and


impact assessment tools that are primarily focused on biophysical and economic resources and conditions.

Social impacts are the net effect or consequences – positive and negative - from some kind of 'intervention' or activity that are experienced or felt by people (individuals, households, communities) (Esteves et al 2012). There are many ways to categorise these kind of impacts (i.e. Burdge 1994). Vanclay (2002) developed a broad categorisation of over 80 social impacts that was based on a comprehensive analysis of some of the weaknesses of previous international lists of social impacts. His seven categories were used in this Project to structure the investigation of perceived social impacts from the Basin Plan. These are summarised in Table 1.

Table 1: Project’s investigation of perceived social impacts from the Basin Plan

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Health and social well-being issues</td>
<td>Covers a range of positive and negative effects from some kind of intervention or activities on people’s mental and physical health. They can include effects on nutrition, negative emotional responses (feelings of stress, anxiety, apathy, depression, annoyance), general self-esteem, changed aspirations for the future, feelings of uncertainty, and/or sensation of moral outrage</td>
</tr>
<tr>
<td>2. Liveability of (natural &amp; built) environment</td>
<td>These social impacts include those relating to the liveability of people’s physical environment. That can include the aesthetic quality and functional adequacy of people’s homes, neighbourhoods, nature reserves, as well as the adequacy of a community’s physical and social infrastructure.</td>
</tr>
<tr>
<td>3. Economic impacts</td>
<td>Impacts that are economic in nature include effects on the nature of people’s work, their level of material wellbeing, access to services, and others</td>
</tr>
<tr>
<td>4. Family and community impacts</td>
<td>These are wide ranging and relate to family relationships and structures, social networks, changed demographic structures, social differentiation and inequity, social tensions, and community cohesion</td>
</tr>
<tr>
<td>5. Community identity and cultural heritage</td>
<td>These impacts refer to the ways of living developed by a community, passed on through generations, including customs, practices, places, objects. It includes both tangible and intangible things.</td>
</tr>
<tr>
<td>6. Institutional and implementation processes</td>
<td>The impact of various institutional, legal, organisational and political processes around the implementation of policy and plans such as the Basin Plan.</td>
</tr>
</tbody>
</table>

22 Vanclay (2002) found inadequacies and contradictory elements in other categorisations of social impacts, including limited to negative impacts, impacts from specific projects versus those from policies and programs, omitting potential positive impacts, as well as not distinguishing between intended and unintended effects.
7. Gender relations impacts

These effects relate to women’s personal autonomy, division of production-oriented labour and/or household labour, control over and access to resources and services, education levels, and their type and degree of influence in family, community and other societal settings.

Sampling strategy

A number of considerations were used to inform our selection of people to be interviewed for this Project. Firstly, a wide variety of stakeholders may have been (and/or continue to be) affected by the implementation of the Murray Darling Basin Plan and the recovery of water from the consumptive pool. In order to capture that variety, a purposeful stratified sampling (PSS) was used to select key stakeholders to be interviewed. PSS is a form of non-probabilistic sampling that is a valuable tool to use when the purpose of the inquiry is to explore issues in more depth than is possible using a quantitative approach. PSS is also used to select a cross section of different interests, operating in a range of situations and conditions (Patton 2002).

The MRGC directed to Project Team to utilise the stakeholder groups shown in the diagram below to help structure the sampling strategy. In addition to those groupings the Project Team also worked with the MRCG to select participants from a range of local council areas in the region, different occupational groups, age and gender, and people who were likely to hold different attitudes towards recent water reforms. Individuals working in government agencies and elected councillors were not interviewed, because the Project client sought to avoid any potential conflicts of interest that participants from that stakeholder groups might experience when discussing impacts of government policy.

It is worth noting that, in line with the purpose and capacity of qualitative social research, this relatively small sample of participants cannot be considered as statistically representative of the views of all people who live in the MRGC region and who might feel they have been affected by the Murray Darling Basin Plan. However, this small sample does provide a valuable window into a range of views held by participants about the negative, positive and/or neutral impacts of the Basin Plan.

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Assessing the social impact of the Murry Basin Plan on the MRGC

Interview process

For this study we used a modified semi-structured interview approach (Patton 2002) to conduct the interviews. This involved asking the research participants a similar set of questions, worded similarly, and asked in the same or similar sequence. Unlike closed questions, asking open-ended questions enables participants to answer in their own words, and they can seek clarification on the question meanings if need be (Rubin & Rubin 2012)\(^{24}\). This form of interviewing also allows the interviewer to explore unexpected or previously unidentified issues should they arise. Using semi-structured interviews tends to minimise the variation in the questions asked by interviewers, which reduces interviewer bias and elicits more standardised and comparable interview data (Galleta 2013)\(^{25}\). In addition, as the interview is highly focused, participants time is used efficiently.

A draft set of interview questions was reviewed by the MRGC on 16th October. The MRGC then approved those questions on 18 October. The Project Team then tested the interview questions to ensure their utility. As a result of the piloting of the interview question, minor refinements were made to improve their clarity and help ensure that the participants were interpreting the questions consistently. The final set of questions appears in Appendix B.

Overall, the interview questions were designed to elicit people’s views about how they see the Murray Darling Basin Plan has affected their own and other’s lives since its implementation. The particular focus of the interviews was to:

- Identify stakeholders’ attitudes toward the implementation of the Murray Darling Basin Plan and the recovery of water from the consumptive pool on their area of influence/interest.
- Draw out firsthand experiences to further investigate some of the key findings of the independent reports as well as allow other relevant themes to emerge.
- Investigate their position on whether the recent water changes have made a positive or negative impact.
- Examine beliefs about how the Murray Darling Basin Plan might affect their own and others’ lives; including the nature, magnitude, extent, duration, likelihood (risk) and significance of those effects;

Twenty-four interviews were conducted, each lasting between 30 and 60 minutes. Fourteen people were interviewed by telephone and ten were interviewed in person. In addition, thirteen participants also gave permission for their interviews to be filmed, including three who had also been interviewed by telephone.

Analysis

Content analysis techniques were used to analyse participants responses. Categories were derived using inductive analysis of the patterns that emerged from the manifest and latent content in the data (Berg 2001), the categories of social impact derived from Vanclay (2002), and Clarke’s (2017) report on social impacts. Respondents’ comments were manually grouped into themes corresponding to the interview questions. Another coding frame was used to subdivide these data into more specific categories according to the discussions around the topic areas. Both members of the Project Team individually and then collectively reviewed the categories to ensure consistent interpretation.

Limitations of Project’s methods

It is worth noting that in addition to the strengths of a qualitative approach, there have been some limitations to the approach utilised in this Project. These strength and limitations relate to the scale of the investigation (number of people interviewed) and what can reasonably be deduced from a ‘small’ sample. They also relate to the particular interview method – the use of open-ended questions versus highly-structured questions. Finally, there are epistemological factors to be considered.

Sample size

As noted earlier, qualitative research focuses not on quantity but on the characteristics of phenomena under investigation. The sample of people interviewed for this Project was small and therefore, we are unable to claim that their views about the Basin Plan’s social and other impacts will be the same for all people across the MRGC’s region. There are likely to be a range of other (similar, different, and/or contradictory) perspectives in the community about the Basin Plan’s effects. This does not mean, however, that the Project findings are not of any value simply because they cannot be quantified and therefore cannot be generalised across the entire region.

Perceptions of Basin Plan impacts

The purpose of the qualitative approach in this Project was to understand and capture the points of views of other people. Our methods embody the epistemology assumption that others’ perspectives are meaningful, knowable, and able to be made explicit (Rubin & Rubin 2012; Morgan 1999). Essentially, the participants’ perceptions of the Basin Plan are their ‘reality’. The formal definition of the term ‘perception’ does not necessarily have any negative connotations, but it can be used to infer that some other individual or group’s perspectives are flawed and therefore ‘incorrect’ in some way. However, all people, irrespective of their backgrounds and positions in society, will make selective judgements according to their values, beliefs, personal norms, attitudes and a host of situational factors (Slovic 1999). The focusing on trying to ‘prove’ someone else is ‘wrong’ rather than on how mutual interests might be identified and met, can exacerbate conflict and controversy (Taylor-Gooby & Zinn 2006).

Given the purpose of this Project as outlined in the project brief, the Project Team did not set out to identify the accuracy or ‘truth’ of participants’ perspectives on the Basin Plan’s various social (and economic) impacts generally or relative to other factors driving change in the region. This approach was discussed with the Project Steering group, who approved this general orientation as well as the specific interview questions. The Project Team purposefully used loosely structured, open-ended questions that asked people to think about broad categories of effects from the Basin Plan. This approach in qualitative interviews provides a framework within which respondents can express their own understanding of the issues and minimises the imposition of pre-determined responses (Rubin & Rubin 2012).

Most of the participants self-rated their knowledge of the Basin Plan as ‘low’ and made clear that they weren’t ‘experts’ on the Basin Plan. Consequently, not all participants responses made specific mention of the Plan, because the interview questions were already asking them to talk about the Plan’s effects (see Appendix B for the interview questions). However, some participants did talk

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about effects from initiatives other than the actual Plan (e.g. Connections Project and other water buyback and unbundling reforms) and/or other drivers of change unrelated to the Plan. Similarly, Clarke et al (2017) also found

“Participant views and perspectives on their experiences of the Murray-Darling Basin Plan and its impacts are not always separate to discussions of broader water reform issues including associated irrigation infrastructure upgrade opportunities and supporting programs – the latter in turn support MDBP water recovery targets. Conversations with participants regarding the MDB Plan frequently involved also discussing the Connections Project. Participants articulate a perceived lack of fairness in the rollout process and in the MDB Plan development and governance process”

This ‘intersection’ of issues makes it difficult to attribute impacts talked about by participants solely to the Basin Plan. These kinds of responses are discussed elsewhere in this Report.
4. Results

Participants demographics

We interviewed 24 participants. One third of the participants were women (8) and sixteen were men. As noted earlier, all participants were drawn from a range of groups representing upstream, downstream and economic and social networks. Appendix 1 shows the number of participants in each of those categories. The participants were also from a range of other kinds of stakeholder groups including primary producers (the largest group at eight), consultants, businesses and social support networks. Many participants were also active in their local community as volunteers. All participants lived across the geographical region covered by the six councils of the MRGC. Since several participants requested their responses remain anonymous, the geographical locations have not been linked to participants to avoid the possibility that their identification could be revealed.

Interview data by impact themes

The results of the interviews have been grouped into seven key themes, using Vanclay’s (2002) framework for conceptualising social impacts. As discussed in the Methods Chapter, further coding of the interview data resulted in some sub-categories under each of the seven categories of social impacts (see Appendix C).

Health and social well-being issues

Many participants discussed primarily negative effects from the Basin Plan on their own well-being, as well as on others’ well-being in irrigation communities. There was some recognition of benefits from the Basin Plan, alongside awareness of some unequal distribution of those benefits.

Uncertainty, stress and anxiety

The Basin Plan was considered by some participants to be responsible at least in part to levels of uncertainty, stress and anxiety in the community. Uncertainty around what the water allocations will look like, when and what effects they will have was seen to be causing increased stress in individuals.

> It’s the newness and the uncertainty not having the control that they thought ... People thought they had irrigation and they had control, but then they’ve got uncertainty, and I think that’s created all the stress and the anxiety that we’re seeing. [I2 - Rural Financial Counsellor]

As noted in the quote above, increased stress was seen as taking its toll particularly on farming couples and family relationships. As indicated in the following quote, participants felt that the uncertainty contributed to relationship conflict in turn generating greater levels of social anxiety.

