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**Water for Rural Production in
NSW: Grand Designs and
Changing Realities**

by

John Wilkinson

Briefing Paper No 26/97

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EXECUTIVE SUMMARY

- Water for rural production in New South Wales on a large-scale, through irrigation, was first undertaken by government (pp.8-12, 15-17, 19-22, 26-30, 35-36).
- Government administration of irrigation was originally allied to a policy of populating the interior of New South Wales (pp. 8-9, 13, 27).
- Fruit growing, and later rice growing, on small holdings were part of the envisaged means of peopling the interior (pp. 11, 23).
- California was a particular point of reference (pp. 2, 5-8, 10-12, 23).
- A limited government endorsement of private irrigation occurred during the 1920s and 1930s (pp. 17-19).
- Cautions were expressed, not long after large-scale irrigation was commenced, regarding the worth of attempting to farm in the arid zones of Australia (pp. 24-25).
- Cautions have been continuously expressed about the possible adverse environmental effects of large-scale irrigation (pp. 25, 52-55).
- Peopling the interior, as a policy, was gradually abandoned during the 1950s and 1960s (p.31).
- Governments gave greater endorsement, during the late 1940s, to private involvement in irrigation as government began to subsequently reconsider, and withdraw from sponsoring large-scale irrigation (pp. 30-31).
- Government control, over the provision of water for rural production, also began to change as fruit growing, and rice growing, on smallholdings began to decline, and cotton growing on large holdings began to increase (pp. 32, 34-35, 37-45, 48-52).

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All responsibility for content, however, remains with the author and with the Library.

1 INTRODUCTION

Water for rural production has been one of the major issues in NSW economic development. In the early years of this century, water supplied by irrigation was looked upon as a potential major stimulus of rural production and, in turn, a major element in drawing more people to the inland parts of the state. Recently, irrigation has come to be challenged, both in terms of the proportion of the state's resources which it consumes, and in regard to its possible adverse effects on the environment.

This briefing notes looks at the origins, and development, of the policy behind irrigation and subsequently examines the changes in that policy (and the reasons for those changes) in recent times. Finally it looks at some of the criticisms of irrigation which have been made during the 1990s.

2 EMERGENCE OF ORGANISED WATER PROVISION FOR RURAL PRODUCTION

(a) Onset of Efforts to Enhance the Water Supplies of NSW

In the mid to late 1800s certain types of smaller scale irrigation had been undertaken by those who had taken up land in New South Wales. William Barwick has written that, "As early as 1843 much of the land along the Murrumbidgee had been assumed by settlers who used the water for grazing stock".¹ One of the most prominent of these woolgrowers was Samuel McCaughey, who had left Northern Ireland in 1856 and, in 1860, had purchased the property "Coonong", situated along the Murrumbidgee.²

Irrigation, on properties in south-western NSW, was partly initiated by McCaughey. According to Barwick, "little application of water to land was made until 1860 when Samuel McCaughey constructed a cutting from the Murrumbidgee to the dry bed of the Yanco creek, which enabled him to irrigate. . . 'Coonong'". By the end of the 1800s, McCaughey had become one of the wealthiest woolgrowers in New South Wales and had built about 60 miles of irrigation channels on his properties.³

It was in response to severe drought in New South Wales, in the early 1880s, that policy makers in New South Wales embarked on taking decided steps to develop the provision of water in the colony. In 1885 a royal commission, chaired by William Lyne, member of the Legislative Assembly, was established in NSW to study the conservation of water. The

¹ William Barwick, *The Murrumbidgee Irrigation Areas: A History of Irrigation Development in New South Wales from 1884, with Special Emphasis on the Murrumbidgee Irrigation Area from 1906-1916* (B.Litt., University of New England, 1979), p.1.

² *ibid.*, p.2.

³ Trevor Langford-Smith, "Murrumbidgee Irrigation Development: A Study of Irrigation Planning, Establishment and Growth" in Trevor Langford-Smith and John Rutherford, *Water and Land: Two Cases in Irrigation* (Australian National University Press, Canberra, 1966), p.27.

commission's terms of reference were to make a "full inquiry into the best method of conserving the rainfall. . .and also into the practicability, by a general system of water conservation and distribution, of averting the disastrous consequences of the periodical droughts to which the colony is from time to time subject".⁴

(b) The Influence of Irrigation in California in the late 1800s

Although it was not until the early 1900s that there occurred, in New South Wales, a concerted effort to enhance the state's water supplies, developments overseas intensified the endeavours of politicians to increase the availability of water in the then British colonies on Australian soil. In particular it was events in southern California which most attracted the attention of policy makers in Britain's Australian colonies.

A politician who had taken a particular interest in water supply, in California, was Alfred Deakin, former Minister for Water Supply in the Victorian government during the years 1883-1886, and chairman of the royal commission on water supply which was conducted in Victoria during the mid-1880s (and later to become Prime Minister of Australia). In a memorandum, prepared for the members of the Victorian royal commission, entitled *Irrigation in Western America*, Deakin had highlighted California as a focus for Australian endeavours to enhance the supply of water for rural production. He wrote that, "The climate of California resembles ours as much as that. . .the rainfall of its warmer districts is insufficient or irregular, so that, in more than two-thirds of this state, artificial additions to it are rendered necessary. . . It is thither therefore that we should. . .look to learn. . .the modes of successful irrigation."⁵

Deakin's report was referred to extensively by the commission, which also considered the progress of irrigation in other western states of the USA. Deakin's observations were used, in the commission's report, to highlight the two river systems in New South Wales which offered the strongest possibilities for irrigation: "The mean annual rainfall in the irrigating districts of Colorado is about 14 inches. . .Comparing these figures with the rainfall in New South Wales, we find that in this Colony the mean annual rainfall. . .in. . .the plain country between the Lachlan and the Murrumbidgee. . .is 16.33 inches, and in the corresponding district between the Murrumbidgee and the Murray, 14.56 inches".⁶

⁴ NSW Parliament, *Royal Commission on the Conservation of Water*, first report of the commissioners (NSW Government, Sydney, 1885), p. 1.

⁵ Alfred Deakin, *Irrigation in Western America*, a memorandum for the members of the royal commission on water supply (Victorian Government, Melbourne, 1885), pp.11-12.

