

## A story 50 years in the making: The Benwell Surface Water Management System

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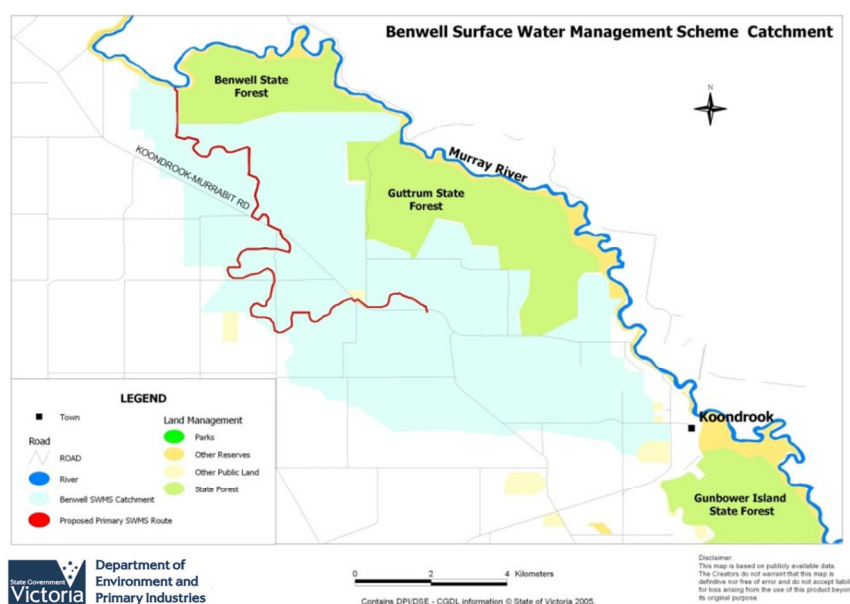
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### Introduction

The Benwell Catchment is located within the North Central Catchment Management Authority area of Northern Victoria, approximately 20 km north of Kerang and 10 km east of Koondrook. The total catchment area is 4,840 ha in size and is made up primarily of highly productive irrigated agriculture with dairy, cropping, meat and wool enterprises forming the majority of land use in the area. The Benwell Catchment is also environmentally significant as it is bound to the north by the Murray River and directly adjacent the Benwell and Guttrum State Forests (Figure 1).

**Figure 1. Benwell Surface Water Management Scheme Catchment**



Source: Department of Environment and Primary Industries (2013)

For irrigation communities in Northern Victoria, such as those within the Benwell Catchment, salinity remains a major threat to land use and presents a significant challenge to the on-going productivity and economic viability of the region. The term salinity refers to the movement and amount of salt, dissolved in water, through the landscape. Irrigation salinity occurs when irrigation water is applied to land and in combination with other factors, such as rainfall, allows excess water not required by the plant or crop to infiltrate the groundwater system and cause water tables to rise. These water tables in turn mobilise salts within the soil profile and can cause them to enter into the root zone of crops and native vegetation leading to a variety of impacts. These impacts can include social impacts on the local community and individual landowners, economic through loss of production and environmental issues such as soil salinization and loss of native vegetation (North Central Catchment Management Authority 2013). Inadequate drainage contributes to this scenario by allowing water to pond at certain points within a catchment therefore increasing the likelihood of this water infiltrating into the groundwater system.

Surface water ponding is common place within the Benwell Catchment following changes to the landscape since European settlement. This has been exacerbated because historically landowners have not had access to formal drainage systems with local reports indicating natural drainage lines, including the bed of the old 'Reedy Creek,' were isolated by the construction of irrigation infrastructure and levee banks in the mid to late 1800's (McNeil J, 2013, pers comm.). However it wasn't until the floods of 1956 that the impacts of salinity were recognised within the Benwell Catchment and the community began lobbying in earnest for the construction of a Surface Water Management System. This lobbying by local landowners has persisted for over 50 years and continues to this day.

Surface Water Management is a key component of natural resource management within the North Central Catchment and allows the 'removal of irrigation induced rainfall run off in a controlled and equitable manner' (Department of Primary Industries 2010). Access to drainage contributes towards achieving optimum agricultural production through salinity control, reduced waterlogging and enhancing environmental features within the landscape.