> One lady said to me one day, she said, “I just don’t like going off the farm, because I’m so worried about my husband. I like to be here when he comes in for a cuppa, and I like to be here and make his lunch.” [I2 - Rural Financial Counsellor]
Farmers who rely on the Murray Darling Basin plan, have an endurance to a certain degree. When their livelihood is affected by policy reform, it impacts on their mental health, their physical health, and it also has an impact on the family relationship. We have seen family relationships break down, and that’s another part of what we see here at our organization, not only the people coming to see us about mental health issues, but also relationship issues. They’re probably the two issues we see the most when it comes to this type of policy reform. [I14 CEO Family Support Organisation]

In response to questions about the impact of the Basin Plan, some participants talked about an increase in depression across the community. Two participants referred to people enduring so much stress that they took their own lives:

It’s the state people get into when you ... Just that insecurity of not knowing. How much water are we going to get next year? Even though the storages are full, we should be really happy, we should be celebrating, we should be pretty much thinking the next two or three years we’ll get out full allocation. But no, we can’t ... There’s no certainty there, absolutely no certainty...[and]... the impact along the river has been huge, has been massive. I think if you looked at the rate of suicide amongst farmers it would be higher than any other industry. It’s tragic, I don’t even want to go down that track thinking about it, but it devastates communities obviously. [I13 Horticultural irrigator/exporter]

The suicide part is very, very real. [I3 Small Business Financial Adviser]

Increased complexity of decision making

In addition to uncertainty, participants believed that the new arrangements of water allocations added a significant degree of complexity to farmers’ pre-existing decision-making burdens. Participants talked about farmers managing multifarious operations and issues (e.g. monitoring calving in large herds, fodder conservation, animal fertility (AI), grain feeding, milking). The additional burden of decisions around water was seen by some participants to be creating unhealthy mental stress for some farmers:

The mental health pressure on a farmer are immense because it’s an absolute Rubik’s cube of moving parts. Without water we can’t grow feed, we can’t grow food, we can’t make milk, we can’t make beef, we can’t grow crops. So, water is our number one problem. Now, if that’s your number one problem, it has to have a massive effect on mental health. [I24 Irrigated Dairy Farmer 3]

So, anybody that’s going through stressful times, they don’t know if they’re going to be able to get water, price of water’s going through the roof, [I13 Horticultural irrigator/exporter]

Depending on how people manage their risk with water ... if they’ve done it the wrong way then it’s had some financial implications on their business and then that brings about stress in the family (which) brings about marital breakdown or fractured relationships and the likes. [I3 Small Business Financial Adviser]

An irrigation farmer talked about the increasing risk that now comes with decision making

On the flip side the lower pool of water is increasing the overall price which is impacting our profitability quite severely and we are growing more exotic, more productive higher value crops but that comes with greater risk” [I 23 Annual crop irrigator].

Feelings of moral outrage

Many participants expressed outrage at what they felt was unfairness in so much uncertainty around the allocation of water and/or of funding for infrastructure improvement grants and that those feelings of unfairness in turn made people feel more anxious and stressed. Another participant felt
that farmers were being judged negatively (environmental vandals) by the wider community and that such judgements were hurtful and unjustified.

They see water running down the Goulburn or the Murray, on the way to Lake Victoria or fill up the Gunbower Island, yeah, they sit there and say, "Well, I've got no water." And in their view, it's just wasting it. [I3 Small Business Financial Adviser]

We're seen traditionally as being the bad people that suck the river dry. I was out to dinner in Melbourne, and someone when they found out we were irrigators, we were the bad people. We were the people that were doing harm to the Murray River. I felt ooh, I felt that bad. [I13 Horticultural irrigator/exporter]

The bottom line is, as irrigators, we come last. It's not a nice position to be in, if there's a shortage of water, we come last. We're the least valued in the community... but where are they going to get the food from in the future? [I13 Horticultural irrigator/exporter]

Resilience

Resilience in individuals and communities is about the ability to recovery from the effects of (often some kind of unfavourable) change. Participants mentioned a number of stressful events and changes, including implementation of the Basin Plan, drought, changing milk prices that have reduced Northern Victorian irrigation communities’ and individuals’ resilience. Participants also felt that some people – for a host of reasons - were and are more able than others to face uncertainty and change and come out the other side of challenging times relatively unscathed, and possibly stronger. There was also concern that the community had reached a threshold of capacity around resilience. For example:

There'll always be farmers that will survive and do well; the ones that have resilience. What I think has happened is our resilience has been eroded... I'm seeing some quite fatigued farmers. There's a whole heap of things that have to be managed and waters just one more. [I3 Small Business Financial Adviser]

People in rural areas, are resilient. I think that is true to a certain extent, but you can only be resilient to a point. I think these communities have had to continue to suffer a lot in a short space of time, and I wonder how much more is it that they can actually endure. [I14 CEO Family Support Organisation]

Well-being benefits

There was a range of views on the impact of the Basin Plan and water changes in general on people well-being. For example, some participants discussed positive well-being effects from the Basin Plan, such as creating a degree of certainty about water allocations, which in turn could reduce anxiety. For example, a tourism operator who ran a caravan park by a Lake commented:

... it’s fantastic. Honestly, because this is the first business I've had and my first couple years it was on my mind all, constantly, and I was definitely stressing about it and watching the weather forecast and in the last 12 months the burden has lifted. We know we can get in there and spend a bit more money on our business to build it up knowing that it looks like we're going to have water at least for the next few years. [I5 Manager, Caravan]

While there are many different definitions of resilience, Vic Health defines it as: “... the ability to stay balanced or to deal with and recover from adversity.” https://www.vichealth.vic.gov.au/programs-and-projects/resilience
Other participants were buoyed by what they saw as a general growth in regional employment, particularly in horticulture specifically in the Sunraysia area since the Basin Plan was implemented. Some participants believed that not everyone was sharing equally in these kinds of benefits.

_The reality is there is plenty of work here [Robinvale] if you want to work so therefore there should be no reason why you can’t pick up work in this area and we know that when people are in employment their health is so much better. But we do acknowledge that there are others that may not be so lucky in this changing environment and their mental health is of a concern._ [I21 Consultant]

**Liveability of (natural & built) environment**

When exploring people’s perceptions around the liveability of the physical environment, a key finding of the research is that the majority of participants viewed the environment as important and supported the Basin Plan goals of supporting the environmental health of their region.

Most of the participants talked about environmental impacts of the Basin Plan on the biophysical environment (riparian areas) and on farm land. Generally speaking, people viewed the impacts as positive where additional environmental water was allocated and negative where they saw less water, as a result of less irrigation allocations in the system, leaving what they referred to as ‘unsightly, weed and pest infested’ farm land.

When speaking about the ‘environment’, participants discussed a broad view of what they considered relevant to effects on the environment which included effects on the Murray River riparian zone, wetland areas, linked lakes, farmlands and irrigation channels, not just a narrow definition involving the Murray River or “natural” areas such as parks or reserves alone. For example, one interviewee thought that the decline in irrigated pastures was having a negative impact on birdlife around farms, due to the reduction in feeding opportunities for birds. Another participant noted that Kerang used to have the biggest ibis rookery in the southern hemisphere but reported that recently there seemed to be a decline on the bird numbers perhaps due to the fact that with less irrigation there was less insects and frogs for birds to feed on.

Several participants commented that they needed to see more ‘convincing’ data around positive environmental benefits of the Basin Plan. Cummins (2017) has noted that the full benefits of the Basin Plan’s water recovery will take time to be readily seen, because of “lags in biological responses and because the Basin Plan, and associated water recovery, will not be implemented in full until 2024”⁴⁰. Nonetheless, a number of participants who were primary producers indicated that although they understood the reasoning of and saw benefits from environmental flows, they believed environmental flow benefits could be communicated more effectively by water authorities.

This would also assist authorities’ efforts to redress people’s frustration with the Basin Plan.

**Benefits for riparian zones & wetlands**

Participants noted a range of benefits from environmental flows, some of which extended beyond the riparian zone to helping ensure the ecological connectivity between lakes and wetlands, managing invasive (fish) species, and reducing salinity for increased land productivity. One participant, who had previously worked in catchment management, talked about these benefits being evident further out on the flood plains. This person also believed that fish populations along the entire Murray River were more stable as a result of improved connectivity and use of fish ladders along the locks on the Murray River.
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This has allowed a connection from the likes of the Menindee Lakes all the way to the top of the Murrumbidgee all the way to the lower lakes and up the Murray River. Those two things, getting water to the extremes, more frequently, like it should, and the movement of fish through the system, to me, that’s the biggest change, with the commencement of the Basin Plan, it’s huge” [117 Manager, Tourism Tour Business]

“... there’s been, also, some proactive management of drying wetlands out, keeping carp out, and then doing that on a two-yearly basis and carp don’t get the chance to destroy vegetation and those things, so there’s quite a lot of proactive management that’s been stimulated by the Basin Plan, yeah, it’s not only supplying water, it’s managing water appropriately”. [117 Manager, Tourism Tour Business]

Other environmental changes were noted that have occurred over time, although beyond the relatively short time period of the implementation of the Basin Plan. These include observations such as the impact that improved drainage has had on reducing salinity.

“Tragowel plains have had improved drainage as water has been sold and land forming has improved so less water is being used on farms and less accessing to the water table to reduce salinity considerably, so farms are much better now than they used to be”. [110 Mixed business irrigator]

The water table has dropped massively and so land that we had that was quite salty has now improved in terms of what it will grow. [120 Irrigated Dairy Farmer 2]

Recreational fishing benefits

Participants also spoke about how better water management had led to improved recreational opportunities, such as various water sports and other activities, especially improved fishing experiences. The improvement to recreational fishing generates further social benefits, such as creating opportunities to bring parts of communities together (e.g. regularly run fishing competitions at Lake Boga).

Since they’ve had good water levels in Lake Boga, we’ve seen a lot of Murray Cod and yellow belly and catfish, everything caught in the lake over the last 12 months or so, it’s been fantastic. The birds and the fish are going crazy. [15 Manager, Caravan Park]

I’m a keen fisherman and I love the fact that we’re taking some action to put in place more sustainable measures to improve the river environment. A really good example is the Broken River. The water that runs through there is a lot clearer, and the fishing has just been outstanding. [16 Rural Financial Counsellor 2]

Effects on farmland

Some participants felt that the reduction of irrigation properties in some regions had negative impacts on the farming and/or natural environments. This created ‘patches of desert’ in the landscape in what several participants called the ‘Swiss cheese effect’ across areas such as around Kerang. One participant was concerned that less water on farms would reduce feeding opportunities for birds generally, and water birds in particular.

Prior to the Plan none of us really understood what the changes were going to be and now there’s areas around us that are effectively deserts. With no water, yeah, you might as well be trying to farm on concrete. [13 Irrigated Dairy farmer]

…it [Kerang] used to be fence to fence greenery and properties were separated by willow trees and the likes. You now drive through there and it’s what they call the Swiss Cheese, where you’ve got a
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A diminishing number of farms that are operating out there, they’ve sold off their water, and now just grow nodding thistles. It just looks awful, and impacts neighbouring properties because of pest and weed management issues that arise because of the lack of farming that’s growing on with the property next door. [16 Rural Financial Counsellor 2]

Future environmental impacts

While there were, as noted earlier, numerous observations made about positive environmental impacts resulting from the Basin Plan, several participants were unsure about the ability of the Murray Darling Basin system to cope with future shocks or changes. How well would governments, business and communities adjust to environmental pressures such as drought or blue-green algae outbreaks. The following quote illustrates these concerns:

When you look at the social and economic impacts you have to look at how flexible the system is to deal with issues such as drought and blue green algae. These things will happen again. We need to be prepared for those problem times and situations. Because if anything is going to impact social and economically it will be the tough times - such as when the river is unusable for humans, irrigation and wildlife. [119 Board Member, former Councillor]

Economic impacts

The following discussion on economic impacts is organised into three main sections: perceived positive economic impacts of the Basin Plan, perceptions of the Basin Plan’s economic ‘winners and losers’, and perceived negative economic impacts of the Basin Plan.