⁶ *Royal Commission on the Conservation of Water*, pp.41-42.

(c) Significance of Irrigation and the Pinpointing of Locations

The 1885 royal commission concluded, as a result of its investigations, that

there is no better service on which water can be employed than that of irrigation . . . [its] great national importance. . . is not sufficiently understood or appreciated . . . We. . . [see it as] indicating a new era of pastoral and agricultural prosperity. . . conditions of climate and soil in this colony favour the cultivation of the vegetable productions of temperate. . . countries if only water can be had at the right time and in sufficient quantity. . . A little reflection. . . will show how vast are the capabilities of the colony, for the production of wine, dried fruits. . .⁷

After concluding that the irrigation potential of the areas between the Lachlan and the Murrumbidgee, and the Murrumbidgee and the Murray, compared favourably with similar areas already irrigated in the USA, the commission then foreshadowed the catchment areas that could be used in a scheme of irrigation:

The basin of the Snowy River . . . is 3,360 square miles, and has on its boundaries the highest mountains in Australia. . . the practicability of diverting a supply of water from. . . part of the Snowy River into the basin of the Murrumbidgee was first suggested by the Surveyor-General, Mr. Adams. . . the balance of evidence available goes to show that such a work is. . . possible.⁸

With regard to the rivers that could be employed in a scheme of irrigation, the commission reported that, “The highest class of irrigation is that practised on a regular system from irrigation canals. Unfortunately, the only rivers beyond the Dividing Range from which canals of this description can be constructed are the Murray and the Murrumbidgee.”⁹

(d) Beginnings of Irrigation in New South Wales

During the early 1890s other landholders in south-western NSW, apart from McCaughey, also attempted irrigation on their properties. Barwick has described how,

From the 1890s many small private irrigation schemes were commenced. Pumping schemes were started on the Murray River near Curlwaa (Wentworth) in 1890, and on the Murrumbidgee River near Hay in 1892. By 1896 private individuals had spent a considerable sum of money on such irrigation schemes. As this had been done without any legal authority, the Reid-Carruthers government legislated the *Water Rights Act 1896*. This Act gave control of water to the state and provided for the issue of licences to those who had, or wished to take water from state rivers for

⁷ ibid., pp.32-38.

⁸ ibid., pp.49-50.

⁹ ibid., p.42.

irrigation purposes.¹⁰

During the seven years 1895-1902 there was a severe drought in NSW, with 1902 being the driest year. The Darling River temporarily dried up and the *Australasian Pastoralists' Review*, for instance, described the drought as a “far-reaching national calamity”.¹¹ In response, in the final year of the drought, the See government obtained passage of the *Water and Drainage Act 1902* which provided for an appropriation of £1 million to be spent on water supply, water conservation and irrigation. According to Laurie Walker,

This Act provided for. . .the formation of Water Trusts by landholders. The administration of the Water Trust Districts. . .[was] vested in trustees. . .Rates. . . [were] levied, and from the amounts thus collected the construction costs. . .[were] repaid to the government over a period of years. . .Administration and upkeep of works . . .[were] also a charge against this revenue.¹²

(e) Issues in NSW Irrigation: Government versus Individual or Company Ownership of Water

A primary question which faced the early proponents of irrigation was that, when the British government had established the various colonies in Australia, it had introduced English common law into those same colonies. In regard to access to water, English common law maintained the “riparian” rights of those with land along rivers. Sandford Clark has written that Blackstone, in his *Commentaries*, spoke of water as a “res communes” but that, in the English case *Mason v. Hill*, in 1833, Justice Denman ruled that “the first occupier or first person who chooses to appropriate a natural stream to a useful purpose, has title against the owner of land below, and may deprive him of the benefit of the natural flow of water.”¹³

Erection of irrigation works could, of course, interfere with the downstream use of water by landholders. This, however, was overcome when, as outlined above, the Reid government obtained passage of the *Water Rights Act 1896* under which control of water in the colony was vested in the state.¹⁴

¹⁰ Barwick, op.cit., p.4.

¹¹ Clem Lloyd, *Either Drought or Plenty: Water Development and Management in New South Wales* (NSW Department of Water Resources, Sydney, 1988), p.180; Siobhan McHugh, *Cottoning On: Stories of Australian Cotton Growing* (Hale and Iremonger, Sydney, 1996), p.99.

¹² Laurie Walker, “Irrigation in New South Wales, 1884-1940” in the *Royal Australian Historical Society*, journal and proceedings, vol.27, part III, 1941, p.192.

¹³ See Sandford Clark, *Australian Water Law: An Historical and Analytical Background* (PhD Thesis, University of Melbourne, 1971), p.54.

¹⁴ Paul Moy, *The Political Economy of Water Resources Management: Property Rights and Policy* (PhD Thesis, James Cook University of North Queensland, 1984), p.251.

Although control of water now came under the government, the issue of provision and ownership of irrigation did not arise until, as described above, the series of dry seasons in south-western NSW, culminating in the record drought of 1902, caused considerable anxiety to landholders, and stimulated strong local agitation for irrigation and stock water schemes, leading to the passage of the *Water and Drainage Act 1902*.¹⁵

A further outcome of this agitation was the convening, by the Carruthers government, in 1905, of a convention on water conservation and irrigation. Delegates to the conference included Charles Lee, the state Minister for Public works; James Ashton, the state Minister for Lands; William Lyne; and various regional representatives of the Farmers and Settlers Association. A particular session of this conference was devoted to the question “What should be the limits of state or private enterprise in respect of water conservation and irrigation?”¹⁶

Hugh McKinney, who previously in 1885, under William Lyne as NSW Minister for Public Works (in the Dibbs government), had been made head of a newly established water conservation and irrigation branch of the NSW Department of Mines, and had since returned to private practice as an engineer, addressed the conference in favour of companies becoming involved in irrigation. At the beginning of this session on the limits of state or private enterprise in irrigation, he put forward the following motion: “this conference recommends adoption of the principle that wherever private enterprise will undertake irrigation work. . .it should be encouraged to do so.”¹⁷

McKinney was, however, opposed by a number of delegates. Henry Somer, agricultural correspondent for the *Sydney Morning Herald*, quoted some of Deakin’s initiatives back at McKinney. After his visit to the USA, Deakin had persuaded George and William Chaffey, who had been involved in irrigation ventures just outside Los Angeles, to visit Victoria with a view to establishing a similar undertaking in that colony. The Chaffeyes arrived in 1886 and in 1887, acting as Chaffey Brothers Limited, signed an indenture with the Colony of Victoria to establish an irrigation venture on 250,000 acres of land at Mildura. In 1895, however, Chaffey Brothers went into liquidation, owing £22,000 in wages.¹⁸ George Chaffey had then returned to Los Angeles, according to William Kahrl, to join the businessman Charles Rockwood “in his largely fraudulent attempts to develop the Imperial Valley”, a project which once again collapsed.¹⁹

¹⁵ Langford-Smith, op.cit., p.25.