Surface Water Management Systems or 'drains' within the Goulburn Murray Irrigation District are divided into two main categories, Primary and Community. Primary Surface Water Management Systems are the larger of the two, attracting 100% government funding and provide the main backbone of the drainage network. Community drains are generally smaller, funded on a cost share basis between landowners and government and outfall into the Primary Drains. A potential network of 17.2 km of Primary Surface Water Management System and 36 km of Community Surface Water Management System are proposed for the Benwell Catchment. Of this 11 km of Primary System has been constructed to date and a further 7.5 km of Community System is currently in the design stage.

Local Government, Water Authorities and State Government agencies have been involved with the Benwell Surface Water Management Project since the idea was first raised by landowners in the 1800's. However their involvement in the project has been most significant since landowners began lobbying in earnest following the 1956 floods. Since the early 1990's, the North Central Catchment Management Authority (NC CMA), Goulburn Murray Water (G-MW) and Department of Environment and Primary Industries (DEPI) have worked with landowners to develop the project with construction of the Primary Drain stage one now complete and the design of three Community Drains currently in progress.

Despite recent years of drought and dryer than average conditions, salinity is still a major issues for landowners within the North Central Catchment, including the Benwell with groundwater levels still within 2 metres of the surface and the Loddon Campaspe Irrigation Region Land and Water Management Plan (2007) identifying that 'salinity has been and will continue to be, a major challenge for the Loddon Campaspe Community'. The Region is a net accumulator of salt. Maintaining water table depth to below 2 metres from the surface will achieve significant improvements for regional and downstream assets.'

### **Objectives.**

The aim of this paper is to:

- Capture the essence of why this project has displayed resilience over a 50+ year timeframe.
- Capture any lessons learnt from the Benwell project which might be useful for other Natural Resource Management and Agricultural based community groups.

### **Methodology**

The information used in the development of this paper has been sourced from face-to-face semi-structured interviews conducted during April 2013 with four key players involved in the project. Two of these are landowners whose fathers also had significant involvement in the project and two are experienced agency staff members from the North Central Catchment Management Authority and Department of Environment and Primary Industries who have spent much of their careers advocating for the project on behalf of the landowners. This is not intended to be a statistically valid sample of all parties involved, however it does include the four people identified regionally as the key players in the project and those who were determined to have the greatest insight and ability to identify lessons learnt.

The interviews were taped and transcripts produced which have then been used to identify the major themes around the projects resilience and have informed the findings of this paper and subsequent lessons learnt. The identity of the respondents has been kept anonymous and will from here on be referred to as Landowner 1 & 2 and Agency 1 & 2.

### **Key findings – secrets of the projects resilience?**

The following summarises the 5 major themes identified through analysis of the semi structured interview transcripts and identifies the key aspects discussed by both agency and landowner respondents in shaping the project, including what has been key to the projects resilience.

#### ***Theme 1. Firsthand experience of the impacts***

Throughout the interview process it became obvious that the history of the Benwell Surface Water Management project was important to its resilience as it provided the context within which all of the key drivers of the project were based. It was also evident that the history of the

project was a source of pride for respondents, particularly the landowners, who were clearly proud of the journey that their families had taken to advocate for this project.

I've been advocating for the need for drainage for more than 50 years and my father before me was advocating for it for at least 20 years before that, so it's been a long time (*landowner 2*).

Landowners spoke of family records of drainage issues within the catchment as early as 1879, however it became clear that the impact of seeing firsthand the devastation caused by the floods of 1956, was something that the respondents would never forget.

In '56' the Australian Cricket team was playing in England and at lunch time dad and I used to get a half full can of fuel in each hand and walk the half mile through the mud and put fuel into the tractor... that was something that was impressive to me, (*15 year old at the time, landowner 2*).

I recall one of my early memories was setting up a pump when I was 14 or 15 on Christmas Day and if you can imagine being 14 or 15 and being deprived of your Christmas Day, I still haven't forgotten that (*landowner 1*).

Our car stayed in '56', stayed in the garage for 5 months, not able to get out (*landowner 2*).

