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The Limits of Federal State Capacity in Managing Australia's Murray-Darling River Basin

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ABSTRACT: This paper is about the capacity of the federal government in Australia to achieve its stated water management and environmental goals in relation to the Murray-Darling River system via its Murray-Darling Basin Plan of 2012. The paper uses a 'state capacity' approach. One aspect of state capacity is about the state's broad institutional capabilities; these are the ways in which the state's resources and policy instruments, its institutions, and its knowledge and data capabilities can shape the state's capacity to achieve its stated goals. The second aspect is relational, emphasising the notion of 'infrastructural power', or how states might be able to achieve their goals by working cooperatively with major interlocutors in the broader state or in society. These two aspects are typically viewed from a state-centric perspective, with the state depicted as using its broad institutional capacities to help further its relational or infrastructural power over other interlocutors. In contrast, this paper shows how this process has been reversed, and how key interlocutors, including important players in federal and state governments and powerful irrigation interests, have instead drawn resources from and manipulated the key institutional elements of state capacity to suit their own interests, weaken the federal state's infrastructural power, and subvert the stated aims of the Basin Plan.

KEYWORDS: State capacity, Murray-Darling Basin, water governance, institutions, infrastructural power, Australia

Building up trustworthy relationships is crucial for gaining water governance capacity (Edelenbos and Teisman, 2013: 89)

There is deep suspicion, and absolutely no trust whatsoever in any government entity (Phillip Glyde, former CEO, Murray-Darling Basin Authority¹)

INTRODUCTION

This paper is written from the perspective of the Australian federal government's capacity to manage water allocations and environmental sustainability in the Murray-Darling Basin (MDB), one of the largest river catchments by area in the world. This perspective is chosen because the federal government was the main initiator, and at least initially, the main driver of the water reforms analysed in this paper. The paper is thus about policy implementation and the federal state's capacity to enact reforms and achieve stated goals. The paper draws on a wide range of secondary literature and has benefitted from the final reports and submissions to a range of recent government enquiries at federal and state levels into the problems of the MDB.

The MDB is highly stressed, with growing water shortages, frequently dry riverbeds, massive algal blooms and fish kills, and conflicts over water usage. The Sustainable Rivers Audit 2 assessed 21 of the Basin's 23 catchments to be in 'poor' or 'very poor' ecological health (MDBA, 2015). Essentially, too much

¹ Quoted in Simons (2020: 41).

water is being extracted from the system. The main solution is reduced extractions and increased environmental river flows to enhance environmental sustainability.

As the map in Figure 1 shows, the MDB covers most of south-eastern Australia, including the lower parts of Queensland, much of New South Wales (NSW), Victoria, and the Australian Capital Territory (ACT), as well as parts of South Australia.

Figure 1. Map of Murray-Darling Basin.



State governments have constitutional authority over water resources in Australia, yet their tardy responses on water reform as well as the Millennium Drought of the 2000s saw the federal government step in. Working with relevant states, the federal government built on earlier market-based and water-trading reforms and developed the 2004 National Water Initiative (NWI). In response to further sluggishness by the states (Marshall et al., 2013: 209), the federal government passed the *Water Act* of 2007, and subsequently, based on the *Act*, the Murray-Darling Basin Plan of 2012. The Basin Plan focused on public subsidies for water efficiency programmes and on water licence buybacks for the environment. The Basin Plan was eventually funded to the tune of AUD\$13 billion by the federal government, with the funds seen as an incentive for relevant state governments to cooperate with the implementation of the Basin Plan. Australia ostensibly leads the world in such initiatives (Grafton and Wheeler, 2018, 488) with *The Economist* (2007) claiming that Australia is "a model for the management of big heavily exploited rivers".

The *Water Act* and the Basin Plan amount to the federal government attempting to exert a substantial degree of authority over key players in the system, including elements of often recalcitrant federal and state governments and major irrigation interests (by far the heaviest water users). Many papers on the problems in the MDB have separately focussed on policy instruments, such as water markets or publicly funded irrigation infrastructure subsidies (Grafton and Wheeler, 2018); on institutional issues (Marshall and Alexandra, 2016); on knowledge and data issues (Grafton et al., 2020); and on relations between state and society (Alston et al., 2016; Marshall and Alexandra, 2016; Grafton and Williams, 2019). The added value of this article is to bring all these elements into a more unified analysis of the limits of federal government capacities in the MDB. The paper does this with a novel approach that involves the use of 'state capacity' theory to explain weaknesses in federal state capacity in this case. The literature on state capacity originated in comparative political economy to explain cases of effective macroeconomic management in Europe in the 1970s and state-led industrial upgrading in East Asia (Skocpol, 1985; Evans, 1995; Weiss and Hobson, 1995). Soifer (2013: 2) uses a widely accepted definition of state capacity "as the ability of a state to implement its chosen policies". This implies a degree of state power or authority.

The paper proceeds by outlining the MBD's governance arrangements. It then outlines a theory of state capacity. One aspect of state capacity is about the state's broad *institutional capabilities*, about how the state's resources and policy instruments, its institutions, and its knowledge capabilities can shape state capacity. The second aspect is *relational*, emphasising the notion of 'infrastructural power', or how states might be able to achieve their goals by working cooperatively with major interlocutors in the broader state or society. These two aspects are typically seen from a state-centric perspective, with the state depicted as using its broad institutional capacities to help further its relational or infrastructural power over other interlocutors. In contrast, this paper shows how this process has been reversed, and how, instead, key interlocutors including important players in federal and state governments and powerful irrigation interests, have drawn resources from and manipulated the key institutional elements of state capacity to suit their own interests, weaken the federal state's infrastructural power, and subvert the stated aims of the Basin Plan. The paper concludes that the system has weakened trust, legitimacy, and federal state capacity, a view largely endorsed in the quote at the outset by the former CEO of the Murray-Darling Basin Authority.

GOVERNANCE CONTEXT

Governments have managed the MDB for over a century, but the current MDB reform era started with the Council of Australian Governments (COAG) Strategic Framework for Water Reform in 1994 (COAG, 1994). This separated the long-standing union of land and water rights and converted prior statutory water entitlements into tradable property rights, thus prompting the growth of water markets and water trading. In 1995, this was followed by a cap on water extractions, creating a cap-and-trade system for water resources (Bell and Quiggin, 2008; Horne, 2017a). The Millennium Drought (2001-2010) prompted further reform in 2004, especially the National Water Initiative (NWI), involving AUD\$500 million of federal funds primarily for on-and off-farm water efficiency infrastructure projects and publicly funded buybacks of water licenses to increase environmental flow.

However, tardy implementation of the NWI by the states (Horne, 2017a), and the ongoing Millennium Drought, finally saw assertive federal action with the National Plan for Water Security (NPWS) in 2007. This Plan, embodied in the federal *Water Act* 2007, added a massive injection of Commonwealth funding (AUD\$10 billion). Two thirds of the funds were allocated to publicly funded water infrastructure upgrades, and about a third was allocated to water licence buybacks for the environment from willing sellers. As the *Water Act* was based on the Commonwealth's constitutional external treaty powers aimed at environmental protection (wetlands and biodiversity), the *Act* necessarily prioritised environmental goals (Murray-Darling Royal Commission Report, 2019; Beasley, 2021). The *Act* also created two new federal-level agencies. First, the Murray-Darling Basin Authority (MDBA) was tasked with establishing a

Basin Plan and with oversight and implementation of the Plan, especially around determining sustainable water extraction levels (Sustainable Diversion Limits; SDLs) and boosting environmental flows. Second, the Commonwealth Environmental Water Holder (CEWH) was established, tasked with purchasing and managing environmental water allocations. The Labour government (from late 2007) rebadged the NPWS the *Water for the Future Program*, adding a further AUD\$3 billion in funding (Cruse and O'Keefe, 2009).