Economic benefits

A number of participants talked about positive economic effects from the Basin Plan. These benefits included examples of increased standards of living and material affluence, horticulture industry expansion and associated employment growth, innovation, enhanced tourism. These are captured below:

Standard of living, level of affluence

The economic impact of environmental tourism was noted as a positive by one participant who worked with small businesses throughout the Campaspe Shire, the City of Greater Shepparton, Moira Shire, and lived in Gannawarra Shire who observed:

“If we have healthier rivers, we get fishermen, our duck hunters, canoeists, campers and holiday-makers come up to northern Victoria and they spend lots and lots of money, which goes back to our local retailers... we’ve got to look at how do we attract them, because that’s money that should be spent in our local communities, and it’s not just about farmers, it’s about our shopkeepers and small businesses”. [I3 Small Business Financial Adviser]

Some areas in Northern Victoria were seen to be experiencing rapid economic growth. In Robinvale and Euston, it was noted by some participants that the sport and recreation clubs were going well (Euston Club just spent $3.5 Million on a private investment in their club for an upgrade), although childcare and education services were still running to catch up with increased demand given more families moving to the area. Robinvale College was reported to have recently been transformed into a community services ‘one stop shop’ hub through $5.5 Million of State Government funding.
**Industry expansion and employment growth**

Some participants saw the Basin Plan as assisting the economic growth of their region and their sectors particularly in horticulture in the Sunraysia region. One example given was the production of dried fruit. A participant said that:

> What we’re seeing with dried fruit, is that while the majority of growers are still family farmers larger green fields developments are going ahead with 1000 acres of dried fruit being planted up. So, rather than your 40 or 60 acres we’re seeing larger property developments from corporates now happening in this industry sector’. In addition, two major processors of dried grapes were becoming vertically integrated, Australian Premium, and Murray River Organics. [116 CEO National Industry Body for horticultural produce]

Several participants talked about of the positive impacts of increased employment opportunities specifically in the North-West of the Region because of what they noted as an increase in irrigated agriculture. Horticultural plantings in Mildura, Robinvale and the surrounding region were reported as increasing, some of which people directly attributed to the Basin Plan.

In contrast to comments discussed above, (about the increased stress lack of water security for some irrigators), one participant said that improved water security was a positive factor behind the growing regional demand for improved employment in the Mallee Region:

> I support the Plan because of its ability to provide security to communities ... when you have security of water supply ... particularly in the Robinvale Euston catchment ... we have 70% of Australia’s almonds and we’ve got the biggest provider of olive oil in Australia out of Boort and carrots and table grapes. And when you’ve got security you’ve got investment. [121 Consultant]

One participant who was a farmer spoke with pride about how he had transitioned into intensive animal industries and has been able to provide employment for many new workers in the nearby small town.

Another participant who has lived in the region all his life, felt there were more employment opportunities in horticulture in the Sunraysia region than compared to what things were like in the early 2000s when he had been a school leaver.

Another participant (a water broker) talked about being able to shift from working in real estate to running a successful water brokerage firm.

**Tourism**

Several participants believed that tourism jobs and hence income have benefited from increased environmental flows. For example, one participant saw a more positive future for Murray River tourism:

> We’ve got the biggest asset in Australia, the Murray River, right on our backdoor where we’ve got paddle boats going up and down, and a couple of indigenous groups starting to get involved along the river, and with their artwork and craftwork, so it’s probably more in the aboriginal communities I see the opportunities to mix tourism and the waterways and the local resources happening more”. [117 Manager, Tourism Tour Business]

One participant, a tourism operator, talked about the importance of environmental flows evening out the seasonal vagaries which caused drought and empty lakes. They referred to the 2009 drought that emptied Lake Boga (2009) and the subsequent closure of two motels. Tourists and businesses were said to be regularly checking whether the Lake would be full for summer holidays. And with the recent implementation of the Basin Plan, “… they’ve kept it [the Murray River] pretty full and...
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*they managed to give it a bit of a flush to improve the water quality up which has been fantastic for our visitors*. This participant has recently purchased and expanded his caravan park business resulting in a 25% increase in bookings with visitors staying longer.

**Innovation**

One participant believed that the increased presence of corporate farming in the water market provided demonstration of how crop management can be improved through innovative practices. This participant spoke about how:

*it’s very interesting to watch Vic Super with the way they do things and I think they are showing to the local community that there are other things that you can definitely grow in this area and as I said earlier on, for the 40 years I have been here, this area will grow anything, because all you have to do is just add water.* [I7 Manager, Farm Supply business]

Another respondent, who was a crop irrigator felt that since the Basin Plan was implemented they no longer took water for granted and saw being more innovative with their water management practices was a good way to feel more in control:

*“With water being such a valuable commodity, you can’t waste it and everyone’s getting a lot smarter with their irrigation practices. With the irrigation water we can get multiple cuttings for the Lucerne and grow a lot of other things that without irrigation we can’t achieve”* [I22 Manager Stock Food Processor/Exporter]

**‘Winners’ and ‘Losers’**

Many of the participants’ discussions of the Basin Plan’s various impacts were framed in terms of ‘winners and losers’. That is, they saw some individuals and businesses experiencing positive effects from the Basin Plan. However, they were also perceiving that other individuals and businesses were suffering from negative consequences of the Basin Plan.

**Land value**

Participants perceived mixed outcomes in terms of benefits from increased land values. Those people without permanent water entitlements were said to have low property values, although they did not necessarily feel this was totally due to the Basin Plan. Others reported the land values were artificially high, around Kerang and Cohuna regions, with people from ‘down south’ (Ballarat region) travelling north and purchasing land, unaware that the additional expense of buying in water to farm, ‘particularly when it goes north of $200 a megalitre’ could prove prohibitive. Some participants felt that foreign investment was a ‘winner’ that drove up the price of land but creating losers in those unable to afford higher value accommodation.

*“The Chinese are attracted to Mildura as they are very in tune of what’s happening to the economics of the world and they see a massive food shortage worldwide coming and, so they see Mildura as a prosperous place to invest in that it is still affordable and that is driving the price of land up.”* [I15 Labour Hire and Contracting Business]

**Corporate farming versus family farms**

Participants talked about the capacity of corporate farms to navigate through the new water allocation arrangements of the Basin Plan as contrasting – sometimes rather starkly – with the capacity of operators of small farms and businesses. While the influx of corporate farms was seen beneficial for farmers that wanted to get out of agriculture, it was *“Probably not so great for those who want to get in”*. Another respondent in the Mildura area said he was observing that *“The smaller growers are finding it ‘very very tough compared to the corporate growers’”*. 
Some participants admired corporate farming operations’ ability to operate in the water market:

“What we’re seeing on the water market, is competition across commodities, so with almonds developing quite considerably in the area, there’s a lot of competition from corporates that have developed almonds, who can afford to pay, particularly if prices go high. If there’s water restrictions into the future because of drought, there will be certainly significant pressure on water pricing, where large corporates that are growing almonds might be able to dig deep and find funds to pay for that” [I16 CEO National Industry Body for horticultural produce]

Others were less positive about this phenomenon:

When they changed that law so that anyone could purchase water and then that’s when it really became very hard because that sort of meant that all your big business people and insurance, superannuation funds started buying water and that makes it very difficult for farmers to compete. [I17 Manager, Farm Supply business]

As a small farmer, we cannot compete against the money they’re prepared to spend on water. But they’re doing so without the fixed charges. I’m arguing that the fight’s not an equal one because of the fixed costs system, and they’ve got a big pool of money so they’re taking advantage of it. [Irrigated Dairy Farmer]

The relatively strong position of landholders with permanent plantings of trees was noted by several respondents.

People with permanent plantings, that’s trees or vines have got a lot of money invested in those sort of properties, they still worry about water, ‘will we get 100% allocation this year’? … They are concerned about that but, so strong and big are these horticultural industries that everyone is on a high and business is good, and they are doing well. Where the issues in some other places are, how expensive is water going to be? … (but) The permanent plantings people have to buy it because they need to keep their trees and vines alive, other people can sit back and not use it. [I4 Water Broker]

Negative economic impacts

As could be expected, given findings from other studies, many participants talked about economic impacts resulting from the Basin Plan. These effects included:

Economic decline and uncertainty

Irrespective of whether participants saw themselves as benefitting from new water allocation arrangements, most were concerned about what they saw as economic decline in their region, or local township. There is no doubt that drought, international trade agreements and fluctuation in commodity prices have also impacted on the economies of businesses, towns and regions and participants were cognisant of this. Generally, they believed that the Basin Plan was yet another significant issue for farmers to deal with. For example, the CEO of Australian Dried Fruit industry noted that while plantings had been decreasing significantly, because of those other global issues and that

[Plantings had dropped well before the Murray Darling Basin plan was brought in, and simply because of global commodity prices, and the competition coming out of California and Turkey. But, certainly the drought combined with the introduction of the Murray Darling Basin plan, had a fairly deleterious effect. [I16 CEO National Industry Body for horticultural produce]

Producers that have to buy in water often struggled over the uncertainty of supply and planning for the future. One interviewee said that it can be worse than a drought, and he had heard on more than one occasion farmers say: "You know what? I can deal with drought. I know it’s going to end. I
know it’s going to finish ... I’ve got enough equity in my property”. In contrast, managing and budgeting for water, he said, “They don’t know, and they can’t say what’s going to end, because they’re not sure it’s going to end. So, it is a complete uncertainty, and I’d say ... people are not coping with this as well as they cope with drought.”

As discussed in the Cummins (2017) report, under the Basin Plan water recovery has increased water allocation prices (for given seasonal conditions), and there are now many number farmers highly exposed to water allocation markets given their reductions in held water entitlement. Particularly for dairy farmers this adds to their uncertainty:

*We do not have confidence in the industry in our region anymore. It is prohibitively expensive for young farmers to buy into a dairy business in our region. The first thing you look at when looking at a property is, how many deliver shares are attached to that property? We have the next-door neighbour for sale at the moment, we’re not rushing to buy him because we don’t have confidence in the ability to continue to move our business viably forward with the current environment and the current issues that are at play with water [I24 Irrigated Dairy Farmer 3]*

There was a sense for some respondents that a lack of certainty around availability of water and prices, was also hindering investment in future infrastructure.

*If we had security of water in the long term it would give us a lot more incentive to invest in infrastructure whereas not knowing every year what you are going to get means that you can’t develop that land to the best of its ability.” [I22 Manager Stock Food Processor/Exporter]*

**Workload and nature of work**

The increased workload impacting on families has been discussed in this report. Many participants commented on how the Basin Plan had contributed to increased complexity and levels of their workloads. Some talked about how these features had made farming less attractive to potential young people looking to invest in farming. Participants talked about how those farmers who were “doing it tough” financially were unable to afford casual help/staff that would help them manage the extra work, and sometimes had to involve their wives and/or children instead. Other factors were mentioned as contributing to the difficulty of obtain farm labourers. One participant noted:

*Because of the uncertainty, mainly to do with water, you’ve got fewer people to actively try and do the work that you want to do. There’s no one living out here anymore, it’s very hard to even attract a worker, because there aren’t the people interested in farming. [I13 Horticultural irrigator/exporter]*

Some participants talked about how they dealt with changed work regimes by developing more innovative practices and niche crops. One irrigated dairy farmer reported how he had changed the way he worked by downsizing his property and moving into organic farming to protect himself from ‘external’ forces of government and market vagaries. Another mixed cropping business was growing organic fruit to access niche marketing opportunities. A water broker described how he has seen positive and innovative changes in the way people were farming such as growing more fodder in spring & autumn versus flooding paddocks in summer.

A few of the dairy farmers we interviewed, noted that the requirement to purchase water for irrigated pastures has led to an increased reliance on complex feeding systems with one saying how in the past:

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31 Cummins op. cit. p. 98.
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We used to only feed out hay in the winter to keep them going along, now we make up a ration for them (based on advice from a nutritionist) so, our cows are on the feedpad every day of the year. [120 - Irrigated Dairy Farmer]

Another dairy farmer spoke about the risks around managing animal nutrition:

We have to now buy that feed in because you couldn’t grow it, you didn’t have water to grow it, and going to all that cost and expense and maybe you’ll still not see a higher milk production and even if you do, it still costs you so much more than is really viable, but you do it .. you grit your teeth because you’ve got livelihoods and your own financial situation at stake”. [124 - Irrigated Dairy Farmer]

Water delivery costs

Delivery share charges were mentioned by about one third of participants. Repeatedly we were told that for many farmers the costs of the delivery share was “very, very sizeable” and “the biggest cost of getting water”. One respondent (a Financial Counsellor) reported that delivery share debts were quoted as high as $100,000. And despite the fact that some farmers “haven’t seen water for years”, they still owed Goulburn-Murray Water for delivery share costs. One participant who was irrigator farmer said, “the cost of delivery shares is currently exorbitant and it’s a ticking time bomb waiting to explode”).