The quotes above illustrate the vivid memories of landowners who lived through the '56' floods and how they saw firsthand the social, economic and environmental impacts that were caused by this event. These memories appear to be an important factor behind why the project has remained resilient over such a long period of time and continues to be advocated for by these participants with the hope of minimising the potential impacts of future events.

There was a view expressed that perhaps the next generation of farmers in the catchment had not had the same experience and that future landowners might be more difficult to convince of the need to continue advocating for the project than their parents had been.

'Whether it is unfortunate or fortunate that the next generation haven't had to experience what we experienced they are not so keen. They don't understand and might never but if we get a series of wet years they will understand why we need it (*landowner 1*).

Young Jimmy up here was mad keen and he used to ask me every time I'd see him when it was going to happen and yet his son doesn't want a bar of it (*landowner 1*).

It is interesting to note that currently many of the landowners participating in the survey and design process for the Benwell Community Surface Water Management Systems are from a younger generation of farmers who would not have seen the impacts of the 1956 floods first hand and yet still advocate for the project.

Another viewpoint expressed by the agency 1 respondent was that while the past experience and history of the project had been important to the resilience of the Benwell Catchment, it was probably not a fair assumption to make that this would be the case for other comparable projects.

My experience is that not all people who have the experience will be advocates. Some of the biggest 'non adopters' have been those that have experienced it all! I suppose my point is that it is not just as simple as getting those with experience (*agency 1*).

Therefore, whilst firsthand experience of the impact that a lack of drainage can have on the Benwell Catchment was an important driver for some respondents, it should not be seen as a necessity for support of the project. Perhaps the stories of those who had experienced the impacts of flooding and salinity first hand are actually more important in providing the context within which the project sits. Such an interpretation means that while the experiences of participants may not be a key driver itself, an understanding of the history of a project and the way in which an individual landowner is connected to this history is important and can influence the approach taken when trying to achieve project implementation.

### **Theme 2. Salinity as a driver and the potential devastating impacts of doing nothing**

In discussing the history of the project all respondents agreed that it was not until the wet years of the 1950's that the full implications of the inability to drain the Benwell Catchment were identified and the threat of salinity and waterlogging to the productivity of the area became real. There was general agreement that the floods of 1956 were the catalyst for initial action and in part it is the memory of this event which has driven landowners to continue lobbying to this day. The following comments sum up some of the feelings expressed by respondents and the potential impacts of not pursuing the project.

So then of course 1956 came along and it rained 700mm which is a hell of a lot, that's double the average and it started in March and ended in November and it was just wet all the time... it was then that the lobbying started, it put the fear of salinity in people that we would all be salted out (*landowner 1*).

We had up to 200 acres that were badly reduced to barley grass with some patches of bare in them after '56'. We got the department of agriculture out to do some tests because we couldn't work out why this was going as it was, having difficulty getting sub clover established...and then of course the country was badly affected by salt. As your acreage was being badly affected by salt, you were prepared to do anything that you could (*landowner 2*).

We bought a property that is 4 km away from the Murray in 1971 and half of it was completely useless, but prior to 1956 it was good ground but it just laid for months and the water table just came up and it wrecked it (*landowner 1*).

These comments highlight the importance of a projects history (as discussed in Theme 1) by providing the context for current issues in the area. However it also became clear through discussions with respondents that the extent and seriousness of the salinity threat was also a key driver of the resilience of the project.

It's those few years that can absolutely devastate farms and their productivity that we're so ...perhaps you could say possessed by the image of them that is really a driver for us to want to get ourselves out of it (*landowner 2*).

This view is also backed up by the agency staff interviewed who agreed that the potential impacts posed to the area by salinity were a key driver behind agencies and landowners persisting over such a long period of time.

I think that there was a general community concern about the longer term issues I suppose with the lack of drainage on productivity and they were looking to have a prosperous irrigation future (*agency 2*).

Perhaps there was also an aspect of 'looking over the back fence' associated with salinity as a driver for drainage within the Benwell Catchment. Following the floods of 1956 the neighbouring Barr Creek Catchment had suffered significant salinity impacts and received access to a drainage service due to successful lobbying. The landowners of the Benwell Catchment identified this and decided that they wanted access to the same level of service.