¹⁶ *Conference on Water Conservation and Irrigation*, Sydney 1905, report of proceedings and debates (NSW Government, Sydney, 1905), p.75.

¹⁷ *ibid.*, pp.75-76.

¹⁸ see J.A. Alexander, *The Life of George Chaffey* (Melbourne, 1928).

¹⁹ William Kahrl, *Water and Power: The Conflict over Los Angeles’ Water Supply in the Owens Valley* (University of California Press, Los Angeles, 1982), p.146.

Henry Somer also pointed out that “when Mr. Deakin went to America he discovered. . .that the freedom with which water was appropriated by private individuals led to no end of trouble. . .and. . .he proposed to go in for a state scheme, by which those troubles might be avoided.”²⁰ Indeed, Deakin had written in *Irrigation in Western America* that,

Another matter arising out of American experiences. . .is. . .the ownership of. . . water. . .where capitalists have. . .have secured the water, they. . .have the farmers absolutely at their mercy, and enjoy a monopoly of the most arbitrary kind. . . American experience. . .makes it plain that the state cannot afford to ignore the questions relating to irrigation. It must regulate the diversion and sale of water and generally supervise all sources of supply. . .if the sole control of any sources were to be conferred without restriction upon private persons or incorporated companies, there would be a possibility of creating a most injurious monopoly. The one motive of the private person or company, in controlling the supply, would be to obtain the largest profits or dividends. . .the tiller of the land, being entirely at the mercy of the owner of the water, would either be compelled to yield to exorbitant demands or allow his land to go out of cultivation.²¹

(f) Illustrations from California

In their general criticisms of the course of irrigation in California, the delegates at the 1905 water and irrigation conference, in Sydney, were mindful of certain particular realities in the development of the provision of water in the south of that state.

In California irrigation, at that time, had often been carried out by large land companies which benefited from the fact that, when the state had adopted its constitution in 1879, it also adopted the common law of England with the accompanying acknowledgment of riparian rights. William Kahrl has written that,

When the [American] federal government granted the state control of over more than two million acres of swamp and overflow lands in the public domain. . .the California Legislature responded by removing the dispersal of these lands from all controls. By careless and sometimes fraudulent methods at the state level, the lands fell under the control of huge corporate ranchers like the Miller and Lux Land and Cattle Company, which. . .establish[ed] an empire that ultimately came to embrace both banks of the San Joaquin River for a stretch of one hundred miles and the Kern River for more than fifty miles. The vast holdings of Miller and Lux along the rivers enabled the company to strangle agricultural development elsewhere in the San Joaquin Valley under the state’s riparian water laws. . .²²

²⁰ Conference on Water Conservation and Irrigation, pp.80-81.

²¹ Deakin, op.cit., pp.92-93,112.

²² Kahrl, op.cit., p.28.

Miller and Lux not only took control over agricultural development along these two rivers but, in the case of the Kern River, as John McKeague, a New Zealand agriculturalist writing in the late 1890s, remarked in his book *Practical Irrigation*, they “carried out a gigantic irrigation scheme, and diverted a large portion of the water of the Kern River over their lands.”²³ Other farmers in the valley challenged Miller and Lux in the Californian Supreme Court, in 1886, but Justice McKinstry found in favour of the land company on the basis of riparian rights.²⁴

Following a public outcry over this decision of the Californian judiciary, the Californian Legislature passed the *Irrigation Districts Act 1887*, providing for the establishment of such entities, however it still allowed for water to be owned by private individuals or companies. McKeague observed that within “The [1887] water law in the state of California. . .no statutory provision exists that the waters of the state are public property. The legal right of the water monopolist was recognised.”²⁵

²³ John McKeague, *Practical Irrigation* (Ashburton Newspaper Company, Ashburton, 1899), pp.343-344.

²⁴ see Willoughby Rodman, *History of the Bar and Bench in Southern California* (William Porter, Los Angeles, 1909), p.101.

²⁵ McKeague, *ibid.* Around 1905, just when the conference was meeting in Sydney, there began a much more striking instance of business involvement in the appropriation of rural water for urban development in southern California. As recalled by Carey McWilliams, in his 1946 book *Southern California Country*, between 1905 and 1910, a group of Los Angeles businessmen “acquired most of the former holdings of the Van Nuys and Lankershim families in the San Fernando Valley. . .M.H. Sherman, a member of this syndicate, was also a member of the city’s water board. Eventually this group of men acquired control of over 108,000 acres of land in the valley. Once in control of this vast acreage, they came to the water board of the city of Los Angeles with a typically grand proposal: that the city should build a 238-mile aqueduct to tap the waters of the Owens Valley (located between the Sierra Nevadas and the desert) . . .the city agreed to float a bond issue of \$25,000,000 to build the Owens Valley aqueduct. . .To the amazement of the residents of Los Angeles . . .the aqueduct line was brought to the north end of the San Fernando Valley, not into the city of Los Angeles, and there the terminal point still remains. With water available to irrigate the lands they had acquired in the San Fernando Valley, the ‘men of vision’ who had engineered this extraordinary deal, proceeded to sell their holdings for \$500 and \$1,000 an acre, making an estimated profit of \$100,000,000. . .The acquisition of Owens Valley water by the city of Los Angeles ruined a . . .farming community . . .Orchards withered, prosperous farms reverted to desert.” See Carey McWilliams, *Southern California Country: An Island on the Land* (Duell, Sloan and Pierce, New York, 1946), pp.187-190. This episode was transformed fictionally, and transferred to the 1930s, by the screenplay writer Robert Towne and used as the basis for the film *Chinatown*. The ramifications of this episode continue to the present day with the residents of the Owens Valley recently winning a court decision, against the city of Los Angeles, forcing the city to pay \$300 million to make amends for the outcome of the Owens Valley diversion. See Christopher Reed, “LA to Pay for ‘Stolen Lake’” in the *Guardian Weekly*, 13 July 1997, p.4.