STATE CAPACITY THEORY

The version of state capacity used here echoes Weiss and Thurbon (2021) in pointing to the importance of agency and the key choices made by political actors in analyses of state capacity, following in the path of agent-centred historical institutionalism (Bell, 2005; 2011; Bell and Feng, 2014; Weiss, 2014; Thurbon and Weiss, 2021). The essence of both approaches (in state capacity theory and in historical institutionalism) is to analyse how agents shape and are shaped by the wider contexts in which they operate, including, in this case, policy, institutional, knowledge and ideational, and relational contexts.

Earlier state capacity theorists argued that the strongest, most capable states relied on hierarchical, top-down power. For Skocpol (1985: 9), this implies the ability to "implement official goals, especially over the actual or potential opposition of powerful social groups or in the face of recalcitrant socioeconomic circumstances". For Baer (2014: 43), it is the "state's ability to make and implement policies effectively through state institutions... [involving] the institutional capacity of the state to exercise control". However, states are often not able to impose their policy preferences unilaterally. States may instead seek wider support through building collaborative linkages with relevant societal interests (Mann, 1998; Evans, 1995; Weiss, 1998). As Evans (1995: 162) argues, state capacity reflects "concrete sets of social ties ... that bind the state to society" allowing for the "continual negotiation and renegotiation of goals and policies". For Evans (1995), the state's engagement with society is referred to as 'embeddedness', whilst the capacity of the state to lead such relations authoritatively is often referred to as 'autonomy', hence the concept of 'embedded autonomy'. However, if states lack autonomy and social groups can exert substantial power, embeddedness can quickly turn into rent seeking and the corruption of the state.

To account for such relational dynamics, state capacity theory has crafted the concept of 'infrastructural power', which defines how states can potentially use change-oriented, cooperative relations with key interlocutors and the wider society to bolster state capacity. Mann (1998) argues that states have enhanced their capacity over the last few centuries by *strengthening* their ties to society. Thurbon and Weiss (2021: 4) argue, "Rather than a top-down exercise, state capacity is always enacted through, rather than over society, by means of negotiation and consent".

This paper shows how the institutional and relational elements of state capacity interacted causally in this case. Existing theory tends to see these interactions from a state-centric perspective, with the state using its broad institutional capacities to help bolster its infrastructural power. In this case, however, this has been counteracted or even reversed by certain public and societal forces. As Mann (2008: 356) points out, infrastructural power can be "a two-way street", with power potentially radiating from society and powerful interests towards the state. In the case at hand, the important players have been certain elements in federal and state governments forming common cause with powerful irrigation interests, all of whom have also manipulated the key elements of state institutional capacity to suit their own interests and subvert the stated aims of the Basin Plan. In a second relational arena, federal infrastructural power has also been challenged because many smaller farmers and relevant local governments and communities have become hostile, mainly due to perceptions of the Basin Plan featuring collusion and rent seeking by powerful interests (Grafton and Williams 2019).

In relation to the state's broad institutional capabilities in this case, firstly, the key policy instruments of water markets and generously funded public water infrastructure subsidies have facilitated structural agricultural change, which has *increased* water extractions by irrigators and strengthened the economic

position of large irrigators. Second, institutionally, federal state capacity has been weakened amidst a fragmented federal system where states have often been uncooperative but have substantial constitutional authority and responsibilities over water and have often acted to support influential irrigators. Third, the ideational and knowledge context has also been exploited by interests in the federal and state governments and by large irrigation interests that have opposed the Basin Plan, using policy ambiguity, obfuscation, and conflicts over data and knowledge to gain leverage. This has also clouded monitoring and accountability and hence federal state capacity.

The next three sections outline how the federal state's main policy instruments, institutions, and knowledge contexts have all been utilised to advantage by interest's intent on weakening federal state capacity in relation to the aims of the Basin Plan.

POLICY INSTRUMENT CONTEXT

States must have the necessary policy instruments, inducements, and sanctions to help shape the behaviour of societal actors in appropriate ways. Skocpol (1985: 18) writes that "Many studies of the capacities of states to realize particular kinds of goals use the concept of 'policy instrument' to refer to the relevant means that a state may have at its disposal".

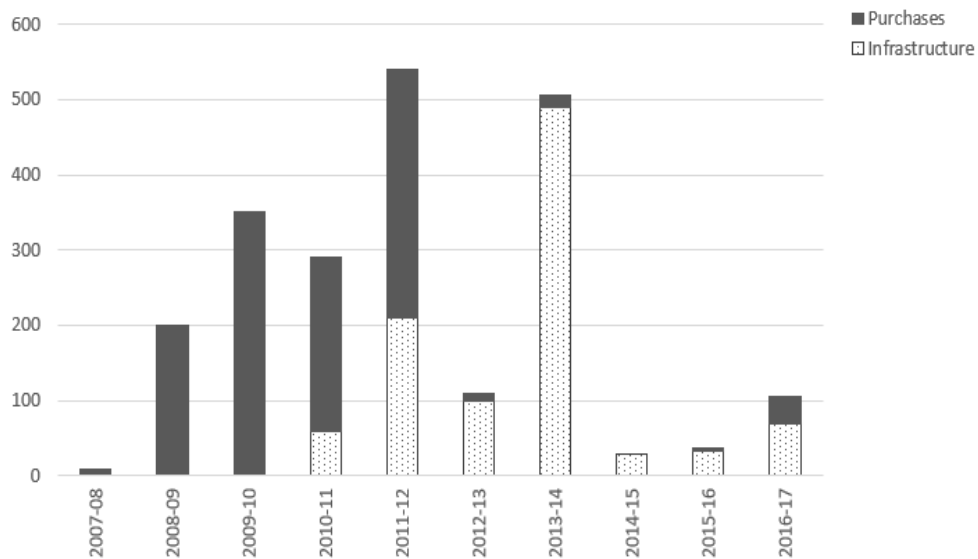
The main policy instruments used have involved the establishment of water markets, generous funding for water licence buybacks, and public subsidies for irrigation infrastructure and efficiency measures. Water markets have produced many benefits and have made water management more flexible and efficient and have been widely used especially in the intensively irrigated southern region of the MDB, the Southern Basin (Grafton et al., 2016). The Industry Commission (1992: 208) initially suggested that water trading, likely price rises reflecting the scarcity value of water, and attempts to apply full cost recovery for public water infrastructure would lead to a "contraction in irrigation". Instead, as this section argues, water markets and subsidies to support private infrastructure investment have led to structural changes in agriculture which, in turn, have favoured large irrigators and *increased* their water extractions, leading to increasing distributional tensions regarding water allocations in the MDB.