Another participant who is a farmer spoke about the financial burden to her business of delivery shares. She explained the situation as follows:

You have less, and less people being charged more and more fixed costs and my personal bill is $100,000 just for our one farm, and then if you add the other two farms, that makes it effectively $200,000 of fixed charges without any guarantee of water delivery. The impact that that has had on the confidence of farming in our region is significantly ... It’s becoming a catch 22 as less and less people are paying more and more fixed charges, land prices go down, water prices go up, water moves out of the district, and it becomes less and less viable for us to produce milk in the region. [124 - Irrigated Dairy Farmer]

Other service costs

One interviewee noted how that the injection of government funds into improving infrastructure was having a consequence that many in the community believed was inflating the price of certain services (such as hiring an excavator). This was because some service providers took advantage of the opportunity to increase the cost of their service and charge higher than normal ‘government prices’. The interviewee reported how it almost became a competition with great glee, people shared their stories at the pub or footy of how someone had ‘gamed the system’ by charging inflated prices for government:

When an authority comes in to do any sort of work, those suppliers of goods and services rub their hands together and know that the cash cow has arrived...there were two types of prices there, the price for the government and the price for the local irrigator, or his regular customer [16 Rural Financial Counsellor 2]

Income – cash, in kind

An irrigation dairy farmer talked about how it can now be more difficult to get bank financing to purchase land, because water is valued more highly than the land. He referred to the current situation is akin to ‘gambling’ where some farmers have gone under where as others have ‘done
very well’ out of it. He talked about how he had previously sold water to the government for ‘a good price’, then purchased it back for much less than he had sold it for.

Others talked about the direct drop in income experienced by small businesses, relying on farming.

_If you have got someone selling farm chemicals or fuel, all those inputs and activity is down, there is very few businesses that can cope with a 20% drop off in sales when something like that comes along, it’s a serious loss of business and can lead to people not surviving or half giving up._ [I4 Water Broker]

**Energy costs of irrigation infrastructure upgrades**

Two irrigated farmers brought up the environmental costs of moving from a gravity-fed irrigation system to one that now relies on electricity. A dairy farmer noted that ‘our ancestors put gravity in with the irrigation system through this whole area, which cost you nothing to run’ but now they are pumping water onto land that was driven by electricity leading to concerns about the greenhouse effect and escalating costs.

_The silly part about all this is that our ancestors put gravity in with the irrigation system through this whole area, which cost you nothing to run, but now we’re pumping water onto land that was gravity fed before and we’re talking about greenhouse effect and all the rest of it._ [I1 Irrigated Dairy Farmer]

The recent dramatic increase in electricity costs was thought by one participant (a mixed cropping irrigator) to be having a significant impact on their finances:

_We replaced 16km of channel with underground pipes and have definitely increased the efficient use of water and give us more options to grow different crops and potentially be more profitable and productive. But the flip side of it is that it’s harder to be profitable because of having to put the water through pipes and the electricity costs have essentially doubled since we put this new infrastructure in._ [I23 Annual Crop Irrigator]

**Disruption of local economies**

Several participants talked about negative ‘flow on’ effects from the Basin Plan to non-farming businesses. These consequences included the loss of people in the business community, difficult times for businesses servicing residences generally and farming in particular (e.g. plumbers, mechanics, re-sellers). It was not clear to participants how and to what extent other industries and businesses would fill the gaps.

_You hear of some business people who identify that there is not a great future for them anymore and they want to sell or move on or go somewhere else where they figure they have got a better future. When farming activities contract that much that there are just not the dollars floating around in communities …there is very few businesses that can cope with a 20% drop off in activity or sales._ [I4 Water Broker].

_[One of my clients] ... he was milking 300 cows, he was employing two people, a husband and wife combination, employing two people to help on the farm as a relief milker. He used to spend over $100,000 with us each year and another $100,000 within the community on electrical repairs, fencing, you name it to do with that farm. So that’s probably $200,000 for one farm now gone._ [I7 Manager, Farm Supply business]

The participant also talked to local businesses in the nearby town that were ‘struggling pretty heavily’ but that this may not be obvious if you walked down the street. He said that despite many of the shops in the main street being open for business many wanted to sell. “You would find have 90%
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wanting to sell and there is probably, 50% who have their businesses on the books now to sell and can’t get anyone to take them over”. This participant was not confident that other industries would fill the income gap left by declining farm business. He felt that perhaps:

Tourism will take over X amount, the solar panels that we’ve got coming into the area will take over X amount but it’s still not going to be a substantial income like farming produces into an area and when a farmer has got money, he spends it. [I7 Manager, Farm Supply business]

Participants also expressed concerns about economic benefits flowing out of local economies to overseas with foreign investments. One participant said,

the corporatisation of farms is a big issue because of the same reason. With small family owner farms, the profits came to stay in the district, but with corporate farms, the profits go wherever the head office is and it may or may not be in Australia even. [I18 Dryland Farmer]

Another topic frequently coming up in the interviews was unfavourable flow-on effects that result when a grower has to cut back on water. For example:

It’s not just the grower, it’s the massive flow-on effect to the whole community. If we only got half our water, then the transport driver’s only going to be carting half the fruit. He’s going to put his truck drivers off. The packing shed’s going to only need half the packers, and they’re not going to be able to afford to keep their staff. The flow-on effect is huge, and then that affects the schools, because you haven’t got the people staying in the region. The teachers leave the area. Then your facilities just all decline. You don’t notice it, you don’t notice. It’s not a sharp decline, it’s just a gradual, gradual, gradual, and you realize there’s just less and less available. Then you have to travel further and further to get services. It really doesn’t pay to dwell on it for too long. [I13 Horticultural irrigator/exporter]

**Burden of debt – current or future generations**

The participants who were working as small business advisors or financial counselors believed that the policy changes around water purchasing had exacerbated financial difficulties for some farmers. In particular, they noted that farmers who would need to buy-in additional water but lacked the strategies for managing their farms in lean water years will inevitably go broke.

What we’re seeing is that, if you’ve sold your water off the farm and you haven’t put in place a good risk strategy for managing your farm in the future and being able to irrigate it and not be at the mercy of fluctuating prices, then you’re stuffed. [I6 Rural Financial Counsellor 2]

They noted that the burden of debt can take time before financial ruin occurs (e.g. it depends on how long the farmer can keep up debt payments). Consequently, it was observed by several financial counsellors that they felt some farmers were continuing to operate unsustainable businesses for a very long time.

That’s what we see, a group of 10-15%, of irrigated properties that will never recover, but they continue to operate because they know that the number one person they have to pay is the bank, and beyond that they can test the patience of other creditors [I6 Rural Financial Counsellor 2]

One horticultural grower reported that she was seeing an increase in bankruptcy similar to the drought of the late 1980s when many farmers went bankrupt. In recent times she said,

Bankruptcy is just absolutely phenomenal. The numbers that we see, both personal and from people on farming communities, is on the increase again. [I13 Horticultural irrigator/exporter].
The burden of debt and the potential impact of uncertainty around the future regarding access to water allocations on future generations was also raised in the interviews.

*I don’t have confidence in the ability to continue to move our business viably forward with the current environment and the current issues that are at play with water.* [I13 Horticultural irrigator/exporter]

This problem was a significant issue where properties have been in the same family for many generations. Almost every farmer who participated in this Project proudly stated that they were either a fourth or fifth generation farmer working the same patch of land. One respondent noted how difficult it was to capture the intangible value of these properties when considering succession planning.

*I deal with people who have ... got themselves into all sorts of trouble, because land, we all hold that pretty dear. It's something for a farmer when he's spent all his life on the farm, that's his superannuation. That's his retirement. That's what he wants to pass onto his kids. So, yeah, I guess there's a real reluctance to accept that the land, the economic failure of the land is not the price that people want for it. You have a very difficult thing costing it.* [I3 Small Business Financial Adviser]

**Family and community impacts**

Participants believed that uncertainty around water has generated anxiety and depression in many landholders, which can have negative influences on relationships (within families and between generations). An example of this view relates to the reluctance by some young people to take on board a career in farming:

*People have started really struggling with a lot of things and struggling with their farming enterprises. In turn, that's affected relationships and it's affected a lot of the younger generation coming forward. They don't want to have this... Previously they looked at farming, as some freedom, something they enjoyed, something they'd love to take on, and all of a sudden they're like, "Hm. I don't want to see mum and dad struggling like this.... If this is the anxiety it creates and the pressure on relationships and whatever, I just don't want it.* [I2 - Rural Financial Counsellor]

It is not simply the reluctance of young people to take up farming that is a cause for concern by participants. Some of them (mostly those who were farmers) talked about not necessarily wanting their children to ‘take up the reins’, because they worry how their children will prosper, given a perceived insecurity of water supply.

*It’s just the insecurity, it’s just you get tired of it, I suppose. I mean we’re here because we’ve got two sons who’ve come home on the farm, and the second one came home, I was shocked, and I thought why? Why? Why? And although for us it’s a good feeling having them home, but you do ... I worry, I worry all the time about their future here. Whether one day they are going to have to walk away and that will be heart-breaking. It’s not our generation having to do it, but the next generation. I can’t see the way the water situation is going, it’ll be viable anymore, it’ll just be too expensive.* [I13 Horticultural irrigator/exporter]

*If my boys said, "We're thinking about becoming farmers," I'd bundle them up in the car and drive them out to Ayers Rock and have an intervention.* [I6 Rural Financial Counsellor 2]

**Demographic change & reduced social activity**

Many respondents talked about changes in their communities relating to less general social and economic activity in towns, which they felt was linked to people’s reduced income. Less income meant less spending, which in turn slowed business and social activity in the town centres. People
were not getting out as much. Less irrigation farming was seen to be changing not just the social profile of these towns, but also the very appearance of the streetscape. Some participants described these issues in terms of a kind of domino effect, whereby the decline of irrigation in some areas was the catalyst for a whole range of other negative impacts:

I can see it driving down the main street. ...in years gone past, the local farmers around here would build a new house, buy a new car - that’s not happening anymore... the cash isn’t there, and if it’s not there, it’s not going into the town. There’s nothing happening in the towns. They’re closing shops, and walk into a store, and the main streets have no people, because they haven’t got any cash, they can’t go shopping or whatever it might be. ...It’s not much fun. [11 Dairy Farmer]

Respondents also talked about how less irrigation contributed to fewer people in their towns, which in turn contributed to a loss of community cohesion, as illustrated in the following quotes.

The flow on effects on the community of the Plan means farms are a lot bigger and generally the neighbour buys the other out. Along this road here, an 8km stretch, there was 6 farms, now its owned by three. The families just aren’t there. And they were the ones that went into town and bought at the local shops. And it flows on from there and all the services. When I went to school there was 700 kids at Cohuna now I reckon they’d be lucky to have 300. [120 Irrigated Dairy Farmer 2]

Tooleybuc is going to lose its sporting club, it’s on a very thin edge at the moment. That will have a massive impact because over the last 30 odd years, 20, 30 years, that club has funded the football club, the tennis club, the bowling club but There’s just not the people in the community to support it anymore. [113 Horticultural irrigator/exporter]

So, for every one of those paddocks that no longer have permanent water on them, or are no longer being watered, there is a huge reduction in the money generated in this shire. Because of that, then the number of families being supported by irrigation in the shire is down. Then because of that, it means there are fewer kids at school. There are fewer people to support the CFA, which depends on volunteers. There’s less money being spent in the district. It really impoverishes a town like Kerang or Cohuna. [118 Dryland farmer in irrigation region]

Loss of social capital

Some participants believed demographic change was reducing communities’ social capital, such as having sufficient numbers of willing volunteers. Another interviewee who had lived in an irrigation town for decades commented that following the millennial drought, the changes in irrigation led to changes in demographics which affected the pool of available volunteers in communities.