(g) NSW Conclusions from the California Experience

As the participants at the 1905 conference deliberated over the course of events in California, John Christian Watson, leader of the Australian Labor Party (ALP), from 1901-1907 in the newly established Federal Parliament, Prime Minister of Australia from April to August 1904, and participant at the 1905 conference as the member of the House of Representatives for the south-western NSW seat of Bland, proposed a counter motion to that put forward by McKinney. Watson proposed, “That, in the opinion of this conference, all large schemes of water conservation and irrigation should be kept rigidly in the control of the state or other public authority on behalf of the people.” In support of his motion, Watson based his argument on the course of events in California: “with public ownership, would . . . [that] not be preferable to the absolute extortion practised on the people in the various states of America, where private enterprise had control of the water utilities? If you gave the rights of water conservation into the hands of a private company . . . every drop of water they conserved was theirs.”²⁶

In the end, John Johnston, editor of the south-western NSW newspaper, the *Riverine Grazier*, and a member of the River Defence Association in the town of Hay, moved a compromise motion that was accepted by the conference:

That this conference is of the opinion that it would be preferable for the state to undertake the carrying out of . . . irrigation schemes; but in the event of the government being unable or unwilling to do so within a reasonable time, it sees no objection to their being carried out by private enterprise, provided the concessions to private individuals are hedged about with conditions to safeguard the public interest, and the power is reserved to the government to resume at short notice.²⁷

3 INAUGURATION OF ORGANISED PROVISION OF WATER FOR RURAL PRODUCTION IN NEW SOUTH WALES

(a) First Dam on the Murrumbidgee River

At the conclusion of the 1905 conference, the delegates, according to Clem Lloyd, “unanimously agreed that New South Wales should initiate a thorough system of water conservation and irrigation”. As the conference agreed on, the New South Wales government, at that time led by Carruthers, would undertake the work itself. In late 1905, as Lloyd has written, Charles Lee, the Minister for Public Works,

outlined more precisely what the government intended. The three most favourable streams in the state for conservation and irrigation were the Murray, Lachlan and Murrumbidgee. The government would use the waters of all three rivers in the near future as part of a great national scheme of water conservation for the development

²⁶ Conference on Water Conservation and Irrigation, pp.82-84.

²⁷ *ibid.*, pp.92,99.

and. . .settlement of the central and western divisions of New South Wales. . . .the government. . .decided to start with the Murrumbidgee because it offered immense advantages for storing water in large quantities. . .²⁸

A year later the government approved proposals, already prepared by Leslie Wade, principal engineer of the water supply branch of the public works department, for the construction of a dam at BoorenYiack (anglicised to Barren Jack), on the Murrumbidgee, about 22 miles south of the south-western NSW town of Yass. The government also approved plans for the building of irrigation canals off the Murrumbidgee, near the town of Nerrandera. Carruthers then obtained passage through parliament of the *Barren Jack Dam and Murrumbidgee Canals Construction Act 1906*, with the NSW department of public works as the constructing authority and an appropriation of £574,000 for the first year of the project.²⁹ The overall cost of completing the dam, and the canal works further down the Murrumbidgee, was estimated to be £1,574,000.”³⁰

The dimensions of, what was later renamed the Burrinjuck Dam, were subsequently outlined by Ben Morgan: “The principal work is. . .a high masonry dam across the Murrumbidgee River. . . about 22 miles south-west of the town of Yass. . .This dam, designed to hold a depth of 200 feet of water immediately above it, forms the. . .[Burrinjuck] reservoir. . . having a capacity of 766,324 acres feet of water (i.e. equal to 12 inches depth of water over that number of acres).”³¹

(b) The Early Irrigation Areas

Morgan, writing in 1908, described the inauguration of the irrigation canal system, many miles downstream from the Burrinjuck Dam, as follows:

A moveable diversion weir [is being built] on the Murrumbidgee River, about 236 miles (by river) below the Barren Jack Dam, and about 19 miles in a direct line. . . above the town of Nerrandera. . .to turn the required amount of water from the river into. . .A main canal, taking off from the river just above the diversion weir, having a course through the town of Nerrandera, and thence following the western edge of the high ground. . .together with a main branch canal, commanding practically all the land lying to the westward of Hay and Gumbar. A series of main and subsidiary distributing channels. . .[will take] off at intervals from the main and branch canals to distribute the water to the various small holdings. The amount of high-class irrigable land suitable for intensive culture, commanded by this canal, is estimated at 357,000 acres.³²

²⁸ Lloyd, op.cit., p.187.

²⁹ ibid.

³⁰ Barwick, op.cit., p.12.

³¹ Ben Morgan, *The Trade and Industry of Australasia* (Eyre and Spottiswoode, London, 1908), pp.124-126.

³² ibid.

Four years after work had begun on the Burrinjuck Dam, the Wade government obtained passage of the *Murrumbidgee Irrigation Area Resumption Act 1910*, which authorised the resumption of 1,668,000 acres of land, just north of the Murrumbidgee (downstream from Nerrandera) and, shortly afterwards, the *Murrumbidgee Irrigation Act 1910* which provided for the administration of the Murrumbidgee irrigation scheme by a single Trust: consisting of the Minister for Public Works, the Minister for Lands and the Minister for Agriculture.³³

Only a year after the passage of the Murrumbidgee Irrigation Areas Resumption Act, the following McGowen government began acquiring land for the scheme. The essence of the Murrumbidgee irrigation scheme, as described by Walker, was that, “the scheme was divided into two areas, known as Yanco at the eastern end and Mirrool at the western end. The total length across the settled area from the east of Yanco to the west of Mirrool is about 40 miles, with a breadth from north to south of from ten to fifteen miles. . . Leeton. . . [became] the large town on Yanco, and Griffith on Mirrool.”³⁴