With the establishment of water markets, it was hoped that the realisation of value from newly tradable water assets and the ability to sell water to the Commonwealth (either via permanent rights sales or annual entitlement sales) would be attractive to farmers, irrigators, and rural communities. In 2017, for example, a Productivity Commission's (2017) analysis valued all water entitlements in the Basin at AUD\$17 billion. Water recovery through buybacks costs around AUD\$2000 per megalitre (ML) (Grafton 2019: 128), whilst water recovered from water 'efficiency' projects cost around AUD\$5000 per ML, although Williams and Grafton (2019: 7) estimate an even higher cost. In terms of wider costs and benefits, the Productivity Commission (2018: 79) found that irrigated agricultural production remained stable and economic growth continued despite buybacks. Similarly, Wittwer (2011: 295) argues, "the impact of buybacks on regional economies are minimal, and possibly positive as a financial option for farmers" (see also Kirby et al., 2014). Despite such evidence and many willing sellers under the buyback scheme, the issue became politicised with many irrigators and rural communities adopting the mantra 'Take our water, take our communities' (Alexandra 2019a: 149). Grafton and Wheeler (2018: 497) write that the "reason for this constraint has been to respond to the preferences of some irrigators and lobby groups".

These pressures saw a shift by the federal government from buybacks towards publicly subsidised irrigation infrastructure projects. Such a subsidies and engineering approach is one that has been routinised in long-established networks between governments and irrigation interests and by institutionalised infrastructure and engineering solutions within state governments and relevant agricultural and water bureaucracies (Marshall and Alexandra, 2016; Horne, 2017: 1011).

Figure 2 shows that most of the recovered water from buybacks in the Southern Basin (the region with the most buybacks and the most intensive irrigation) was achieved prior to the introduction of the Basin Plan in 2012. The election of a conservative Liberal-National coalition federal government in 2013 further constrained buybacks, which were largely jettisoned through new federal legislation in 2015. Figure 2 also shows the fall-off in buybacks and a large fall-off in total water recovery in recent years.

Figure 2. Annual commonwealth environmental water recovery, southern Murray-Darling Basin, 2006-07 to 2016-17 (Gigalitres).



Source: Goesch, et al. (2019).

Market-based policy instruments and the initial water property rights allocations were introduced without any mandated reductions in water entitlements and without fixing flaws in pre-existing allocation regimes (Young, 2014). Alternative water sources (such as groundwater) and previously allocated but typically under-utilised water entitlements (so-called sleeper and dozer licences) began to be actively utilised and traded for profit (Bell and Quiggin, 2008). In such a context, farmers and irrigators received windfall profits at the expense of taxpayers. Many farmers and irrigators immediately sought out new sources of water (e.g., groundwater). As Marshall and Alexandra (2016: 689) write, "License holders gained a financial asset and the market for water rights stimulated increased water use, further stressing over-allocated rivers" (see also Bell and Quiggin, 2008; Young, 2014; Wentworth Group, 2017: 50).

Water markets and water infrastructure projects have also facilitated the growth of large agribusinesses. This, in turn, has been associated with a decline in the number of irrigation businesses across the Basin (Wentworth Group, 2017: 26). Large irrigation agribusinesses have the capital and scale to maximise benefits from market-based trading and infrastructure subsidies, suggesting increased farm efficiencies. There are, however, distributional, and ecological consequences. Indeed, the system is increasingly pitting large irrigation interests against smaller irrigators and other farmers and against many rural communities that are often facing water shortages. The deep pockets and demands for water from large irrigators, as well as recurring drought conditions, the effects of climate change, and environmental water recovery, are putting new pressures on water allocations and upwards pressure on water prices (Hart et al., 2020: 405-406; Whittle, 2020). As Slattery and Campbell (2018: 35) argue, "the flow of money and water has made some more powerful and weakened others, such as floodplain graziers, downstream users and communities, and made them vulnerable in ways they were not before the Plan".

For example, the cotton crop in the Northern Basin in 2018 used 80 per cent of the available irrigated water resources, with estimated usage of between 845 gigalitre (GL) and 1135 GL. A further 1000 GL was estimated to have been lost through evaporation from large subsidised on-farm storages. In the same year and in the same Basin, only 40 GL of water flowed past the downstream town of Burke and only 11 GL got further downstream to the town of Wilcannia, which has often been relying on trucked-in water (Slattery et al., 2019). It is estimated that as many as 80 towns in the Basin face severe water insecurity. The Mildura Rural City Council (2018: 3), in a submission to the Murray-Darling Royal Commission, argues that "large irrigators with financial capacity will survive while smaller irrigators, unable to compete, will suffer significant hardship and decline. This is no doubt a concern for all irrigation communities, particularly those downstream from large developments".

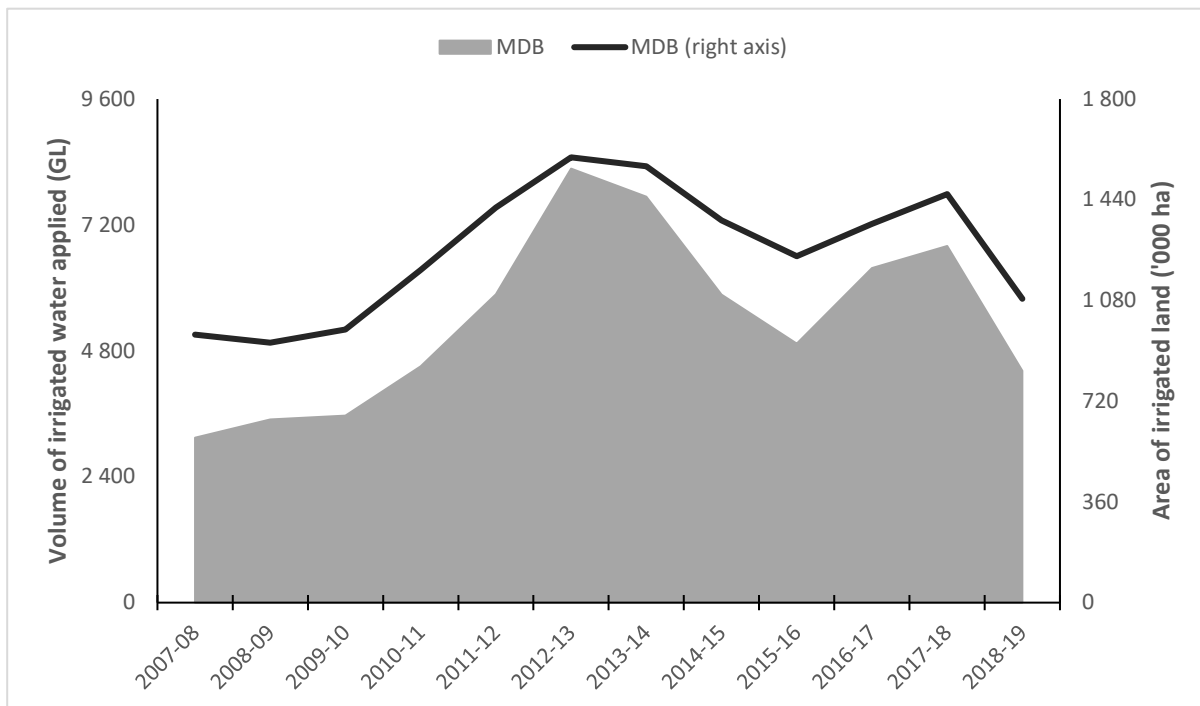
Structural change in agriculture has seen nuts and cotton emerge as major industries and consumers of water in the Basin, with declining production in other areas of agriculture, including pasture, rice, cereals, and vegetables (Australian Bureau of Agricultural and Resource Economics, 2019: 5). Gupta and Hughes (2018: 3) observe that "In recent years, the growth in almonds and cotton has been dramatic. Cotton has now overtaken rice as the major irrigated broadacre crop in the Basin. In the Victorian Sunraysia region, the expansion in almonds has increased horticultural water demand by more than 250 per cent".