I’ve noticed a definite deterioration in volunteering - when I speak to the lions and Rotary clubs, they will say they find it really hard to get an injection of young people into those clubs. It’s definitely something I have noticed over the last five years. [114 CEO Family Support Organisation]

Basically, it’s taken, a third of the community out as they’ve sold their farms and moved on to other areas. And when you’re looking at, okay, three people, five people in every house, all of a sudden, that house is no longer there or it’s vacant, which means that when you are looking for community members to help with working on any subject, whether it’s football clubs, whether its community clubs, the people just aren’t there anymore. And you are relying on the same dozen people that go to every meeting. [17 Manager, Farm Supply business]

In addition to demographic change leading to a kind of fragmentation of community activity, some respondents spoke about reduced community cohesion resulting from people feeling they have less free time to contribute to community activities. Participants spoke about how people having to work longer hours on their farm to keep their operations financially viable.
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A lot of people just say, “I haven’t got the time to do that,” because whereas they might have employed a casual on their farm ... If we’re talking about dairies, for instance, they might have employed a casual milker a couple of days a week and had the time and even the energy to get out and socialise and organise community events and do things. Now they’ve pulled back. They’ve tightened their belts, and there’s not so much employment available. They’re doing it themselves. So, people are working a lot longer hours and putting a lot more into their properties or their farm enterprises... And not putting so much into the community. [I2 - Rural Financial Counsellor]

Demographic change and community infrastructure/services

The trend of outward flows of people and businesses from irrigation areas is seen by participants to be having an effect on service and infrastructure provision in some towns. One participant felt that in their town where there was growth in young families there was a corresponding need for affordable housing and childcare, which was not being addressed. Another believed that recreation opportunities were an effective way to bring people together and increase community cohesion:

“You know, the government wants people, and needs people, to live in these remote communities, (so) they’ve got to have something for us to do at here. There’s got to be some sort of stress relief or there needs to be some recreation value to the water. [I5 Manager, Caravan Park]

A tourism operator that relied on environmental flows for their business noted that greater reliability of water in the Lake has “definitely lifted the spirits of the community” compared to when it was dry.

Now they’ve got water back in the Lake everybody’s taking a bit of pride in their property, and putting a lot of time into building the community up, giving it a bit of a facelift. [I5 Manager, Caravan Park]

This included changes to infrastructure such as intersections, pedestrian crossings, footpaths around the lake and a decking and café on the fore shore, as well as promoting Lake Boga.

Strengthened community cohesion

Some participants talked about examples of social activity that remained strong despite demographic changes (e.g. lower enrolments in smaller schools) they believed resulted in part from implementation of the Basin Plan, such as church services attendance, community participation in local sports, and the Country Fire Authority.

Growing up each farm had 3-4 kids and average of 500 acres now the church which used to have 60 kids at Sunday school doesn’t even exist; same for football, cricket and tennis teams... The one area that the community does come together is the CFA where there is one member from most families. [I11 Manager Intensive animal Industry/farmer]

The perception of a ‘common enemy’ was seen to strengthen community cohesion- albeit in a less than totally positive way. One participant felt that perhaps concerns about management practices in the Northern part of the Basin brought people together in a shared sense of outrage:

In this district at the moment, [people are] cranky at irrigators up in the north of the basin. So, the local community saw that Four Corners episode as a great thing because it’s brought it all to a head and it’s actually united the three states in the lower parts. South Australia, Victoria, and New South Wales irrigators and environmental people are all saying, “Yeah, pull ’em into gear”. [I17 Manager, Tourism Tour Business]

Conversely, another participant believed that once the various state or federal elections had passed, there was less negative talk around about the Basin Plan or the MDBA. Yet another participant
stated that in localities that were experiencing growth there was the need to build community cohesion through the provision of effective services:

We're seeing some mobility of employment in the area and people are looking towards this region to relocate here, but we need services such as affordable, quality housing and childcare to retain new employees and then put services put around them. But we need to do it quickly or growth will stall in this part of the basin. [I21 Consultant]

Social differentiation, inequity & marginalisation

While participants referred to shifts in irrigation practices across the Northern Victorian community that appear to be changing the demographics, they also believed the Basin Plan was creating or widening a divide between the ‘haves and have nots’ or between ‘winners and losers’. Many participants, including those who felt they have benefitted from the implementation of the Basin Plan, were concerned about such divisions.

It's definitely a different dynamic than what it was in the 80s, early 90s, but there are certainly some people that are being hit hard at the moment as well. It's like there's two alternates here and they're both at extremes. One's doing really well and at the other end of the continuum things are tough for people. [I14 CEO Family Support Organisation]

I live in an area that would be well described as being a winner in terms of irrigation. If there are winners and losers, where I live, they are winners. I have for a long while been concerned about the losers in places where I have worked and a lot of water, permanent water has been traded out of those areas and people have, some people have dropped the bundle a bit, realizing that their particular wealth, part of their wealth has gone, and a lot of people are concerned about the loss of irrigation entitlements out of an area. [I4 Water Broker]

Some participants were worried that anger and resentment towards the ‘haves’ (e.g. those benefiting from on-farm grants) was increasing and that not enough was being done to address structural problems leading to possible inequities in accessing water resources.

People are witnessing those levels of investment going on and if you're in the right queue, or close to the front, then fantastic, happy days, you've got someone willing to help you with your improvement, (but) there was a disparity of difference between the haves and the have-nots. Those that were in the right queue and got first choice and a nice purse of money made available to them, and then there was those that were waiting, waiting, waiting. Resentment, anger, builds and people lay the blame fair and square with Goulburn Murray Water. [I6 Rural Financial Counsellor 2]

The modernisation plan which means its drawn out of a hat who gets the money, and this has caused a lot of animosity in the area where some farmers have got the money and others have missed out. There would have been better ways for the plans to have achieved the water such as targeted by backs in areas with low productivity which would have led to less animosity in the community. [I12 Mixed business irrigator 2]

Another kind of group differentiation which can result in marginalisation was noted by several participants. Despite many participants being critical of the way that water authorities have designed and implemented programs, some also expressed concern that water agency staff can be ostracized by members of the community and that this had been a fairly common phenomenon. The following quotes illustrate this situation:

I avoided telling people that I used to work with Goulburn Murray Water, because it would just hijack the conversation. They then want to relate to me a dozen stories about bad experiences with the authority. [I6 Rural Financial Counsellor 2]
Another respondent talked about two local families in her community where each had an adult working for the local water authority. Negative comments about their employer had the impact of ostracizing these families as described:

*We also need to acknowledge the local connection officers, who come to the farm and speak to people. They see the pain and they have to get the information out, but it has a huge impact on them too. I know two of them won’t go out socially in the district anymore because of the comeback that they get from local people who have been severely impacted by what they have had to tell them. And it’s not their fault but it’s had a huge impact. Now they don’t go out at all. It’s terrible.* [110 Mixed business irrigator]

**Community identity and cultural heritage**

Community identity refers to the way communities are known and experienced; the ways people come to connect with communities and see themselves as part of it/them. This may in part be driven by locality but can also be influenced by common sets of values, interests or beliefs, by relationships with others within a community and by common practices or purpose. Cultural heritage helps inform the way a community sees itself and helps to build a sense of common purpose and values.

**Cultural diversity**

Participants had positive or slightly negative views about having workers from a variety of cultural or ethnic groups within their communities. For example, a more positive attitude towards cultural diversity was reference to an increased cohesion with the local Aboriginal community.

*So, we had this indigenous population and when the Pacific Islanders came, there was a lot of friction and unrest between those two groups and it sort of simmered away and festered in the end to where it became quite nasty, but they have sorted that, completely sorted it and it’s now a very happy community where those two groups get on well, there has been lost of intermarriages.* [14 Water Broker]

Another example of a positive attitude to increased cultural diversity was one respondent who had spent his whole life in Mildura. He noticed a greater vitality in many towns in Northern Victoria:

*Whereas the immigrants in the area used to be mainly Italians and Greeks; now you can walk down the street and find any number of people from diverse backgrounds; Italian, Indian, Sudanese, Chinese as labourers on the farms or as refugees* [18 Fishperson]

Two participants discussed the influx of semi-skilled workers into towns such as Robinvale to meet the employment market demands, and that this influx mainly consisted of people from an Asian and Pacific Islander background - thereby increasing the town’s diversity and population. They believed that some families have chosen to remove their children from the highly multicultural school environment, busing them instead Mildura. They referred to movement of buses of school children out of the area every day as ‘white flight’.

*Some people, to be perfectly honest, are uncomfortable with the schools where they have got a very heavy ethnic mix.* [14 Water Broker]

**Changes in local traditions**

Sport in rural, regional and remote Australia has been found to contribute positively to community identity and sense of place. Several participants commented on the negative changes to local sporting traditions because of declining population which they believe has been an impact of reduced irrigation in some regions. Although many football clubs have either had to amalgamate or
disband in recent years, other football clubs had gone from strength to strength, often by raising community funds to ‘buy in’ highly skilled players, as noted by one participant.

*The (Kerang) football club has been very successful over the last 10 years, but the local cricket and tennis have dwindled badly ... there is probably about six tennis teams out of the competition that aren’t there anymore, six or eight. As far as cricket goes, there is probably four cricket clubs that I can think of quickly that have disbanded.* [I7 Manager, Farm Supply business]

**Changes to farming community identity**

As noted in the discussion of impacts on family and communities, there has been a perception that some individuals and communities are doing better than others since the implementation of the Basin Plan. Participants refer to towns acquiring an identity of being a ‘winner’ versus a ‘loser’ from the changes to irrigation policy. One participant who felt a strong sense of pride in his community believed that:

*Some people from Swan Hill and Mildura, our two neighbours, still think that Robinvale is a bit of a basket case but people who live here know it’s not - there is a fair amount of respect from everybody to their fellow townspeople and it’s a pretty good place to live and it’s a great place to work, if you want to work.* [I4 Water Broker]

This observation is supported by the fact that Euston Club had recently undergone a club-funded investment of $3.5-million-dollar renovation. The town also supports “three very busy banks” for a population of around 4000 people.

Other respondents in the GMID, further to the east of Robinvale, worried that the trend of people leaving farming in the district, which results in other businesses leaving, would mean the future identity of their town will be a negative one and its cultural heritage will decay. They worried that this would in turn, discourage people coming to the town and lead to a downward spiral of community vitality:

*I think that this is going to be a dry, dusty town soon (when) water is not secure so this town is not secure ... maybe it’s not the place I should be residing in...* [I2 - Rural Financial Counsellor]

*There is growth in Mildura Local Government area with a lot of land that has been excavated and developed into other areas of industry or it’s been developed into housing projects, but I also have a sadness to it, because the Chaffey’s founded our area, and we don’t have that same level of horticulture that we used to.* [I14 CEO Family Support Organisation]

As one person commented, population decline can also alter the character of an area

*It’s just not the same, they are missing people that were traditionally always there and some farms that used to be viable irrigation farms are now just retirement properties.* [I7 Manager, Farm Supply business]

**Obligations to living elders, ancestors**

Some respondents talked about an obligation they felt to keep water in their community for the sake of community prosperity. Even though they discussed that they have a right to sell it to the highest bidder, they felt that if they could sell to a local buyer then this would keep the benefits local.

*We tried to sell as much of the water into the area as we possibly could, that we were given to sell, rather than put it on the open market and let anyone take it.* [I7 Manager, Farm Supply business]
A sixth type of impact investigated with participants were impacts related to various institutional, legal, organisational and political processes. The pressure to implement particular policy or management initiatives can exceed the capacity of agencies and communities to deliver optimal outcomes. In turn, this reduced capacity can lower the social acceptability of a policy or management plan, which inevitably impedes the success of what was originally being proposed – however scientifically sound it may be.

Participants spoke to a range of processes they felt were inappropriate and ineffective, including engagement and communication plans, irrigation improvement schemes and general procedures associated with water markets. An overall theme in this category of impacts was a perceived lack of fairness in the processes of water trading schemes that were not being addressed.