The name Yanco was used for the area at the eastern end of the scheme because, as Langford-Smith has written that,

The first property to be acquired for irrigation settlement was that of Sir Samuel McCaughey [by then a member of the NSW Legislative Council] in June 1911. . . Subsequently additional areas were resumed, making 74,000 acres in all. Land acquisition continued steadily and within twelve months a total of 229,700 acres had been acquired by purchase or resumption at a cost of approximately £680,000. . .³⁵

California continued to focused on, as information was collected to form suggestions for farmers as to the best use they could make of the land. In 1911, the then Murrumbidgee Irrigation Trust invited Elwood Mead, current chairman of the Victorian State Rivers and Water Supply Commission, to advise the NSW state government on the best means of dealing with the settlement of the irrigation lands under the Murrumbidgee irrigation scheme. Before being invited to Australia, in 1907, by the Victorian government, Mead had been head of the USA’s Office of Irrigation Investigation. After leaving Victoria, in 1917, Mead would become head of the Land Settlement Board in California. Mead’s advice to the McGowen government was the same as he had given the to Victorian government on the issue of irrigation. He advocated intensive settlement on smaller holdings and this suggestion was adopted by the Trust. As recalled by Barwick, the Trust “resolved to subdivide the irrigable land into mixed farming blocks of fifty acres; horticultural blocks of ten acres, situated on selected land in the vicinity of townships; and working men’s blocks of two acres situated around the towns.” The Trust’s plan for the use of the blocks, according to Barwick, was as follows:

³³ Langford-Smith, op.cit., p.28.

³⁴ Walker, op.cit., p.200.

³⁵ ibid., pp.28-29. According to Langford-Smith, “McCaughey had been an enthusiastic supporter of the [Murrumbidgee irrigation] scheme, and he hastened to make available for purchase 68,000 acres of his land”.

In the original subdivision of fifty acre blocks by the Irrigation Trust, the lowest valued blocks were those deemed suitable for sorghum, lucerne and hay production. Higher in value were those blocks suitable for fodder growing in addition to the growing of vines. Still higher were blocks suitable for stone fruit production, and the best blocks were those considered suitable for citrus growing. . .As the farms were so small, it was intended that the settlers would use them to grow high-yielding crops. Although the farmers were not bound to grow fruit, it was expected that most would. . .³⁶

A year after the resumption of land had begun - and in the same year that, with the diversion weir at Nerrandera nearly completed, the Murrumbidgee irrigation areas were officially opened - the McGowen government made significant changes to legislation dealing with the irrigation scheme, obtaining passage of the *Water Act 1912* (dealing with water policy) and the *Irrigation Act 1912* (relating to irrigation). The latter Act established a Water Conservation and Irrigation Commission (WCIC) and Langford-Smith, writing in 1966, commented that the *Irrigation Act 1912*,

constantly amended through the years, has been the basis for irrigation legislation on the Murrumbidgee. The . . .[Act] abolished the Murrumbidgee Irrigation Trust, and substituted for it control by a single officer to be known as Commissioner for Water Conservation and Irrigation, appointed for a seven-year term. The new commissioner was invested with extraordinarily wide powers under the provisions of the Act, powers which included. . .complete control of matters relating to irrigation and land settlement in the Murrumbidgee Irrigation Areas.³⁷

An illustration of the powers exercised by the WCIC was the commission's entirely artificial creation of the towns of Leeton, in the Yanco area, and Griffith in Mirrool. Leeton was named after Charles Lee, Minister for Public Works in the Carruthers government and chairman of the 1905 conference on irrigation, and Griffith was named after Arthur Griffith, Minister for Public Works in the McGowen government. Work on the two towns began in 1913 with the WCIC, as Walker wrote, laying out "these towns. . .with plantations of trees and lawns in the main street, electric light, water supply".³⁸

As well as building these two towns, the WCIC built factories to handle the produce to be generated by irrigation. Between 1912 and 1913, the WCIC built a butter factory at Leeton. A year later, in 1914, the WCIC built a cannery at Leeton to handle the expected expansion

³⁶ Barwick, op.cit., pp.28-30; Lloyd, op.cit., pp.185. Intentions for citrus growing in the irrigation areas were undoubtedly based on the already established citrus growing industry in California. Carey McWilliams has recorded that, following the first planting of orange trees in southern California, in 1873, "By 1900, 5,648,714 orange. . .trees had been planted in the region". See McWilliams, op.cit., pp.209-210.

³⁷ Langford-Smith op.cit. p.28..

³⁸ Walker, op.cit., p.202.

in fruit production. Around £189,000 was spent on constructing the cannery.³⁹

To assist settlers who intended to grow fruit, the WCIC, according to Barwick, built a “government nursery. The nursery catered for the irrigation settlement, growing trees, plants and vines which had been adapted for the area.”⁴⁰

When the first blocks were announced for settlement, the subdivisions manifested the adoption of a policy of “intensive” farming. Barwick has written that, “The first irrigation area at Yanco was proclaimed on 1 May 1912. On 29 May 1912 the Government Gazette listed, as available, seventy-six farms of fifty acres; forty-three farms of ten acres; and twenty-seven farms of two acres.”⁴¹

As the irrigation scheme developed, the focus continued to be on experiences in California. According to Barwick, “Californian practice of irrigation was portrayed as the epitome of achievement”.⁴² Clem Lloyd has written that “In the first Yanco subdivision, 25 farms of 50 acres were reserved for experienced American irrigationists. . . They were given concessions, including . . . farms free of rent and water charges for a year. In return, the demonstration settlers were expected to provide full information on their methods to all inquirers”. On this basis, six American families were settled in the Yanco area.⁴³

By mid-1914, 677 farms had been established over an area of 27,908 acres of land. The size of selectable blocks had also been increased: with the McGowen government deciding, the year before, that blocks of 100 acres would be available for selection.⁴⁴

Although the great war in Europe slowed down the progress of the irrigation scheme, activity in the area continued. By mid-1916 there were 893 settlers on 40,636 acres of land.⁴⁵ The WCIC still maintained awareness of the project amongst the public in Sydney and in rural NSW. In March 1916, the then Premier of NSW, William Holman, visited the irrigation areas. Exhibits of products from the irrigation areas were displayed at the Royal Easter Show, in Sydney and, likewise in 1916, the WCIC hired the poet Henry Lawson to work in Leeton as a publicity officer for the project.⁴⁶

4 NSW IRRIGATION THROUGH THE 1920s DECADE OF NATIONAL DEVELOPMENT AND THE 1930s DECADE OF COLLAPSE

³⁹ Barwick, op.cit., pp.70,86; Lloyd, op.cit., p.205; Walker, op.cit., p.205.