Unlike annual crops, nut production involves permanent plantings which require continuous watering, a significant structural shift. Even with cotton, an annual crop, large cotton producers often operate under multi-year forward sales contracts, and they tend to purchase water from other users and use large on-farm storages in attempts to maintain annual production (Slattery et al., 2019). As the Northern Basin Commissioner notes (Keelty 2019: 1), "Irrigation in the Northern Basin is mostly for cotton, an industry which is characterised by larger farms, often under corporate ownership, with privately developed on-farm storages able to capture very large volumes of water during periods of flood – which help to maintain production into drier periods".

Relevant governments and the MDBA argue that water extractions are limited under the prevailing cap-and-trade system, but as Wheeler et al. (2020: 3) maintain "various legal and illegal factors likely allow increased water extractions to exceed the statutory limits of the Cap". Figure 3 illustrates the pattern of increased land area under irrigation in the MDB, as well as increased irrigation water usage between 2007 and 2019.

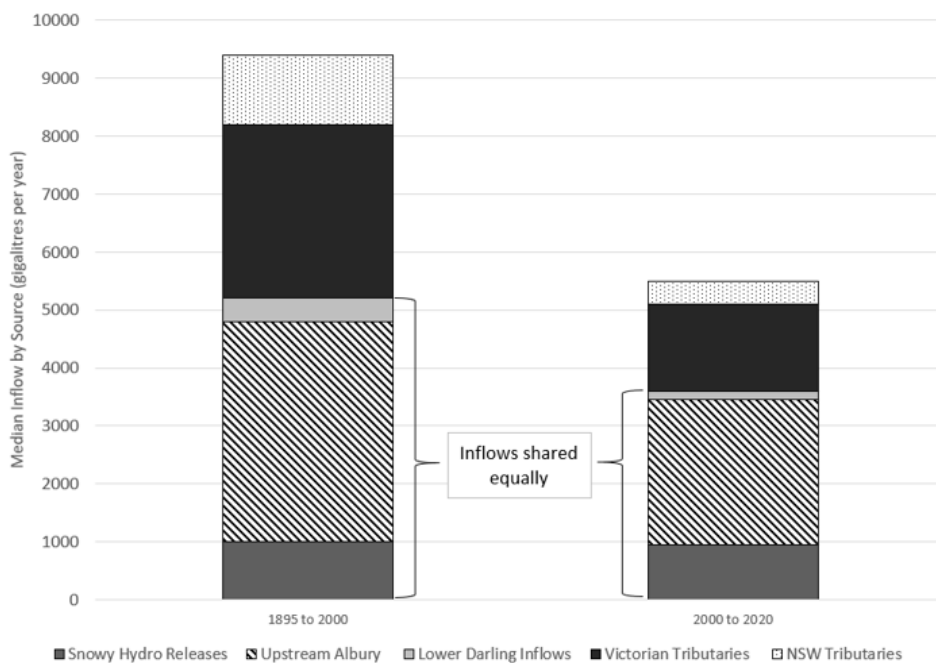
Part of the variation in irrigated land area and in water usage is explained by weather and rainfall variations, but the increased area under the graph for both chart lines in Figure 3 since 2007-08 suggests an overall pattern of increased land area under irrigation and increased water usage. Wheeler et al. (2020: 8) argue that one driver of water usage has been irrigation infrastructure subsidies which "seem to have had a perverse water extraction outcome and actually increased water extractions". It is highly significant that such increases have occurred during the period in which major water reforms aimed at *reducing* water extractions have been in place. It is also significant that these patterns of water extraction are occurring in a period when inflows into the irrigation-intensive Southern Basin are experiencing a "dramatic reduction", according to an inquiry by the Interim Inspector-General of Murray-Darling Basin Water Resources (2020: iii), mainly due to climate change and lower rainfall (Figure 4; see also MDBA, 2020: 21). These changes suggest a future of less water and of growing distributional conflicts over water within the MDB.

Figure 3. Volume of and land area under irrigation, MDB, 2007-2019.



Source: Bureau of Meteorology 2021. Australian Water Markets Report, 2019-20, Canberra.

Figure 4. Historic changes to Murray River inflows.



Source: Interim Inspector-General of Murray-Darling Basin Water Resources (2020)

In summary, the policy instruments in question have not reduced water extractions, especially in the key irrigation sector. As Wheeler et al. (2020: 9) argue, "While Australia has [officially] returned one-fifth of water entitlements in the MDB from extractive to environmental use, this does not seem to have translated into commensurate reductions in water extractions", mainly due to extra water being extracted from a diverse range of sources. Overall, the result has been that "as of early 2018, there has been no observable basin-wide improvement in either the quantity of water flows or inland ecological systems and populations" (Grafton and Wheeler, 2018: 504). Moreover, the changes in question have increased inequality in terms of access to water, producing splits between winners (mainly large irrigators) and myriad losers (mainly smaller irrigators and farmers and many rural communities). As shown below, the distributional winners have used deep pockets and political influence to further enhance their position. Clearly, the policy instruments in question have not helped achieve key Basin Plan environmental goals, indicating policy related failures in state capacity.

INSTITUTIONAL CONTEXT

Stephen Krasner (1984: 228) argues that "The ability of a political leader to carry out a policy is critically determined by the authoritative institutional resources and arrangements existing within a given political system". One aspect of state capacity here is that it can be enhanced where political and administrative authority is centralised, with a minimum of decision 'veto points' (Tsebelis, 2002; Skocpol, 1985). Such centralisation implies the ability of the state to act as a coherent, corporate actor, a capacity that may stem from the structure of the state and/or from mechanisms that can effectively coordinate activity across several layers of government. Conversely, in this view, weaker states (or weak state sectors) are likely to be those where decision-making authority is fragmented, perhaps because of federalist structures and/or because of weak coordinating or steering mechanisms across layers of government.

However, the putative merits of state centralisation in water governance have been questioned by several 'polycentric governance' and 'governance multiplicity' scholars (Pahl-Wostl and Knieper, 2014; Edelenbos and Teisman, 2013; Thiel et al., 2019). Pahl-Wostl and Knieper (2014: 139), for example, studied a range of cases of water basin governance and found that "performance increased", especially adaptability and flexibility, "with increased polycentricity", the latter being defined as a system with multiple centres of authority and "effective coordination structures". The latter might include "coordination by an overarching system of rules" (ibid: 147). They also note, however, that "decentralisation does not imply that adequate coordination structures will automatically come into being" (ibid: 140).

In the case at hand, the states, under federalism, hold substantial constitutional powers over water resources. This compromises top-down federal authority as a coordination mechanism. On the other hand, as Goldstone (2006: 265) writes, "the degree of infrastructural power corresponds to the resources that a leader can command to pursue a goal" (2006: 265). In this context, the federal state does have substantial fiscal capacity and has poured substantial federal fiscal resources into the MDB as a major inducement for the states and other players to support the Basin Plan. Yet the federal government lacks the detailed on-the-ground knowledge, management experience, and networks that the states have built up in the water arena, all of which has limited federal authority, monitoring, and oversight. While the Basin Plan sets out an 'overarching system of rules', the most central problems for federal state capacity have been limited administrative capacity and a lack of cooperation by key states. As Marshall et al. (2013: 210) argue, "given the political strength of irrigation communities at the level of state governments... there has been a long history of reluctant cooperation by the Australian states with such national water reform programs" (see also Connell, 2007). Indeed, the NSW and Victorian governments have repeatedly threatened to walk away from the Basin Plan, given pressure from water users and the Plan's restrictions on water usage (Knaus, 2018). It is also true that state politicians in NSW, for example, are keenly aware

that discontent over the Basin Plan is now threatening rural electorates (the National Party lost two seats in the 2019 NSW state election, largely over water).