Need for improved engagement processes

While many respondents noted the general need for improvements to the overall planning of water management through the Basin Plan, there were consistent comments made about the need for improved engagement and communication processes. This type of concern focused on engagement with stakeholders and communities from the early days of the Basin Plan to currently and beyond – participants believed the engagement was more about telling people what was going to happen versus sincere dialogues with communities, as is illustrated by the quotes below:

*I just think it [consultation] was dismal. You can be so busy surviving on the farm that you don’t have a lot of time to actually go to the meetings. But they weren’t very well received in the area. I guess it wasn’t about consultation, it was about telling people what was going to happen. It wasn’t asking them what we wanted, or any discussion in it, it was ‘this is what’s going to happen’. [I13 Horticultural irrigator/exporter]*

*We’re from the government This is what we’re going to do” with token input, that has led to problems. [I3 Small Business Financial Adviser]*

As discussed under Environment, Others felt that more could be done by the authorities to communicate the environmental benefits:

*As farmers we’d like to see where all this money is going for the environment; something tangible. What is it doing for these wetlands or where it is going we really don’t have a lot of info on that and would like people to talk to us about that as we don’t have information on that. Because that money is going out of this community as the productive water isn’t there and we don’t see a direct link of what these outcomes for the MDBP are. [I23 Annual crop irrigator Male]*

A participant pointed out that there were low levels of understanding about the Basin Plan across the community:

*To be completely honest with you, a lot of people didn’t know about it, which I find astounding I don’t think, people are aware, there are pockets of the community who have an understanding whether because they take a particular interest in this issue or because it impacts them directly. Anything more broadly than that, I’m not sure that people understand it. [I14 CEO Family Support Organisation]*

One participant who is a rural financial counsellor believed that not enough early work had been done in the Basin Plan’s community engagement processes to help people to better understand the intricacies and complexities of the Basin Plan. This participant cited communication materials that were overly technical and dense, which made it difficult for people to fully comprehend what the
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Basin Plan meant for them. This participant felt that where people are unable to determine the implications of a management initiative – the resulting uncertainty will then breed mistrust of water authorities, as has been noted previously in this report. Other participants talked about people seeing water authorities’ engagement and communication processes more tokenistic than sincere.

Another participant felt that the authorities could have done better at illustrating the benefits of the Basin Plan to land managers and primary producers, not simply frame the Basin Plan as something that would help only the natural environment, and enlist the assistance of groups with credibility with sections of communities to do so:

*When there is all this talk about the Basin Plan, it’s always about, what is needed for the environment. It may well be needed for the environment, but it was really never explained that there was anything in it for dairy farmers and people who are doing it tough. Is there an argument or another side of that discussion where you can say…this will be good for you because, I’ve never heard anyone say that, it’s just another hit in the head.* [I4 Water Broker]

*It’s got to be constant and it’s got to be kept going for a period of time. You can’t just think, well, I’ve gone out and done one presentation.* [I17 Manager, Tourism Tour Business]

It was also noted by some participants that the water authorities’ and others’ community engagement processes need to be more inclusive of people from an aboriginal cultural background:

*We need to have more discussions with our indigenous communities around water and the use. This was initially missed in the plan and thrown in later on, but they need to continue as it is very important to our indigenous community’s heritage.* [I21 Consultant]

However, there were also participants who felt that there was a concerted effort by the MDBA and State Government to be inclusive of Aboriginal groups in the engagement and communication for the roll-out of the Basin Plan. These participants said:

*For a start, it really insisted on almost over engagement of aboriginal communities. Such as having the community out on site when there was construction works and monitoring. And this allowed a far greater involvement for those aboriginal communities to know that what was happening with the water so even if they weren’t involved or interested in the past, all of a sudden, they were taking interest. So yeah, I’d say that over requirement for engagement is sometimes what’s required so you can actually get to where you want to go.* [I17 Manager, Tourism Tour Business]

*It’s a hard one because we’ve got an indigenous community, through the three states that are being asked to be engaged at a lot of levels. The indigenous community have generally been really positive about it, looking at options and making suggestions, but they’re getting demands from so many different areas, and they aren’t that big, they don’t have a big resource pool. The government departments want them to be involved, so they’re bending over backwards to try and get them engaged and I’m not saying the engagement’s negative -but they’ve been dragged from pillar to post to satisfy all these different government departments. But again, they can still have some great views and values of the waterway.* [I17 Manager, Tourism Tour Business]

Lack of trust in the authorities

As suggested above, the interviews revealed a theme about communities’ low trust in – even strong anger directed at - water authorities. One participant talked about how some growers’ anger and frustration drove some inappropriate behaviours that resembled a kind of “payback type approach with the Authority.” There has been suspicion of water authorities’ trustworthiness – that is, the authorities’ desire to consistently and fairly meet communities’ interests and/or their ability to perform their duties adequately:
We're gambling big time now, but the government’s the problem when they enter and exit the market. That’s where the trouble is because we can’t control it. We understand weather okay, and the risk in farming, but when the government starts to play God, I can’t factor government. We don’t trust them, I don’t trust either of them. They’re bad, bad. [I1 - Irrigated Dairy Farmer]

I don’t think the trust has ever been there. Whilst there’s some good individual relationships from the members of Goulburn Murray Water, the staff members, with the individual irrigators, I think collectively, or the view of the organization is that they’re just not there to support the irrigator

Any perception of equality has long gone with every iteration of the plan changing the rules for individual irrigators. [I10 Mixed business irrigator]

Some respondents were concerned that community mistrust of the MDBA would negatively affect peoples’ sense of agency – if they doubted that water authorities would genuinely listen to their concerns they might not bother to raise them. In so doing, further feelings of hopelessness and/or apathy would grow. For example:

Many of the people I know are just talking about it amongst themselves. They haven’t raised it at a council level, they haven’t raised it with their local members. I think they don’t believe that they would be heard if they did say anything because they don’t have a lot of trust in government representation on a local level. [I14 CEO Family Support Organisation]

Concerns about the Connections Projects

As noted earlier, some of the mistrust participants spoke about were not directed at the Basin Plan per se, rather at other water management projects implemented by water authorities such as the Connections Projects. Although not directly related to the Basin Plan this was an emerging theme that could impact on the credibility of the authority in future community engagement. for instance, some participants expressed doubt about water authorities’ trustworthiness – questioning the use of funds:

If you had set out to deliberately create a plan to waste tax payer’s money, you couldn’t have done better than the Connections Project [I11 Manager intensive animal industry & farmer]

Another participant believed that the Connections Project in the Goulburn Murray Irrigation District (GMID) has had perverse outcomes. Some farmers who received Federal Government grants to improve their irrigation infrastructure may have seen this as a kind of “free lunch”. However, in some cases the grants were insufficient to complete their projects. Consequently, some farmers had to sell off their water and were unable to afford to buy future water and the irrigation improvements remain unused:

I can take you around the district and show you farms that have got up to $500,000 of taxpayer-funded irrigation infrastructure that will probably never, ever see water while that particular farmer is there, because they can’t afford to buy it. [I3 Small Business Financial Adviser]

Participants talked about they felt that water allocation rules were constantly changing. This sense of inconsistency around water reforms can generate considerable community and family angst and indecision about on-farm projects.

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32 The MDBA reports that the Goulburn–Murray Connections Project Stage 2 in Victoria is the largest network modernisation project under the Sustainable Rural Water Use and Infrastructure Program, costing up to $1 billion by 2020. That Project aims to upgrade and modernise water infrastructure both on-farm and off-farm.
We’ve hung on and hung on for them to make a decision and we’ve had to sit on our hands in that process and put off projects which has had huge costs to our operation. [I12 Mixed business irrigator 2]

Concerns about Delivery Shares

Several respondents expressed concerns about what they felt was unfairness in how shares of water were delivered. They talked about how farmers who had opted out of buying water were still obligated to pay annual fees for delivery share costs across the system. This process was seen as something that would be very difficult to reverse:

There have been winners and losers throughout the whole process; the big corporate farms, superannuation farms, corporate greenfield sites of almonds they’re all winners. We are definitely losers. The winners don’t want to hear my words saying, "Well, your water should be contributing to delivery share from our system because that’s where it originally came from. [I24 - Irrigated Dairy Farmer]

Concerns about bureaucracy and red tape

Some irrigators were reportedly concerned about the ‘red tape’ requirements that also appear to change regularly and which can leave farmers in considerable debt for thousands of dollars. One interviewee talked about how they were required to pay for a whole farm plan before upgrades were approved, which they were later told was not necessary. It was felt by this interviewee that such an inconsistent and slow approach was not only frustrating and caused them considerable financial hardship.

Development has been put on hold while connections decide whether or not channels are backbone or not. We have been waiting 7 years for one of our farms having been given 3 different outcomes on 3 different occasions [I13 Horticultural irrigator/exporter]

Also, the increasing regulations and number of authorities that now need to be consulted for approval was an issue

To keep our pumps functional on the river there are several agencies we have to consult and basically have to get a sign off before we can do anything at all. So, the constant red tape we are trying to wade through just to do simple processes makes our job much more burdensome and difficult than it has to be. [I23 Annual Crop Irrigator]

Ethical dimensions of open water markets

Several participants were concerned about what might be an unfair advantage of ‘big corporates’ and other ‘outside influences’ on the Murray Darling Basin water market. This related to a perception that investors had ‘deep pockets’ to ride out water price hikes and the ability to scale up with vertical integration and processing. There was a sense that it was unfair for people or businesses who were not growing food had the advantage of not having to maintain a range of infrastructure costs that land owners did have. And some participants felt that buying water to produce food had a stronger public good than simply water trading for profit does.

Farmers are really struggling to have good profits and to be moving forward even with the infrastructure upgrades. Mainly because the shrinking pool of water has pushed the price up and

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33 A delivery share is an entitlement to have water delivered to land in an irrigation area. A delivery share is tied to the land and stays with the property if it is bought or sold. If you sell your property, the delivery share automatically transfers to the new owner. A delivery share does not go when the water share is sold. The water share goes to the new owner on its own and the delivery share stays with the property. See: http://waterregister.vic.gov.au/water-entitlements/about-entitlements/delivery-shares
opened up the market to outside influences where people are trading water simply for profit not productive use. I think if you’re not in productive agriculture you really shouldn’t be involved in the water market. I think it’s wrong that water market has been opened up as they don’t have to take the risks or invest in the larger infrastructure like us where we have to pay for that every year and cop the expenses. Those traders don’t have to face that. [I23 Annual Crop Irrigator]

As a small individual farmer, or as a moderate size farming operation as we are, we cannot compete against the money they (corporates) are prepared to spend on water. But they're doing so without the fixed charges. I'm arguing that the fight's not an equal one because of the fixed costs system, and they've got a big pool of money so they're taking advantage of it. [I24 - Irrigated Dairy Farmer]

Positive views about the Basin Plan’s processes

Some participants in the Sunraysia region of Northern Victoria believed that while people had been dissatisfied with the Basin Plan, the trend in community sentiment was moving towards acceptance. One participant, a leader of a horticultural organisation reported that while a:

...small co-hort have always had a lot of discontent around the way the MDBA have managed water, and the whole plan, and initially no one necessarily accepted the plan well, I think as time has moved on, people are going, ‘This is what we have to live with, how do we make it work best for us?’ [I16 CEO National Industry Body for horticultural produce]

Gender relations impacts

It is recognized that women can bear the largest and most direct social impacts from policies, programs and/or projects (World Bank 2001) such as changes in workload, roles and responsibilities in their regions. Male and female participants were asked about the impact of the Basin Plan on women and several observed specific implications for women in adjusting to the changes in primary production, irrigation management, social life and businesses.

Changed roles and responsibilities

Several participants commented that since the implementation of the Basin Plan, women have been playing a bigger role in managing farm finances and labouring on and/or off-farm.