⁴⁰ Barwick, op.cit., p.68.

⁴¹ *ibid.*, p.34.

⁴² *ibid.*, p.93.

⁴³ Lloyd, op.cit., pp.208-209.

⁴⁴ Barwick, op.cit., pp.71,88.

⁴⁵ *ibid.*, p.131.

⁴⁶ Lloyd, op.cit., pp.208,221; Barwick, op.cit., p.129.

(a) The Policy of National Development, and Peopling the Interior, in the 1920s

After the sacrifices involved in the Great War in Europe, the Australian government, in concert with the British government, embarked on a program of national expansion. A popular slogan was that the 1920s would be the “Development Decade”.⁴⁷ Stuart MacIntyre has recalled how,

At the Imperial Conference of 1921 the British government offered to establish a fund to further. . .[these] aims. Under the Empire Settlement Act of 1922, Britain allocated money to assist immigration and to finance rural settlement on the understanding that the dominions would share costs. New South Wales, Victoria and Western Australia submitted schemes. . .It soon became apparent that the settlement schemes were undercapitalised, and in 1925 Britain and Australia negotiated the ‘£34 million Agreement’, which was expected to bring 450,000 migrants in a decade. The £34 million was available to the states in cheap loan funds (at a rate of £75 for every assisted immigrant and £1,000 for every family farm) and the states were invited to submit proposals to a Commonwealth Development and Migration Commission.⁴⁸

As will be outlined in sub-section (e) of this paper, the NSW government was able to take advantage of the possibilities offered in the “£34 million Agreement” for further irrigation activity in other parts of the state.

Increasing population in western New South Wales was one of the directly expected outcomes of this intended expenditure on irrigation. When, as will also be described in sub-section (e), the Bavin government, in 1928, availed itself of the £34 million Agreement to embark on the building of the Wyangala Dam, on the Lachlan River, Thomas Shakespeare MLC, whose father had come from England and who himself had grown up in Condobolin, on the Lachlan, described the dam, according to Lloyd, “as the most important measure ever submitted to the NSW Parliament ‘from the viewpoint of closer settlement’. He forecast the subdivision of large holdings and conjectured about another 20,000 settlers ‘going in’ along the Lachlan.”⁴⁹

⁴⁷ Lloyd, op.cit., p.217.

⁴⁸ Stuart MacIntyre, *The Oxford History of Australia*, vol.IV, *The Succeeding Age 1901-1942* (Oxford University Press, Melbourne, 1986), pp.203-204.

⁴⁹ Lloyd, op.cit., p.244.

(b) The Importance of Britain as a Market

Associated with the scheme of national development - in which Australia would borrow money from Britain, and attract workers from Britain - was that Britain would be a market for the many of the goods which Australia would produce through these schemes.

In particular reference to fruit growing, which was intended to be an important focus of activity in the Murrumbidgee irrigation areas, it was expected that Britain would become a major market for imports of canned fruit from south-western NSW. By means of arrangements negotiated between the Bruce government, and the government in Britain, as C.J. King has outlined, "In 1924 Imperial tariff preferences granted certain concessions with respect to canned fruits and dried fruits." The duty on foreign tins of canned fruit would be 2.82 pence per dozen cans, whereas the duty on tins of canned fruit from the British dominions would be levied at a rate of 1.78 pence per dozen.⁵⁰

In the 1930s, when there was a collapse in international trade, the British government gave even greater preference to goods from the dominions. David Meredith and Barrie Dyster have written that through "The Ottawa agreement of 1932. . .Australian wheat, butter, sugar, fruits. . .entered free of the duties charged to non-Empire competitors."⁵¹

By the end of the 1930s, as will be described in the following section of this paper, these tariff preferences enabled production in the irrigation areas to expand significantly on the strength of a much widened market for dominion tinned fruit in Britain.

(c) Introduction of Freehold Occupation in the Irrigation Areas, during the mid-1920s

All the early blocks of land in the irrigation areas were offered to settlers on leasehold terms. As settlers became established, however, they increasingly sought to convert their land to freehold. In 1922, 377 settlers sent a petition to the NSW Legislative Assembly, in an appeal to bring about a change in the terms of land tenure in the irrigation areas. In response, two years later, the Fuller government obtained passage of the *Irrigation Holdings (Freehold) Act 1924* which provided, according to Langford-Smith, "for both original purchase of freehold land and the right to convert existing leasehold to freehold."⁵²

⁵⁰ C.J. King, *An Outline of Closer Settlement in New South Wales*, part I, *The Sequence of the Land Laws 1788-1956* (NSW Department of Agriculture, Sydney, 1957), p.238.

⁵¹ David Meredith and Barrie Dyster, *Australia in the International Economy in the Twentieth Century* (Cambridge University Press, Melbourne, 1990), p.149.

⁵² Langford-Smith, op.cit., p.70.