They only had to look not far away and they had neighbours who were draining into the Barr Creek Catchment which has some excellent standard of drainage, they looked over there and said they've got it and we haven't, why not us? (*agency 1*).

The potential impact of salinity on the Benwell Catchment is great in terms of a loss of productivity as well as social, economic and environmental values. It could therefore be interpreted that in this instance, the significance of 'doing nothing' has meant that all stakeholders have been willing to advocate for the project over a 50 plus year timeframe, leading to the resilience of the project. The implementation of regional salinity management plans in the 1990's, combined with the dry seasons experienced since 1996 has meant that the salinity risk has not worsened due to a lack of drainage in recent years, however local landowners are aware that this situation could change quickly with a return to a wetter climate cycle (North Central Catchment Management Authority 2007).

### **Theme 3. Importance of providing 'something for everyone' in keeping stakeholders engaged**

Respondents identified the fact that the project and potential benefits were multi-faceted was one of the keys to its resilience. Having a broad range of social, economic and environmental benefits meant that the drivers were there for a range of landowner and government agencies involved in the project, which has probably contributed to the persistence of the project over such a long period of time.

It does achieve discreet outcomes you can see in terms of all those social, economic and environmental outcomes combined with a really strong community drive behind it and total commitment from the agency people (*agency 2*).

I think they'll get the productivity benefits...There's big environmental benefits, in terms of the forest, particularly if we can get up into those higher end community drains and there's benefits to Goulburn-Murray Water in terms of people no longer pumping into channels and I think the biggest thing is that it will give them greater confidence in longer term farming into the future (*agency 1*).

In such a multi-dimensional project, with a range of stakeholders including landowners, state and federal government agencies and Goulburn-Murray Water the importance of collaboration was discussed, along with a willingness and ability to understand the project from a range of different points of view.

I think that it's important that we've taken a collaborative approach to this, it's not just one agency promoting the project, it's very clear that there are multi agencies but that this is multi-dimensional as well. We've been able to understand it from a lot of different aspects (*agency 2*).

Such comments highlight that perhaps one of the key aspects to the resilience of the Benwell project is the fact that it potentially could provide broad ranging social, economic and environmental benefits and as a result has attracted the support and collaboration of varied agency and landowner advocates over a long period of time.

#### **Theme 4. Getting the balance right between policy/strategy and action on the ground**

The importance of getting the balance right between the strategic development and planning of the project and the on-ground 'just getting on and building the drain' was identified by all respondents as important for the Benwell Surface Water Management System. All acknowledged this balance as difficult to achieve, although there was some disagreement amongst respondents about how well this balance has occurred to date.

Maybe we were trying to do too much at once and were spreading ourselves too thin? You wonder what would have happened if we threw more at it earlier. I think we got bogged down in doing the strategy and plan stuff and spent too much time and money, doing that – printing books. There is some valuable stuff in them that is still used now which makes me feel a bit more confident about it though (*agency 1*).

What do you do to get bureaucracy to move quicker, put a bomb under the buggers? It takes a lot to get bureaucracy to move (*landowner 1*).

The cost benefit analysis for crying out loud, the money that must have been spent, I keep maintaining the money that must have been spent on strategies, cost benefit analysis, tours and whatever we could have built the thing three times. I also say that if I had given everyone a shovel that came to look at it we would have nearly dug it by hand (*landowner 1*).

There was also the view expressed that although perfecting the strategy undoubtedly added to the timeframes of the project, without it funding to proceed with the project would not have been received. This view suggested that the level of policy and strategy developed was necessary and something that the project should be proud of:

We had to take longer, we had to prove the difference it would make, the point of difference it would create and it was difficult and we really did get put through the hoops, but to be able to come out the end of it and say that we've been able to do this over a long period of time I think we've got to take some learnings but probably kudos as well (*agency 2*).

These comments highlight that getting the balance right between the level of strategy and on ground works is important, however exactly what this balance should be is difficult to determine and may differ between stakeholders and will vary from project to project.

#### **Theme 5. Importance of leaders – both community and agency**

Analysis of the interview transcripts identified the importance of local community leaders as a key driver to the persistence of the project and indicated that perhaps a lot of the success achieved to date can be directly attributed to the 'champions' drive and determination.