Such a water governance system can be seen to some degree as 'polycentric' in terms of Pahl-Wostl and Knieper's (2014) typology, though without the key element of effective coordination. Instead, the system is better seen in Pahl-Wostl and Knieper's (2014) typology as a 'fragmented regime', lacking coordination: "Without coordination the distribution of power and authority and overlapping responsibilities of the different decision-making centres may lead to uncoordinated and contradictory actions with loss of efficiency and effectiveness" (Pahl-Wostl and Knieper, 2014: 141).

These failures are apparent in the MDB and can be partly sheeted home to a second institutional aspect of state capacity, namely bureaucratic and administrative resources. These resources typically include high-quality information, forums of active policy debate, and especially expert, dedicated, and experienced staff in key areas of policy formulation and implementation. As Skocpol (1985: 16) writes, "loyal and skilled officials" are the "universal sinews of state power".

Yet at the state government level, there have been major weaknesses, with limited compliance with the 'overarching system of rules' within the MDB. For example, in an episode entitled 'Pumped' that was screened in July 2017 by the Australian Broadcasting Corporation's *Four Corners* programme, a range of allegations around water theft and compliance monitoring were made against the NSW state water authorities. The programme revealed that efforts by officers from relevant state government departments to monitor and investigate water compliance arrangements were stymied by senior management. In response to the *Four Corners* programme, the NSW government commissioned a formal investigation, which found that "The overall standard of NSW compliance and enforcement work has been poor" (Matthews, 2017: 4), and that the relevant ministry had ignored recommendations by the NSW Ombudsmen (2017) to implement robust monitoring and compliance measures regarding water extractions by irrigators. The investigation also found within the relevant NSW bureaucracy "a culture of tolerance for expedient work practices... at the expense of due and proper process... failures to confront unethical behaviour... [and] a group culture diverging from the best traditions of Australian public administration" (Matthews, 2017: 6). The NSW Ombudsman (2017) has similarly reported "underlying structural and systemic problems... including chronic under-resourcing of compliance and enforcement roles, the constant stream of restructures and transfers of water regulation responsibilities that resulted in a significant staff turnover, loss of corporate memory and poor staff morale". A former senior federal public servant with water responsibilities has similarly pointed to a bureaucratic "culture where water theft and compliance with licence conditions have been optional" (Horne 2017).

All this has meant slow progress with catchment-level Water Resource Plans that allocate water and that are administered at the state level under the umbrella of the overall Basin Plan. These were due to be finalised by relevant state governments by 2019, yet many of the plans for NSW are still to be finalised. In a submission to the Murray-Darling Royal Commission, David Papps, the former head of the Commonwealth Environmental Water Holder, stated that, whilst at the CEWH:

I became concerned about the quality of draft NSW Water Resource Plans. These concerns were part of a broader anxiety I had in relation to the attitude of the relevant NSW minister and the NSW water department in relation to their failure to properly implement, in a timely fashion, their responsibilities in the Plan... It was clear to me that the NSW minister was reluctant to meet those responsibilities in any way which either he or some of the politically active elements of the NSW irrigation industry deemed inimical to the industry's interests (Papps 2018: 3; see also Davies 2018a).

There have been major administrative problems at the federal level as well, with key agencies such as the federal Department of Agriculture, Water, and the Environment, and the MDBA, attracting considerable criticism. The Northern Basin Commissioner has reported, "the department does not enjoy a good reputation.... [it is] process driven and not action oriented...[with] a risk averse culture, which may derive from many years of failed or incomplete project delivery...further, there is no well-publicised,

concise mission statement for the Department of Agriculture, Water and the Environment when it comes to water" (Keelty 2019: xi, xii). The Commissioner also noted the high turnover of water ministers at federal and state levels and pointed to a "wait them out" culture that develops in agencies who are tired of the directions given by what they perceive to be a "revolving door" of ministers (Keelty, 2019: xiv). Institutional complexity and overlapping jurisdictions across state and federal levels also cloud lines of responsibility and accountability.

For its part, the MDBA is widely seen as conflicted in its role and as biased and politicised. The Murray-Darling Royal Commission (2019: 55) argued there are "serious doubts as to whether senior management, and the Board of the MDBA were capable fulfilling their statutory obligations and functions". The Productivity Commission (2018: 58), in review of the Basin Plan, argued that the MDBA is so conflicted in its role as both an implementation agent of government and as the Basin Plan regulator that it should be broken up into two separate agencies. Although it is a statutory authority, the MDBA is directed by a state and federal Ministerial Council, which limits independence. A former member of the Northern Basin Advisory Committee claims the MDBA is a "politically motivated organisation, which has developed a dishonest culture" (quoted in Davies, 2018b). Colloff et al. (2021) have made claims about what they see as the MDBA's administrative capture of science, whilst Maryanne Slattery (2019), a former MDBA senior official, claims that "what I started to see, starting in 2014, was a slippery slope of conflating science and politics, and trying to retrofit the science to match the politics". A former senior executive in the MDBA has claimed it downsized its compliance and enforcement functions and saw its Board strongly influenced by irrigator interests (quoted in Seccombe, 2019).

Evidence of political pressure on the MDBA can be found in its handling of the original water recovery target. The MDBA (2010) released its *Guide to the Proposed Basin Plan* in 2010, suggesting a water recovery of between 3900 and 7600 GL per annum. These figures were resisted by Victoria and NSW and by irrigators. The *Water Act* prioritises environmental goals, as noted, and states that the Basin Plan is to be determined by the 'best available science'. The MDBA has bypassed these requirements of the *Act*, first by ignoring the science regarding the likely ramifications of climate change, and then by changing its proposed range of water recovery targets without scientific justification (Beasley 2021). The MDBA has also emphasised 'socio-economic concerns' and a 'triple bottom line' approach to water management, overriding the clear environmental imperative of the *Water Act* (Beasley, 2021). These moves prompted the resignation of both the MDBA's Chair and its CEO (Gale et al., 2014: 156, 160).

The final Basin Plan, released in late 2012, had a water recovery goal of just 2750 GL per annum. South Australia originally demanded an additional 450 GL of environmental flow to be recovered by 2024 as part of its agreement to join the Basin Plan. This additional flow has not been delivered. The Basin Plan also allowed for an additional 949 GL of groundwater extraction per annum (Wentworth Group, 2018: 50). All this clearly reflected political pressure (Grafton and Williams, 2018: 2). A former Director of Environmental Water Planning at the MDBA told the Murray-Darling Basin Royal Commission that mounting political pressure meant that the recovery figure had to be a number "beginning with 2" (quoted in Beasley 2021: 45) (see also Grafton, 2019: 1210). The Murray-Darling Basin Royal Commission (2019: 54, 55) concluded:

The MDBA failed to act on the best available scientific knowledge, contrary to para 21(4)(b) of the *Water Act*... Politics rather than science drove the basin-wide recovery figure... of 2750GL... It is an unlawful approach. It is maladministration... The MDBA has shown itself to be unwilling or incapable of acting lawfully.