(d) Continued Establishment of the Murrumbidgee Irrigation Areas during the 1920s

During the 1920s, after the Great War, activity in the Murrumbidgee irrigation areas revived. This was helped by the policy of the federal government, under Hughes, in assisting men, returned from the war, to take up land in the irrigation areas. By 1923 over 200 ex-soldiers had acquired blocks in the Leeton area, and over 660 had taken up blocks around Griffith.⁵³ Training of young, future settlers in the area was provided for when, in 1922, the Fuller government, in NSW, established the Yanco Agricultural High School.⁵⁴

War in Europe also delayed the construction of, what was subsequently named, the Burrinjuck Dam - but in 1927 the dam was finally completed. The surface area of the impounded water was 12,784 acres (compared with 14,284 acres for Sydney harbour) and the dam had a capacity of 771,600 acre feet of water (i.e. sufficient to cover 771,600 acres to a depth of one foot). A hydro-electric power station was also built at the dam site, and the power produced was supplied to Yass, to the new national capital of Canberra, and to other towns in central south-western New South Wales.⁵⁵

By the time the Burrinjuck Dam was opened, there were around 60,000 acres of land being watered in the Murrumbidgee irrigation areas.⁵⁶ The overall estimated cost of the irrigation scheme, by that stage - including the cost of the dam, the canal below Nerrandera, acquisition of land, building of channels, laying out of towns, construction of factories and the establishment of electric power stations - was around £8 million.⁵⁷

(e) Early Construction of Dams in other Parts of Western New South Wales

Assistance provided by the £34 million Agreement offered governments in NSW the opportunity to embark on building dams elsewhere in western parts of the state. In the late 1920s, as mentioned above, the Bavin government had submitted to a plan to the Commonwealth Development and Migration Commission for the building of a dam on the Lachlan River, about 30 miles upstream from Cowra. The Commission approved the scheme and the Bavin government subsequently obtained passage through Parliament of the *Wyangala Dam Act 1928*. Lloyd has written that, "The Wyangala Dam . . . was completed in 1936. . . [and] was a massive concrete. . . structure, resembling Burrinjuck. . . it . . . was financed jointly by the United Kingdom and the Australian governments under the . . . £34 million Agreement. . . Wyangala's capital cost of £1.3 million was largely covered by [this

⁵³ A.E. Bowmaker, *A Brief History of Leeton* (Rotary Club of Leeton, Leeton, 1968), p.101.

⁵⁴ Barwick, op.cit., p.126.

⁵⁵ Walker, op.cit., p.197; Water Conservation and Irrigation Commission, *Water Resources of New South Wales* (NSW Water Conservation and Irrigation Commission, Sydney, 1971), p.144.

⁵⁶ Water Conservation and Irrigation Commission (WCIC), op.cit., p.146.

⁵⁷ King, op.cit., p.231.

arrangement].”⁵⁸

Just a year before the Wyangala Dam was completed, according to Clem Lloyd, Bertram Stevens, then Premier of New South Wales, pledged in his 1935 election speech that, if elected, his government would build a dam on the Namoi River, in the vicinity of Tamworth. Two years later, having gained re-election, the Stevens government obtained passage of the *Keepit Dam Act 1937* which was to “sanction the construction of a dam across the Namoi River at Keepit. . .and [construction] of a diversion weir in the Namoi River near Boggabri”. The work would be carried out by the Water Conservation and Irrigation Commission and, according to section four of the Act, the cost of the dam was estimated at £1,340,000.⁵⁹

(f) Revival of the Snowy Mountains Scheme

As outlined above, the 1885 NSW royal commission on the conservation of water had pointed out that the “practicability of diverting a supply of water from. . .part of the Snowy River into the basin of the Murrumbidgee was first suggested by the Surveyor-General, Mr. Adams”.

Although Adams’s suggestion was not acted upon at the time, the suggestion was revived during the 1920s. William Corin, chief electrical engineer in the NSW Department of Public Works, as Lionel Wigmore has described, produced a scheme in 1920 for “the construction of a dam in the neighbourhood of Jindabyne, or possibly several dams on tributaries higher up the river. . .before re-entering the Snowy about twenty miles south of Jindabyne. . .[the water] would have a fall of 1,600 feet which could best be utilised by passing. . .through two power stations at different levels.”⁶⁰

Although Corin’s plan was not taken up during the 1920s, Bertram Stevens, in the same 1935 election speech in which he promised the building of the Keepit Dam, also promised, according to Wigmore, that his government, if re-elected, would “undertake immediately the careful planning of electrical development, including a grid system for transmission. . . and projected plants on the Snowy. . .and other rivers.” After his re-election Stevens commissioned an English firm of engineering consultants - Rendel, Palmer and Tritton - to investigate such a scheme. However the outbreak of the war in Europe, and subsequently the war in the Pacific, delayed the implementation of a plan of this nature.⁶¹

⁵⁸ Lloyd, op.cit., p.243.

⁵⁹ *Keepit Dam Act 1937*.

⁶⁰ Lionel Wigmore, *Struggle for the Snowy: The Background of the Snowy Mountains Scheme* (Oxford University Press, Melbourne, 1968), pp.89-90.

⁶¹ *ibid.*, p.93.

(g) Continued Settlement in the Murrumbidgee Irrigation Areas, despite the Depression of the 1930s

Overall the number of settlers remained relatively constant, partly through government assistance to indebted settlers (which will be outlined subsequently in section 8). In 1929 there were around 1,800 settlers on leasehold blocks in the irrigation areas. By 1939 the figure was about the same. A significant difference, however, was the increase in the number of settlers on freehold blocks by the end of the 1930s. In 1939 the number of settlers holding leases had fallen to just less than 1,586, whereas the number of settlers who had taken advantage of the Fuller government's *Irrigation Holdings (Freehold) Act 1924*, to obtain freehold blocks, had risen to 366. In terms of acreage farmed, in 1939, those on leaseholds were farming 144,417 acres, while those on freehold were farming 101,953 acres (a total of 246,370 acres: leasehold and freehold).⁶²

5 EARLY INAUGURATION OF PRIVATE IRRIGATION SCHEMES IN NEW SOUTH WALES: INITIAL RETREAT FROM GOVERNMENT CONTROL OF IRRIGATION

(a) Introduction of the Private Irrigation Schemes in the 1920s

During the 1920s, however, conservative state governments began to make inroads on this policy of government control of irrigation - tending to favour the reintroduction of a greater role for private landholders. The Fuller government which, as mentioned above, introduced freehold tenure into the Murrumbidgee areas, also introduced a role for private landholders into irrigation by obtaining passage of the *Water (Amendment) Act 1924*. As Frank Chaffey, Minister for Agriculture, declared, in bringing the bill before Parliament, the legislation was designed to "come to the rescue of a large number of very worthy settlers on the Murray River. . .who are occupying subdivided lands. . .the financial institutions will not advance the money which is needed for developmental purposes."⁶³ An alternative view of the legislation was put forward by Mark Davidson, the ALP whip, who declared, in reply, that he believed that "large landholders have been agitating for this bill for a considerable time with the sole idea of giving added value to the land which they propose to subdivide".⁶⁴

As outlined in the state government's *Official Year Book 1925-26*, although "Private rights have been abolished" by previous legislation, the Fuller government's legislation enabled, "the Water Conservation and Irrigation Commission to exercise control over the subdivision of private holdings for sale in small areas as irrigated blocks and for the taking over of private irrigation schemes. Both of these powers are now being exercised and certain

⁶² Water Conservation and Irrigation Commission, *Annual Report 1929*, p.6; Water Conservation and Irrigation Commission, *Annual Report 1939*, p.15.