So the likes of landowner 1, you really need to tip your lid to that guy in that he really came forward as a champion and a real leader for his community and so without that drive and without that knowledge and experience and helping us to understand what the real issues were to the community ... without that I don't think the project would have got off the ground (*agency 2*).

Agency respondent 1 commented on the importance of these community leaders in terms of getting projects such as the Benwell Surface Water Management System off the ground, but also the role they played in getting other landowners on board as well.

Larger landowners in the area having links and also sitting on committees, they are also generally very well respected amongst the community and so if you talk to them and they're on side you can pretty much bet that apart from a few trouble makers you are going to get everyone else to come along (*agency 1*).

It was also identified by agency respondent 1 that not only were these leaders taking on a role as champion of the project, they were actually demonstrating their faith in it. One landowner in particular has his property located adjacent to the outfall of the drain and so potentially had the most to lose if the proposed drainage network did not do the job it had been designed to do.

We were lucky in that your problem landholder in that case is the one that's near the end as they are the one that's going to get flooded so we were lucky that landowner 1 said all along that he was at the bottom but he wasn't worried about it, I think that he possibly was but publicly he wasn't (*agency 1*).

The altruistic nature of these leaders was also mentioned in that although their own individual properties would receive benefit from the provision of drainage, they also had the best interests of their neighbours and the district at heart.

But I think probably some of the most important things about this was the champions and community leaders came forward for the project. These were people that really did have the best interests of their local community at heart (*agency 2*).

These guys are some of the most forward thinking that you would get in terms of irrigators from anywhere I've seen and they are long standing farmers in that part of the world. They're not thinking about themselves, they're thinking about their longer future, they're thinking about their sons and their daughters and their grandchildren coming after them. (*agency 2*).

However actually being one of these community leaders did not come without sacrifice, with one respondent highlighting the responsibility they felt for the project in terms of any praise or criticism it received.

I feel a lot of responsibility for it happening and I'm not boasting about that because some people are saying it's a white elephant now – well we've had so many dry years in a row and people who don't understand, or haven't lived there or whatever ... and that grates on me a bit, wrangles me (*landowner 1*).

As well as landowner champions, leaders within the government agencies were also praised by the landowners for their dedication to the project and determination to keep pushing on their behalf to achieve government support and funding.

So I'm really indebted to people like agency 1 and his predecessors that did organise those tours and get people to come and look, but I guess I did badger a lot (*landowner 1*).

We are very grateful to the 'agency 1's' of the world that helped us, that understood, had sympathy for our cause and kept plugging along and 'agency 2' and others (*landowner 1*).

Maintaining a level of consistency within these staff members was also identified as a key factor which can be difficult to achieve especially when projects span long periods of time. In the case of the Benwell Surface Water Management Project even though key staff moved up within their organisations and on to different projects they were still able to maintain a legitimate connection to the Benwell project.

Probably in some areas a continuation of key staff ...in maintaining the role we have over a longer period of time and being able to answer questions probably quite fully when they'd come our way and being able to put people in touch with community members but then also engender a level of trust with us and other agencies and then that cascades back (*agency 2*).

### **Summary of key findings: Lessons learnt.**

#### ***Lesson 1. The history and first hand experiences of participants in a project provide important context. Understanding and valuing this is important.***

While the level of firsthand experience and 'history' will vary between projects and participants, in the case of the Benwell Surface Water Management System the importance this history plays in providing a context for the project should not be underestimated. Experiencing the impact of floods, waterlogging and salinity within the catchment provided a vivid memory for those who had experienced it and was identified as a key to their ongoing dedication to the project. While this experience may not be a relevant to all landowners, understanding does help to explain many of the key drivers for ongoing resilience including the impacts of salinity, development of community leaders and broad range of drivers.

#### ***Lesson 2. If an issue is seen as important enough, people will continue to advocate for it over a long period of time.***

The Benwell Surface Water Management project highlights that if an issue and its impacts are serious enough, then stakeholders will continue to lobby until the end result is achieved. Salinity has perhaps been underestimated as a driver for the Benwell project, however the views of respondents highlight that salinity remains a motivating factor to those who farm within the Benwell Catchment and this motivation has led to action, despite the dry years experienced recently.