.....dairy farming specifically, it’s actually quite a sexist business. The guys get out and they play with the big toys, the tractors and all the machinery, and they do that work, where the women deal with the accounts. (but) at times, she’s more informed than he is about their financial circumstances, and she’s frustrated because she’s communicating to him that things aren’t good. [I3 Small Business Financial Adviser]

Now, they can’t rely solely on income on the land and women have taken on a more equal role, which I thought they always had, but I think that language is getting used more and more, in that they are now going out seeking employment to generate income. They are the support to their partners [I14 CEO Family Support Organisation]

Participants who worked with clients facing financial difficulty commented on how some male farmers were denying the significance of their current debt problems, (often caused by the escalating costs of water) while their wives tried to find ways ‘make ends meet’ and to encourage their husbands to do something different in response to financial pressure.

What I’m seeing, with my clients, is where the money’s starting to dry up, the women are the ones that have to open the mail with the demands. They’re the ones that generally get the phone calls, again, with the demands for payment. So, yeah, quite often, I’ve been sitting at tables where the
wife will be in tears about the bills and hubby is saying, "Well, I've got to get out and get on the tractor. That's where the real work happens and, yeah, I'll just work harder." The men probably divorce themselves of the problem by action whereas the women 'cop it'. [I3 Small Business Financial Adviser]

The more traditional model that we see is where the wife looks after the books, the finances, reconciles the bank accounts, and the husband's out there managing the operation of the business. So, at times, she's more informed than he is about their financial circumstances, and she's frustrated because she's communicating to him that things aren't good”. [I6 Rural Financial Counsellor 2]

In some cases, increased (financial and other) responsibilities on-farm often resulted in reduced time for socialising, which some participants felt could negatively affect women more than me. As a result, the stress of not getting out could accumulate and have unfavourable mental health outcomes.

Yeah, look, it can be pretty lonely. I think that the women are probably a little bit more open that they are prepared to go out and talk, whereas the guys aren’t. [I3 Small Business Financial Adviser]

I have noticed is the women's growing role of responsibility in keeping the family together, and also the increase in their stress levels, and which has affected their mental health. The women seek counselling privately. They don’t want anyone to know that they’re seeing someone for support, external to their own family, because everyone’s going through the same issues and they don’t wish to be a burden on anyone. [I14 CEO Family Support Organisation]

Women’s growing voice

Some participants believed that all across Northern Victorian communities, women’s role in advocating for community and industry in the water management space was growing, as indicated in the following quotes:

Women are a lot more informed about water than they probably ever were, because it’s so important. Everybody knows it’s so important in their livelihood. So, women are very involved in the water industry and are very concerned and involved in the whole water argument ... I contact almost as many women as men about the water situation. [I24 - Irrigated Dairy Farmer]

We’re seeing more women in leadership roles and the plan has empowered this. And it’s not just on farm, it’s in the industry too for example companies such as Select harvest have a diversity policy. It’s a great opportunity for women to get involved in horticulture in this part of Victoria. [I21 Consultant]
5. Discussion

This Project has investigated a range of social impacts resulting from the changes created by the Murray Darling Basin Plan on Northern Victorian communities. A small selection of Basin stakeholders was asked to discuss any negative and/or positive consequences they believed have arisen because of the Basin Plan. This project identified a range of qualitative data on the different effects, which are consistent with recent major investigations into the Basin Plan’s impacts on Victorian rural communities. The Project team was also asked to test the emerging themes and stories from the interviews, against the findings of the various independent reports recently conducted into the impacts of the Basin Plan, as well as identify other emerging, relevant themes or issues.

Health and Well-Being

Our report reflects the findings of Clarke et al (2017) who noted that the resilience of individuals and rural communities is seen as an emerging issue “of concern is the adaptive capacity of people and communities is stretched as people cope with several uncertainties including water reforms”34. Clarke et al (2017) highlighted coping and well-being themes associated with some farmers not being able to pay bills which was reflected in the comments from the three rural financial counsellors and economic advisers that were interviewed for this report35.

Clearly Project participants felt that there are significant and fundamental changes underway in water management, which have been affecting individuals and rural communities in Northern Victoria. Participants primarily discussed negative effects from the Basin Plan on their own well-being, as well as on others’ well-being in irrigation communities. Participants’ comments reflected a concern about the on-going negative effects on people’s well-being (stress, anxiety, depression, relationship breakdown) because of increasing uncertainty created by the Basin Plan. For example, water pricing uncertainty was seen as yet another stressor on top of other stressful events such as the millennial drought, dairying price decreases, floods, and fluctuation in commodity prices. Dairy farmer participants in particular felt that new water allocation arrangements added further significant complexity to their decision-making processes, which in turn was creating stress and reduced resilience. Some participants were worried and stressed about the uncertain future of their farming operations and their ability to access or afford water if there was another drought.

It is likely that trends around negative well-being, as reported by participants in this Project, are being influenced by a range of interacting drivers. As noted earlier, many of the irrigation farmers interviewed were angry about the roll-out of the Connections Program and other government initiatives such as pricing of Delivery Shares, and the impact on individuals and communities in terms of what they saw as inequities driven by government. Consequently, many were angry and frustrated with government in general. Clarke et al (2017) found similar concerns about governance and consultation processes used in the design and implementation of the Basin Plan.

Quality of the living environment

Participants generally viewed environmental flows as positive where additional water was allocated (i.e. improved fishing, wildlife and recreational opportunities, reduced salinity) and negative where

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34 Clarke op. cit. p. 17.
35 Clarke et al. op. cit. p. 19.
they saw less water (i.e. abandoned dairy pasture). Some participants were unsure about environmental impacts, noting that they lacked any knowledge or evidence of environmental benefits and would like more data on this aspect of the Basin Plan. Similarly, Cummins (2017) citing the Regional Wellbeing Survey (2015) also noted that many people surveyed expected there would be effects of Basin Plan on the environment, however, a strong percentage of respondents didn’t know or were unsure about such effects. This has implications for future communication on the environmental benefits, by authorities.

Economic impacts

Many of the participants’ discussions of the economic (and other) impacts of the Plan were framed in terms of ‘winners and losers’: some people are experiencing positive impacts while others are suffering from negative effects and that that inequity should be addressed. Perceived benefits included positive economic effects such as: increased standards of living and material affluence; horticulture industry expansion and associated employment growth; on-farm efficiency innovations freeing up irrigators’ time and money; enhanced tourism; funds for farms and communities via water by-back, structural adjustment, and infrastructure works. These latter benefits have been noted by Cummins (2017) who reported that money invested in water buyback aided structural adjustment in response to the drought. In addition, the jobs growth in the North West of the state was backed up by the projections of the RMCG (2016) report which found ‘horticultural production has grown and is still growing’ driven by a ‘further 100GL of entitlement (that) will be utilised by horticulture developments currently in train particularly in almonds.

However, as noted by two participants, this job expansion was also expected to bring challenges including the impact on affordable housing, childcare and other service provision. Other negative effects of the Basin Plan noted by participants included water access uncertainties discouraging investment; increased on-farm workloads; increased expense of inputs (grain feeding); their feeling that now farmers are ‘gambling’ on water purchase decisions; and jobs decline. RMCG (2016) predicted significant jobs losses from reduced water allocation creating an overall loss in regional agricultural prediction. As one participant noted, the job loss was “a downside in the local community, because every megalitre that goes out of here, there are probably two or three jobs that are associated with that, that go off the farm”.

According to Cummins (2017), irrigators who sold water entitlements to the Commonwealth and continue to remain in farming are now more reliant on allocation purchases than before the Basin Plan’s implementation. Consistent with that finding, several of the irrigation farmers we interviewed said they were now more exposed to the temporary water market, which increased their business risks. They also felt that managing the uncertainties of water prices and purchasing required considerable and higher farm business skills, especially where prices affect profitability, increase reliance on complex (and costlier) feeding systems. Cummins (2017) also found that due to improved irrigation technologies dairy farmers are now having to integrate more complex feeding strategies into their business models.

Other participants talked about the increasing expenses resulting from changes in water infrastructure such as rising electricity prices and the fact that what was once gravity feed now relied

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36 Cummins op. cit. p. 148.
37 Cummins op. cit. p. 48.
38 RMCG op. cit. p. 17.
39 Cummins op. cit. p. 59.
40 Cummins op. cit. p. 79.
on electricity which had significantly increased farm management costs in recent years. Additional costs were also associated with Delivery Shares (paying for pipe and channel upkeep even if the water was not being purchased as it was linked to the land).

The RMCG report (2016) concluded that the GMID dairy industry was significantly impacted by the Basin Plan due to a 20% reduction in available water use - carried largely by the dairy industry resulting in an estimated reduction in the value of production across the GMID, of $580M/yr and the loss of 1,000 jobs across the region\(^{41}\). This disruption and ‘knock-on’ effect to the local economy was a theme consistently discussed by people interviewed for this Project with many examples provided in their local areas of business lost to the local economy. The negative impacts on local businesses due to population decline reinforced the findings of the RMCG study.

**Community, heritage and family impacts**

Participants discussed Basin Plan impacts relating to additional stress on family and community relationships, including fragmentation of social networks. Rural communities in Victoria have experienced important demographic change, such as a decline in young people who now represent 26% of people in 2011 the GMID down from 44% in 1971 (RMCG 2017)\(^{42}\). These changes have flow-on effects on a community’s identity and have been felt by the people we interviewed for this project.

Participants talked about missing people who have left farming, irrigation districts turning into retirement sites, and some towns being seen as places for ‘winners’ while others seen as ‘losers’.

When discussing the Basin Plan, participants noted some social tensions and conflicts resulting from: ostracization of water authorities’ staff by community members; parents’ dismay with not being able to pass on the farm to their children; and regions with in-migration of workers from different ethnic and/or socio-economic backgrounds. Clarke et al (2017) found that in-migration can sustain a population, shops and services in communities, but it can be problematic when people from low socio-economic backgrounds move to small rural communities and have difficulties obtaining adequate support (e.g. transport, social services).\(^{43}\)

Comments by several participants about their uncertainty about passing on the farm to future generations reflect the findings by Cummins regarding significant uncertainty about the future.

Clarke et al (2017)\(^{44}\) note the importance of volunteering for community and individual resilience and adaptive capacity. They reported that, a decline in volunteer numbers and availability of people’s time increases the strain on a community’s social capital and can lead to a kind of community impoverishment. Participants in this Project talked (and were concerned) about a decline in community volunteers due to population decline, and the increased hours need to work on the farm for partners and children.

**Institutional, Legal, Political & Equity Impacts**

Many people interviewed commented on what they saw as inadequate Basin Plan (and other water policy/management matters) processes, including community engagement actions, irrigation improvement schemes, and changes in water markets. This Project’s findings are consistent with

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\(^{41}\) RMCG op. cit. p. 67.
\(^{42}\) RMCG op. cit. p. 63.
\(^{43}\) Clarke op. cit. p. 29.
\(^{44}\) Clarke op. cit. p. 28
Assessing the social impact of the Murry Basin Plan on the MRGC

Clarke et al (2017) findings that people’s experiences of the Basin Plan and its associated impacts often conflated the Plan with broader water reform issues and included discussions about the Connections Project and a perceived unfairness of the Basin Plan’s development and implementation. Specific issues identified by this Project’s participants included low trust in water authorities resulting from inadequate consultation processes and inequities of water market mechanisms – especially ‘taking’ water ownership out of local communities and into the hands of ‘big corporations’.

Gender differences

Clarke et al (2017) found the Basin Plan impacts include farm families’ changed livelihoods, namely that women’s on-farm and off-farm workloads have increased. Several male and female participants in this Project noticed changes in women’s roles and responsibilities in their regions, including reduced social life resulting from increased on-farm work hours to cut external labour costs, and more business management responsibilities. Cummins (2017) found that in an environment where many dairy farmers struggle to maintain profit margins and carry significant farm debt, farming businesses will strive to cut costs where possible.

\[45\] Clarke op. cit. p. 33.
\[46\] Cummins op. cit. p. 73.
6. Conclusions

Recent research on the socio-economic impacts of water reforms in Northern Victoria has found water policy reform has had a range of negative impacts on rural communities. This Project used a qualitative research methodology to explore the ‘real-life’ stories and experiences behind the economic data and projections from those reports.