Subsequently, in 2018, the federal government approved MDBA recommendations that the water recovery target be reduced in the Southern Basin by 605 GL (to be offset by new water efficiency projects) and in the Northern Basin by 70 GL (allowable groundwater extractions were increased by 160 GL). This meant that the Plan's original surface water recovery target of 2750 GL was reduced to 2075 GL, well below what the "best available science" requires for river system sustainability (Productivity Commission 2018: 35).

In summary, bureaucratic institutions at both state and federal levels have broadly supported large irrigation interests and helped weaken federal state capacity. The federal state has operated in an institutional context akin to a 'fragmented regime', featuring limited federal authority and relatively authoritative state governments in the water arena. Despite a broadly agreed system of 'overarching rules' in the shape of the *Water Act* and the Basin Plan, the system has lacked sufficient cooperation and 'effective coordination structures'.

IDEATIONAL AND KNOWLEDGE CONTEXT

The capacity of states is also shaped by ideas, knowledge, and information, which are used by agents to help define reality and win policy arguments. However, resolving the core question about what the Basin Plan has achieved is not helped by considerable uncertainty around the actual levels of water extraction, the returns from water efficiency programmes, the level of return flows, and levels of floodplain harvesting. This context has been exploited by interests opposed to the Basin Plan using policy ambiguity, obfuscation, and conflicts over data and knowledge to gain leverage.

In implementing the Basin Plan, the knowledge challenges here have been immense due to the MDB's complexity as well as ongoing scientific and data uncertainties. In a 2020 review of the Basin Plan, the MDBA (2020) admits to significant gaps in information and modelling and that the science and monitoring has been patchy. A report commissioned by the federal government, the Independent Assessment of Social and Economic Conditions in the Murray-Darling Basin, noted that "critical data and information is missing" (Sefton et al., 2020: 8). Hart et al. (2020: 411) argue that knowledge generation in the Basin is "ad hoc, poorly funded and lacks a coordinated approach". This has limited federal government oversight and capacity and has contributed to ambiguities and uncertainties about the outcomes of the Basin Plan.

On the most basic question of what the Basin Plan has achieved, there is much uncertainty. The official view is that around 2100 GL of water has been recovered for the environment, representing about 20 per cent of water entitlements before the Plan commenced (MDBA, 2020). This figure is disputed by independent experts. Official estimates of water recovered from buybacks stand at around 1200 GL (Productivity Commission, 2018: 35). Grafton and Williams (2018: 7) argue this is an overestimate. The official calculations are based on water entitlements purchased by governments. Yet irrigators use only 72 per cent of their entitlements on average, meaning that "the actual increase in environmental flows associated with water recovery is, on average, 28 per cent less than what is claimed by the Australian government" (Grafton and Williams, 2019: 6). This suggests that instead of 1200 GL being obtained through buybacks, a more accurate figure might be 72 per cent of this, or around 860 GL. Moreover, slightly less than half of the water buybacks come from low-security water licences which are based on variable, insecure water sources (Alexandra and Richards, 2021: 786; Moore et al., 2020: 1).

Serious questions about the efficiency and effectiveness of publicly subsidised water infrastructure investments have also been raised. The Productivity Commission (2018: 97) has warned, "no comprehensive benefit-cost analysis has been undertaken to confirm that the public benefit of these measures has exceeded the costs to taxpayers". The evidence shows that such projects are subject to substantial diminishing returns in water recovery, whilst Crase (2011: 89) argues that water efficiency subsidies typically create incentives to increase water usage. Indeed, Wheeler et al. (2020) find that irrigators who have received such subsidies have increased water extractions by as much as 20 to 30 per cent (see also Whittle et al., 2020: 7). Moreover, projects aimed at water efficiencies do not create new water at basin scale but simply relocate it, often to the detriment of return seepage flows into river systems. Estimates using international data show that return flows may amount to 49 per cent of irrigation withdrawals from rivers (Grafton and Wheeler, 2018: 508). Grafton and Wheeler (2018: 505) argue "if return flows equal half or more of the water losses, then subsidies to increase irrigation efficiency will actually reduce stream flows". In the face of such concerns and ambiguity, the South Australian government's Murray-Darling Royal Commission (2019: 396) argued that "support for

efficiency measures as a means of recovering water seems to be a decision based almost entirely on political considerations". In 2021, the federal water minister, Keith Pitt, axed water efficiency subsidies for on-farm projects, stating the programme "hasn't delivered what it was supposed to or what was expected" (Sullivan and Long, 2021).

Official estimates of water recovery through subsidised infrastructure investments stand at around 700 GL (Productivity Commission, 2018: 35). Recent independent estimates give a much lower figure. Based on Basin average utilisation rates of water entitlements by irrigators, and based on a mid-point estimate of the ratio of return flows to total water savings (consistent with field water balance data for the MDB), Grafton and Williams (2019: 6) estimate the increase in river flows from infrastructure measures to be only 70 GL. Adding this estimate to the 860 GL of water potentially recovered through buybacks brings the recovered water estimate to only around 930 GL, far short of the official government estimate and far short of what is needed on the basis of the 'best available science' regarding environmental flows.

Moreover, there are no official estimates of whether recovered environmental water has resulted in expected river flows. When actual river flows (compared to estimates of recovered water) are measured, the picture is disturbing. The Wentworth Group of Concerned Scientists (2020) analysed hydrological studies of observed river flows at 27 sites in the MDB using data from 2012/13 to 2018/19. They found that observed flows in 24 of 27 sites were lower than expected, even when accounting for climatic conditions. Of these, 13 sites received less than three quarters of expected flows and 3 sites less than half of expected flows. The lower-than-expected flows were accounted for by water held for the environment being not available, environmental water being extracted upstream, farm dams, and failure to remove floodplain barrages.

Such uncertainties, and weak accountability and compliance measures, have heightened levels of distrust, producing a situation where "the public debate around Basin management has become increasingly toxic", according to the Northern Basin Commissioner (Keelty, 2019: 38). The Murray-Darling Basin Royal Commission (2019: 405) argued that "a complete audit is required... to ascertain how much water is being returned to the environment, and at what cost to the taxpayer... Sadly, no such transparency or disclosure has existed". Grafton (2019: 133-4) suggests that "The failures of the water reform process in the MDB... are largely attributable to the lack of independent and transparent reporting and public scrutiny... This neglect has not happened by chance but would seem to be a deliberate strategy to avoid scrutiny" (see also NSW Ombudsmen 2017: 40). Indeed, Grafton et al. (2020) argue that the governance of the MDB is now operating in a 'post-truth' world where data is murky and powerful interests are often able to fabricate what passes for the truth to suit their interests. The peak local government body, the Murray-Darling Association (2018), argues that there has been "a lack of effective monitoring and reporting mechanisms, as well as a lack of action on non-compliance that has contributed to an erosion of confidence and fuelled state and regional divisions across the Basin". The Productivity Commission (2018: 13) has argued:

stakeholder confidence has been further diminished by concerns that some Basin States had substantial deficiencies in enforcement of their water take laws... An unwillingness to demonstrate that water acquired for the environment can be protected from extraction further downstream, and allegations of fraud in water recovery programs have compounded these concerns and left stakeholders sceptical of the motivations of Basin governments.

Grafton and Wheeler (2018: 505) argue that "Much information on water use, diversions, return flows, storage, carryover, and other factors is not publicly available, or available at all...". The Wentworth Group (2017: 47) points out, "it is inconceivable that we do not know how much water is being extracted from surface and groundwater systems for consumptive use". The Wentworth Group (2017: 48) concludes: "The Commonwealth government does not currently have sufficient measures in place to prevent Basin states from gaming the system and ensuring recalcitrant states deliver necessary actions. Already \$7.9

billion has been spent with inadequate governance, poor transparency and for unknown returns". As Jason Alexandra, a former senior executive in the MDBA argues, "Reforms to restore trust need to be based on ending secrecy and adopting fully transparent approaches" (Alexandra, 2019).