The experiences of the Benwell Surface Water Management project highlights that if landowners and agencies really believe the risks of not completing an activity are high, then they will continue to advocate for it over a long period of time. If this belief is not obvious then perhaps questions need to be asked about the need for the project in the first place.

#### ***Lesson 3. Where possible, provide a broad range of drivers for participation – think social, economic and environmental.***

Although the goal of constructing the Surface Water Management System within the Benwell Catchment was the focus for all key stakeholders, their actual drivers for achieving this goal were varied. The Benwell project provided broad ranging social, economic and environmental

benefits regardless of whether a stakeholder was interested in the ongoing economic viability of the region, potential impacts of salinity on native vegetation or maintaining social cohesion within the local community.

These drivers will be more obvious for some projects than others, however taking the time to consider a project from all angles and identifying what opportunities there are to engage a diverse range of stakeholders, has been a key to the resilience of the Benwell project.

***Lesson 4. Attempt to try and strike a balance between strategy development and works 'on the ground' and communicate the need for both with all stakeholders.***

The Benwell project highlights that getting the balance right between strategic priorities and on-ground action can be difficult. However, acknowledging the need to balance out competing expectations can contribute to a project's eventual success. While some Benwell Catchment landowners were at times frustrated with the need for such rigorous strategy and business case development, the risks associated with jumping in and constructing the system without the required environmental, cultural and environmental planning being undertaken were also acknowledged as being great.

While landowners will continue to be frustrated with the amount of planning that went into the project, there appeared to be a reluctant acceptance that it was required to meet not only planning but government funding requirements and that while the balance achieved may not have been seen as ideal by all parties, the end result is that the system is now partially completed.

Therefore perhaps the lesson from the Benwell Surface Water Management System is that a discussion about the breakdown between the strategic and business planning versus on-ground works of a project should occur early in the project development and expectations made explicit with all stakeholders involved.

***Lesson 5. Identify and foster leaders on behalf of the project from both landowner and agency groups. Encourage them to work together in a collaborative way.***

The role played by community leaders in the resilience of the Benwell Surface Water Management project was anticipated by many to be important, an assertion which was supported through analysis of the interview process. However the role of agency staff had perhaps been underestimated with the Benwell experience highlighting that not only are both agency and community leaders critical in building resilience in a project, but that their ability to collaborate, work together and share mutual respect is also vital.

Leaders play an important role in projects such as the Benwell Surface Water Management System, particularly in maintaining resilience, as it will often fall to these individuals to continue lobbying for the project over long periods of time. The Benwell project highlights that often these leaders develop their skills throughout the project development. However, all opportunities available to provide these people with support to develop these skills should be encouraged.

## **Conclusion**

The Benwell Surface Water Management Project has persisted for over 50 years and despite significant achievements and hurdles over time, landowners and agency staff are continuing to advocate for its construction. The analysis presented in this paper has identified key aspects of its resilience and identified lessons learnt that might be useful for other Natural Resource Management and Agricultural projects in the future.

The key lessons identified are:

1. The history and first hand experiences of participants in a project provide important context. Understanding and valuing this is important.
2. If an issue is seen as important enough, people will continue to advocate for it over long periods of time.
3. Where possible, provide a broad range of drivers for participation – think social, economic and environmental.
4. Attempt to try and strike a balance between strategic development and works 'on the ground'.
5. Identify and foster leaders on behalf of the project from both landowner and agency groups. Encourage them to work together in a collaborative way.

While none of the findings or lessons learnt can be viewed as conclusive or directly applicable to similar projects, they have highlighted areas considered important for the resilience of the

Benwell Surface Water Management Project. These findings are worth considering in the development of other Natural Resource Management and Agricultural projects where the need for a project to persist over a long period of time is important.

While significant achievements have been made by the Benwell Surface Water Management System project to date, the future is by no means assured, with the group and agency representatives continuing to lobby for funding to complete construction of the drainage system and the implementation of the detailed business and system planning. The lessons identified indicate that those involved in the project will continue to lobby until the project is completed. Their hope is that it does not take another 50 years for this goal to be achieved.

### References

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