The Project Team explored impacts in irrigated communities in Northern Victoria, which included six Murray River Group of Councils from Mildura and Swan Hill regions through to the Loddon, Gannawarra, Campaspe and Moira municipalities. Twenty-four residents were interviewed.

This Project has identified a range of qualitative data on the different effects of the Basin Plan, which are largely consistent with other recent major investigations into the Basin Plan’s impacts on Victorian rural communities.

The main points arising from the qualitative interviews with twenty-four participants are as follows:

- There is greater individual and community stress resulting from more uncertainty and complexity around water allocation (e.g. water access, price and availability) and the future (for themselves and/or the next generation) under a drought scenarios.
- The Basin Plan – and other water reform processes - has created ‘winners and losers’. ‘Winners’ were horticultural irrigators, especially those funded by ‘large corporates’ with ‘deep pockets’ enabling them to weather water market vagaries and fluctuations. ‘Winners’ were also communities with increased employment that flowed from industry expansion (e.g. horticulture). ‘Losers’ were dairy farmers, especially those who sold their water allocations and now relied on ‘gambling’ on the open water market. ‘Losers’ were also the rural communities in which dairy farmers lived.
- The majority of participants supported the Basin Plan goals of improving the Murray River’s health.
- Participants also believed there was a need for better communication about specific benefits from environmental flows and the underpinning logic of water allocation patterns.
- Employment decline in several rural areas is having significant effects on small communities, which includes reduced business confidence and ‘social capital’ as people socialise and volunteer less, under increased on-farm and/or off-farm workloads, or migrate away to retire or find work.
- Many people reported that they and others in the community have low trust in government generally and water authorities in particular. While some of this low trust may partly be a legacy of historic water reform processes, people were not always highly specific in their responses.
- Some participants believed that women are working harder on the family farms and experiencing more stress and less leisure time.
- Participants views about impacts were not always linked specifically to the Basin Plan, and in those instances, were often seen to be linked to the continuing, rapidly changing water regulation (e.g. unbundling).
- Communities were seen to have made initial adjustments, but are now facing more change and adjustment under the Basin Plan.
Given the Basin Plan’s current and future implementation depends on it having predominantly neutral or positive social and economic impacts, there appears to be a need in Victoria’s regions that were subject to recent impact assessments to do more to mitigate against negative Basin Plan impacts and facilitate a wider distribution of Plan benefits.

The findings from this Project provide valuable additional information about the type of positive and negative effects on communities that can be attributed to the Basin Plan’s implementation.

In order to develop effective strategies to mitigate undesirable effects and enhance positive impacts, further investigation could be undertaken into the extent the findings from this Project could be generalised more broadly to Basin communities in the MRGC’s area. Such an investigation would necessitate use of a more expansive and randomly selected sample size of people from Victoria’s Basin communities and would examine the (quantitative and geographic) distribution of effects identified by this Project and by Clarke et al (2017) in their study.
### Appendix A: Interview Participants

**Table 2: Interview Participants by Group**

<table>
<thead>
<tr>
<th>Group</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Landholders</strong></td>
<td></td>
</tr>
<tr>
<td>Horticultural irrigators</td>
<td>I 1 - Irrigated Dairy Farmer Male</td>
</tr>
<tr>
<td>Dairy irrigators</td>
<td>I 10 Mixed business irrigator Female</td>
</tr>
<tr>
<td>Annual crop irrigators (rice, cotton)</td>
<td>I 12 Mixed business irrigator 2 Male</td>
</tr>
<tr>
<td>Mixed business irrigators</td>
<td>I 13 Horticultural irrigator/exporter Female</td>
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<tr>
<td></td>
<td>I 18 Dryland farmer in irrigation region Female</td>
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<tr>
<td></td>
<td>I 20 Irrigated Dairy Farmer 2 Male</td>
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<tr>
<td></td>
<td>I 23 Annual crop irrigator Male</td>
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<td></td>
<td>I 24 Irrigated Dairy Farmer 3 Female</td>
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<tr>
<td><strong>Upstream</strong></td>
<td></td>
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<tr>
<td>Feed suppliers</td>
<td>I 2 Rural Financial Counsellor Female</td>
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<tr>
<td>Water Brokers</td>
<td>I 3 Small Business Financial Adviser Male</td>
</tr>
<tr>
<td>Agricultural and farm services</td>
<td>I 4 Water Broker Male</td>
</tr>
<tr>
<td>Financial services (Rural financial counsellors, banks)</td>
<td>I 6 Rural Financial Counsellor 2 Male</td>
</tr>
<tr>
<td>Employment agencies</td>
<td>I 15 Labour Hire and Contracting Business Male</td>
</tr>
<tr>
<td>Services to irrigators such as system designers and installers, earth moving contractors. Herd management Fuel suppliers</td>
<td></td>
</tr>
<tr>
<td><strong>Social networks</strong></td>
<td>I 14 CEO Family Support Organisation Female</td>
</tr>
<tr>
<td>Schools – primary and secondary, tertiary Clubs</td>
<td>I 8 Fisher – Male</td>
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<tr>
<td>CFA/SES</td>
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<tr>
<td>Social support providers such as churches Healthcare providers</td>
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<tr>
<td>Rural women</td>
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<td>VFF</td>
<td></td>
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<tr>
<td>General community groups (festivals etc) Environmental groups</td>
<td></td>
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<tr>
<td><strong>Economic networks</strong></td>
<td>I 5 Manager, Caravan Park - Male</td>
</tr>
<tr>
<td>Local shops and retailers</td>
<td>I 7 Manager, Farm Supply Business Male</td>
</tr>
<tr>
<td>Employees</td>
<td>I 17 Manager, Tourism Tour Business Male</td>
</tr>
<tr>
<td>Banks and financial counsellors</td>
<td></td>
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<tr>
<td>Tourism</td>
<td></td>
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<tr>
<td><strong>Downstream</strong></td>
<td>I 11 Manager intensive animal industry &amp; farmer Male</td>
</tr>
<tr>
<td>Value add food processing and manufacturers Packaging Logistics Transport</td>
<td>I 16 CEO National Industry Body for horticultural produce Female</td>
</tr>
<tr>
<td>Businesses involved in market access</td>
<td>I 22 Manager Stock Food Processor/Exporter Male</td>
</tr>
<tr>
<td><strong>Government/Authorities</strong></td>
<td>I 19 Board Member, former Councillor Female</td>
</tr>
<tr>
<td>Local/State/ Federal Water authorities Other</td>
<td>I 21 Consultant Male</td>
</tr>
</tbody>
</table>
# Appendix B: Interview Questions

**Interview Method and questions**

MRGC Social Impact Research Oct- Nov 2017

## Introduction
- Participants have received background information on the Project, including consent form
- We ask them if they have any further questions about the Project, before proceeding

## Questions

1. **Can you tell us your name, your occupation, and what your interest in/experience with the Murray Darling Basin Plan is?**
2. **What effect(s) has the MDB Plan had on you?**

We let them speak about whatever comes to mind. Then depending on what their initial response to the question is, we explore in further detail any of the types of impacts identified by Vanclay (2002) that the Interviewee has NOT mentioned.

In addition, if in their discussion about each of the effects, if it is not mentioned and where time permits, we seek clarification on:

- Significance of those impacts: moderate, severe
- Scale of impacts: are they talking about individual, family, community?
- Attribution – are there other things besides the MDBP that may have influenced those effects?
- Temporal features – are they talking about past, current or future effects

3. **Questions as per Vanclay’s categories -**

- What effects has the MDB Plan had on your (physical, mental) wellbeing? (e.g. your feelings, your goals, any illnesses)
- What effects has the MDB Plan had on the environment you live in (e.g. how the natural environment looks/functions, your home/farm/town)?
- What effects has the MDB Plan had on your financial situation? (e.g. household income, standard of living, workload, etc.)
- What effects has the MDB Plan had on your family and/or community? (e.g. quality of relationships, inequity/marginalization, community cohesion)
- What effects has the MDB Plan had on your community’s identity and/or cultural heritage? (e.g. Indigenous heritage, ways of life; local sites; shared values)
- What effects has the process of implementing the MDB plan had on you? (e.g. consultation methods, actions of DELP, local councils, etc.)
- What effects has the MDB Plan had on women’s roles & responsibilities in the community/in agriculture?

4. **Do you have any other comments about the issues discussed in this interview?**

(Approved by Project Steering Group, 18 October 2017)
# Appendix C: Matrix for Social Impact Categories

## Seven Categories of Social Impact – As per Vanclay (2002)

### 1. Health & social well being; Individual, family
- Death of self/family members – personal loss; community deaths
- Nutrition – adequacy, security, quality of individual/household food supply
- Actual health & fertility
- Mental health & well-being – feelings of stress, anxiety, depression, nostalgic melancholy, changed self-image, general self-esteem
- Changed aspirations for the future
- Individual’s sense of autonomy
- Experience of stigmatization or deviance labelling (feeling of being different)
- Uncertainty – being unsure about effects or meaning of planned intervention
- Feelings (positive, negative) in relation to the planned intervention
- Annoyance – due to disruption to life
- Dissatisfaction (betrayal) due to failure of planned intervention to deliver promised benefits
- Experience of moral outrage about the change/intervention

### 2. Live-ability of (built & natural) environment
- (subjective & objective) quality of living environment (e.g. work/home environment or neighborhood)
- Disruptions to daily living practices
- Leisure & recreation opportunities & facilities
- Aesthetic quality – visual impacts, outlook, vistas, shadowing
- Environmental amenity value
- Sense of connectedness to place
- Quality of available housing
- Adequacy of physical infrastructure – e.g. water supply, sewage, land, roads
- Adequacy of social infrastructure – e.g. social services & facilities, education, police, libraries, welfare services
- Sense of personal safety & fear of crime; actual crime/violence rates

### 3. Economic impacts
- Workload
- Standard of living, level of affluence
- Access to public goods and services; to government and/or other social services
- Income – cash, in kind
- Property values
- Occupational status/prestige & type of employment
- Level of unemployment in community
- Replacement costs of environmental functions – e.g. cost of replacing a product or service formally provided by environment (e.g. clean water, firewood, flood protection)
- Extent of economic dependency/vulnerability (degree of control)
- Disruption of local economy – disappearance of local economic systems & structures
- Burden of debt – current or future generations

### 4. Family & community impacts
- Alteration in family structure – e.g. stability, divorce, no. of children at home, etc.
- Changes to sexual relations
- Obligations to living elders, ancestors
- Family violence – physical, verbal
- Disruption of social networks – household members with other community members
Assessing the social impact of the Murry Basin Plan on the MRGC

<table>
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<tr>
<th>5. Cultural impacts</th>
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<tr>
<td>• Change in community demographics</td>
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<tr>
<td>• Community identification &amp; connection – sense of belonging, attachment to place</td>
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<tr>
<td>• Community cohesion</td>
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<tr>
<td>• Social differentiation &amp; inequity – creation of differences between groups in a community or differentiation in level of access to certain resources</td>
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<td>• Social tension and violence – conflict or serious divisions w/in the community</td>
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<th>6. Institutional, Legal, Political &amp; Equity Impacts</th>
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<td>• Workload &amp; viability of govt or formal agencies (e.g. ability to handle greater workloads)</td>
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<tr>
<td>• Workload &amp; viability of non-govt &amp; informal agencies (e.g. community orgs)</td>
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<tr>
<td>• Integrity of govt &amp; govt agencies (e.g. absence of corruption, competence)</td>
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<td>• Loss of tenure, or legal rights</td>
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<td>• Violation of human rights – e.g. harassment, arrest, intimidation, etc.</td>
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<td>• Participation in decision making</td>
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<tr>
<td>• Access to legal procedures &amp; to legal advice</td>
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<tr>
<td>• Impact equity – notions of degree of fairness re: distribution of impacts across the community</td>
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<th>7. Gender</th>
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<td>• Impacts on women’s physical and personal autonomy</td>
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<tr>
<td>• Division of (household and/or productive) labour on the basis of gender</td>
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<tr>
<td>• Gender-based control over/access to resources</td>
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<tr>
<td>• Political and educational achievement</td>
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