In summary, important knowledge gaps and ambiguous data regarding outcomes have suited powerful interests that support current arrangements in the MDB. This has fuelled conflict and weakened trust and legitimacy, thereby weakening federal state capacity.

STATE CAPACITY AND INFRASTRUCTURAL POWER

The agency-based approach to state capacity sees the relations between key agents and their decisions as central in shaping outcomes. These relations operate in two related spheres in the MDB. First, there is the core set of relations between the federal state and other key interlocutors, especially state governments and larger irrigators. Here, federal infrastructural power has been weakened due to contrary interests and limited cooperation from state governments and large irrigators. The second relational sphere has involved the federal state and smaller farmers and relevant local governments and communities who have, in many cases, become hostile to the Basin Plan.

In the first set of relations just described, there is substantial evidence that powerful irrigator interests and leaders at both the state and federal levels have tended to form common cause. Furthermore, decreasing levels of federal leadership and commitment to the Basin Plan have been apparent. State capacity theory assumes that state leaders are committed to their declared goals, but federal commitment to the stated goals of the Basin Plan has waned over time. This has been apparent, especially with the change of government in 2013, with the election of the Liberal-National coalition government, and especially the rurally based National Party, which has been receptive to the views of irrigators and their lobbyists (Simons, 2020). This waning federal commitment has facilitated closer federal alignment with elements within state governments and with large irrigators, leading to a form of 'social embeddedness' which has limited federal state authority. National party's water minister from 2013 to 2017, Barnaby Joyce, explained the federal government's position to an audience in an irrigation district in 2017: "We've taken water and put it back into agriculture so we can look after you and make sure we don't have the greenies running the show basically sending you out the back door. That was a hard task, but we did it" (quoted in Grafton, 2019: 131). The former Chair of the Northern Basin Advisory Committee has stated, "It was my observation and impression that the MDBA's direction changed when Barnaby Joyce became federal minister for agriculture and water resources in 2013. At the time it appeared to me that the MDBA shifted its approach further towards irrigator interests" (quoted in Davies, 2018c).

As part of its waning commitment to the Basin Plan, the federal government in 2013 abolished an important body for coordinating water policy, the COAG Standing Committee on Environment and Water, whilst the MDBA's water audit programme was scaled back (Wentworth Group, 2017: 49). In 2014, the government abolished the National Water Commission (a Basin oversight and review body dating from the NWI). In 2015, the government passed legislation that capped the level of total water buybacks at 1500 GL. Federal responsibility for water policy was also transferred from the environment department to the agriculture department, whose Minister at the time was Barnaby Joyce. In 2018, the federal government successfully appealed to the High Court to bar federal public servants and MBDA staff from giving evidence before the Murray-Darling Royal Commission.

In 2014, the federal government also terminated competitive open tenders for water purchases, installing a new system of non-transparent one-on-one purchases. For example, in 2017 the federal Department of Agriculture, Water and the Environment paid the large agribusiness AUD\$34 million for water licences. The Department also provided 21 GL of water free of charge for the business's 2017/18 cotton crop and paid AUD\$40 million in compensation for loss of future business and the surrender of certain infrastructure approvals (the first ever for such compensation) (Slattery and Campbell, 2018). Another deal involving another large agribusiness saw the federal government spend AUD\$79 million to

purchase water entitlements in the form of flood-event 'over-land flow' water. There has been extensive use of so-called 'flood-plain harvesting', whereby levees and barrages are used to trap overland flow water on rural properties, with some estimates of the volumes involved being very large, possibly even larger than the volumes returned to rivers via environmental flows (Simons 2020: 55). As for the second agribusiness mentioned above, Grafton and Williams (2019: 495) explain, "The water entitlements acquired by this purchase are overland flows and are thus not secured from downstream users. Thus, downstream irrigators with their own water entitlements can divert the water recovered 'for the environment' for their own use". Simons (2020: 48) reports on comments by a former senior MDBA official who attended an irrigator's meeting in the Northern Basin: "Irrigators questioned why the government was buying 10 per cent of their water when they knew it was going to be pumped out by irrigators downstream". As Grafton and Williams (2019: 497) conclude, "the government of the day has legally undertaken expenditures to benefit particular interests, mediated by the political process, even though this appears to be contrary to the stated goals of water reform". As the Northern Basin Commissioner has argued (Keelty, 2019: 22):

The buyback of water licences by governments is seen by some to favour particular water title holders over others. Some of those water licence holders are thought to be heavily involved in donating to political parties or lobbying political parties so the compensation payments are seen as 'kickbacks' and not as a way of improving the water management of the northern Basin.

Large irrigator interests and agribusiness gain influence by appealing to popular notions about the benefits of irrigation and agrarianism and because they are major investors in regional Australia. They also have substantial lobbying capacity. Indeed, large irrigators and their lobbyists have become an integral part of an informal but powerful public-private network collaborating with supportive elements in the federal government, especially since the change of federal government in 2013, as well as with several major state governments, especially NSW. Grafton and Wheeler (2018: 504) thus point to the role of "informal alliances between politicians, bureaucracies and irrigator sector organisations that collaborate to prevent reform that is perceived to be contrary to the interests of irrigators", whilst Marshall and Alexandra (2016: 693) point to the role of "irrigators, irrigation-based industries... local, state and federal politicians... irrigation lobby groups, and hydraulic bureaucracies" as central players in steering governance instruments in their preferred direction. There is thus a concentrated set of industry and political interests with much at stake compared to more diffuse and less concentrated interests in smaller-scale agriculture, in many rural communities, and from those pushing for science based policy and for environmentally sustainable reforms (Marshall and Alexandra, 2016).

In NSW, the irrigation industry overwhelmingly dominates meetings with ministers on water issues (Grafton and Williams, 2019: 9). NSW has been lax on water metering and has regularly adjusted its own water management rules, allowing, for example, much larger irrigation pumps and larger volumes of water to be privately pumped under certain circumstances, including water previously recovered for the environment as well as during periods of low river flow (Wentworth Group, 2017: 2, 60-61). A report by the Northern Basin Commissioner shows a large increase in water extractions following water management rule changes in NSW in 2012, noting that, "Some see their water licence as a right to lawfully access their entitlements with little or no regard to the environment" (Keelty, 2019: iv).

The relevant rules have also been flouted, as exposed by the ABC *Four Corners* programme entitled 'Pumped' (Australian Broadcasting Corporation 2017). The programme found evidence of extensive illegal pumping activities by several large irrigators especially in the Northern Basin in NSW. The Mayor of Brewarrina Shire Council summed up the situation in the following terms (O'Connor, 2018: 5):

Self-interested parties clearly have access to policymakers... Given the regular tinkering with the rule book by those with significant interests and the failure to ensure consistent and accurate metering, one must question how the Murray-Darling Plan is ever likely to achieve its stated objectives... The most devastating impact has been the sale and activation of sleeper licenses, the transfer of licenses away from properties [to

the highest bidder], the removal of pump size restrictions and the failure to protect environmental flows... the size, number and capacity of pumps has grown dramatically, and monitoring and compliance are poor cousins to demand and economics... this has enabled low flows to be legally extracted by a small number of very large irrigation businesses.

The Northern Basin Commissioner has argued that "Lobby groups are very active in shaping government policies around the allocation of funds to projects. Whilst it is difficult, if not impossible, to trace their political influence, stakeholder feedback revealed a level of suspicion that funding is politically influenced" (Keelty, 2019: iv).

A key site of contestation has been the Barwon-Darling Water Sharing Plan. After years of community consultation, the Plan was altered at the last minute in 2012 by the NSW water minister following lobbying by irrigator interests, partly with the aim of installing a more liberalised pumping regime (Simons, 2020: 30). These and other matters were investigated by the NSW Independent Commission Against Corruption (ICAC). The Commission found no evidence of formal corruption but did find that the NSW Department of Agriculture, Water, and the Environment's "decisions and approach were manifestly partial towards irrigators and industry", and that "there was a clear alignment between the Department's strategies and goals and those of the irrigation industry" (ICAC, 2020: 9).

As Simons (2020: 61) has argued, in NSW "there is a clear demarcation between the favoured few – the irrigators who have benefitted most from government decisions – and the rest". Former NSW Labor opposition shadow water minister, Clayton Barr, has a similar view: "if you are part of the inner circle, you have all sorts of benefits coming to you in terms of access to water... the Barwon-Darling River system has been killed off by a water sharing plan agreed to by a select handful with influence" (Barr, C. Comments made in NSW Country Hour, ABC, 4 December 2019). A review of the Barwon-Darling Water Sharing Plan by the NSW Natural Resources Commission (2019: 1) similarly argues that: "Changes to the water sharing rules in the Plan have resulted in an increased allowance for extractive uses... These provisions benefit the economic interests of a few upstream users over the ecological and social needs of the many". In an article in the Sydney Morning Herald, Loussikan (2020) writes that an independent review of NSW water-sharing plans found "serious mismanagement characterised by lack of resources, blame shifting between agencies, and a lack of monitoring on how much water remained in the rivers and what was being used".

Evidence of regulatory capture or at least common cause between relevant bureaucrats and irrigator interests was also revealed in the ABC's *Four Corners* programme, *Pumped* (Australian Broadcasting Corporation 2017; see also Grafton and Williams 2019). It disclosed that the then Deputy Director of the NSW Department of Agriculture had secretly colluded with irrigator interests, shared confidential information beneficial to such interests, and developed a so-called 'Plan B' that potentially entailed NSW withdrawing from the Basin Plan. *Four Corners* also found that many surface water extractions from river systems were unmetered and that water meters had been tampered with.

State capacity, via infrastructural power, requires consent and cooperation from key interlocutors. State capacity also depends on the authority granted to the state by society, based partly on the perceived effectiveness and legitimacy of state action. The outcomes outlined above have led to mounting distributional tensions over water allocation and have produced myriad losers in the system, especially smaller irrigators and farmers, as well as many rural communities. The Independent Assessment of Social and Economic Conditions in the Basin (Sefton et al., 2020: 11) found that "many people have diminished trust in federal and state governments to deliver good long-term policy" (see also Hart et al., 2020: 413). Perceived failures and special dealing within the operation of the Plan as well as the rising inequality of access to what is seen as an essential resource for all within the Basin have driven a political backlash. The Productivity Commission (2018: 13) has concluded that:

Deficiencies in the way Basin governments have approached implementation of the Basin Plan have caused considerable concern in many Basin communities. This has left a legacy of distrust... There is a widely held

view in the community that governments have failed to deliver clear and decisive direction-setting leadership.

In response to such concerns, in 2018, South Australia established the above noted Royal Commission to investigate the Basin Plan. Many in the Basin, including the lobby group, NSW Farmers, representing smaller farmers, are demanding that a Royal Commission be conducted at the federal level. A former senior executive in the MDBA claims that there is now "a deep crisis of legitimacy" in the governance of the MDB (Alexandra, 2019). There was a mass protest by farmers outside the Federal Parliament in December 2019. One thousand farmers from the Southern Basin have launched a AUD\$750 million class action against the MDBA for maladministration. The action is led by Chris Brooks of Southern Riverina Irrigators, who claims that smaller irrigators are missing out and that the National Party "is thoroughly in the pocket of big agribusiness" (quoted in Seccombe, 2019). The hostility is now so great that several ministers have asked for police protection when visiting the Basin (Sullivan, 2019). The Productivity Commission (2018: 57) concludes, "there are major shortcomings in the current institutional and governance arrangements. Responsibility for leading the implementation of the Basin Plan is not clear and there has been a lack of strategic leadership".

In summary, there has been a lack of commitment by key government and non-government agents in relation to the aims of the Basin Plan. This has helped steer water governance towards the interests of large irrigators, alienating a range of other interests and communities in the Basin. Hence, the infrastructural power that has been exercised has been skewed, reflecting state capacity of a certain type that is not generally in accord with key Basin Plan aims.

CONCLUSION

The major environmental goals of the Basin Plan have yet to be achieved. There have also been growing distributional tensions over water allocations, amidst mounting awareness of special dealing, rent seeking, and privileged interests, which have weakened trust and the federal state's legitimacy and capacity within the MDB. In particular, the federal state's infrastructural power has been weak in relation to major public and private interlocutors. Furthermore, these interlocutors in the federal government, state governments, and irrigation sector have utilised the major institutional elements of federal state capacity, including policy instruments, institutions, and knowledge, to further their own interests and weaken federal state infrastructural power and capacity in relation to the goals of the Basin Plan.

Growing scientific, public, and community concerns have prompted a political backlash and some recent government responses, including the establishment of two new monitoring and compliance regulators, the Inspector-General of Murray-Darling Basin Water Resources at the federal level and the Natural Resources Access Regulator in NSW (Hart et al., 2020: 402; Beasley, 2021: 224). These are steps forward. Further progress should involve strengthening the broad institutional capacities of the federal state that have thus far been manipulated and exploited by vested interests. In terms of institutional arrangements, this may be difficult given the entrenched nature of the 'fragmented regime' in the MDB and the apparent weakness of 'overarching rules' within the system. The main alternative institutional option, in terms of policy instruments, would be to try to reduce reliance on state government implementation and instead reassert federal authority through a renewed push on water buybacks. This would be difficult, but it could be a game changer. As Marshall et al. (2013: 212) argue, the possibility of "the Commonwealth acquiring sufficient water entitlements to achieve by itself most of the environmental targets of the Basin Plan would render... state sub-plans to implement the Basin Plan almost irrelevant, at which point the Commonwealth Environmental Water Holder would become the most important water management institution in the MDB". A necessary complement to such moves would be a reformed Basin Plan and *Water Act* that focusses not only on environmental goals but also on communities and regional economic structural adjustment in the face of the challenging future in the MDB. This would help the path of water buybacks and would require very substantial government

assistance to help communities and regional economies adapt to a lower water future, one cognisant of climate impacts and environmental needs. Various studies have shown that economic wellbeing and employment growth are likely to stem far more from structural adjustment and social services policies (Sefton et al., 2020; Hart et al., 2020: 423). As the Independent Assessment of Social and Economic Conditions report made clear, without greater community input and much stronger connections between water policy, structural adjustment, and regional development policy, the current Basin Plan looks unsustainable (Sefton et al., 2020). A further step would aim to greatly improve knowledge, data, monitoring, and accountability through federal-level action. This move would be very helpful in exposing poor performance under the Plan, as well as making life more difficult for those working against the aims of the Basin Plan.

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