⁶³ Second Reading Speech, Water (Amendment) Bill 1924. NSW Parliamentary Debates. Legislative Assembly. 17 July 1924, p.427.

⁶⁴ *ibid.*, p.429.

schemes hitherto illegal will be placed on a legal basis.”⁶⁵

The provision of the land being for sale “in small areas as irrigated blocks” was significant, as the WCIC intended to retain control over the way in which the land was to be settled over inland NSW, with the overall aim of inducing more people into the interior. As John Pigram wrote in 1970,

the New South Wales Water Conservation and Irrigation Commission allots water to individual irrigators by means of licences, which are normally defined in terms of the area of land or crops which may be irrigated - to a maximum of 400 acres per title. The licence cannot be sold separately or detached from the place of use, and can be transferred only with the right to occupy that land. . .Under normal conditions, no limit exists to the amount of water the licensee may take for ‘beneficial use’ on the authorised land. Thus the restriction on the individual irrigator’s operations is the licenced acreage - that is the land rather than the water.⁶⁶

(b) Additional Legislation in the 1930s

In the mid-1930s the Stevens government also endorsed the role of private irrigation by obtaining passage of legislation - the *Water (Amendment) Act 1936* - which appeared to give priority to large landholders who had already become engaged in private irrigation. In introducing the bill, the Minister for Agriculture, Hugh Main, declared that, in regard to licences issued by the WCIC for irrigation undertakings, “The amending measure. . .[gives] the Commission absolute discretion in regard to renewal [of licences]. . .If some permanency of water is not given to those who wish to go in for irrigation there will not be any irrigation, because it is an expensive matter to prepare land and provide the necessary plant.”⁶⁷

According to the state government’s *Official Year Book* , under the Stevens government, during 1936-1937, “applications for 343 new licences [for private irrigation schemes] and 280 for renewal of existing licences for pumps, dams and other works were received, resulting in there being a total of 2,193 such licences in force by mid-1937.”⁶⁸

The thrust of the Stevens government’s legislation appeared to be in the direction of assisting larger landholders along the Lachlan River. Clem Lloyd has written that, “Private irrigation grew. . .strongly up the Lachlan, with the number of licencees tripling and the

⁶⁵ *Official Year Book of New South Wales 1925-26*, pp.650-659.

⁶⁶ John Pigram, *A Geographical Assessment of the Water Resources of the Liverpool Plains Shire, Northwestern New South Wales, with particular reference to their Current and Potential Use for Irrigation Agriculture* (PhD Thesis, University of New England, 1970), p.155.

⁶⁷ Second Reading Speech, Water (Amendment) Bill 1936. NSW Parliamentary Debates. Legislative Assembly. 9 June 1936, pp.4347-4348.

⁶⁸ *Official Year Book of New South Wales 1936-37*, p.824.

volume of irrigated land increasing tenfold between 1920 and 1940. More land was privately irrigated on the Lachlan in 1940 than on either the Murray or Murrumbidgee.”⁶⁹

Even some of the operations of the WCIC itself began to be handed over to commercial interests. In the middle of the 1930s, the Stevens government obtained passage of the *State Cannery (Sale) Act 1935*, which handed over the operations of the Leeton Cannery (hitherto controlled by the WCIC) to a co-operative of growers.⁷⁰

6 NSW COMBINED IRRIGATION INITIATIVES WITH VICTORIA AND SOUTH AUSTRALIA: THE MURRAY RIVER SCHEME

(a) Inauguration of the Murray River Scheme

Irrigation through diversion of the Murrumbidgee River was a straightforward process for New South Wales because the river was wholly within its boundaries. Although the southern border of New South Wales lay on the Murray, diversion of water from that river - because its southern banks also formed the northern border of Victoria - had to be undertaken in conjunction with Victoria, and with South Australia (where the Murray finally reached the sea).

In 1913, however, the three states agreed to hold a conference to investigate the possibilities of joint use of the waters of the Murray: originally for navigation, but subsequently for irrigation. This took the form of a conference of engineers. On the basis of the engineers’ report, representatives of the federal government and of the three states carried a resolution, a year later, calling for the joint utilisation of the waters of the Murray River. In September 1914 an agreement was concluded between Joseph Cook (as Prime Minister), William Holman (Premier of NSW), William Watt (Premier of Victoria) and Archibald Peake (Premier of South Australia) for the realisation of this project. A year later, during the Great War, the federal government, under Fisher, obtained passage of the *River Murray Waters Act 1915* which provided for the development of works on the Murray. These works were to be undertaken, under the legislation, by a River Murray Commission.⁷¹

(b) Completion of the Early Irrigation Works on the Murray River

Because the Great War lasted for another three years after the passage of the Murray River legislation, work on the main construction on the river - a major dam near Albury - did not commence until 1919. Building continued during the 1920s and was then interrupted by the trade collapse of the early 1930s. Eventually the dam - named the Hume Dam - was completed in 1936.

⁶⁹ Lloyd, op.cit., p.250.

⁷⁰ Robin Tiffen, *Letona: The Whole Story* (Koonadan Publications, Leeton, 1996), p.39.

⁷¹ Walker, op.cit., p.193.

7 ALTERNATIVE ARRANGEMENTS FOR NSW UTILISATION OF WATER FROM THE MURRAY RIVER, AND FROM THE MURRUMBIDGEE

(a) Alternative Arrangements to the Murrumbidgee Schemes: Inauguration of the Irrigation Districts in the early 1930s

When it came to utilisation of the waters from the Murray, for irrigation, the Bavin government, at the beginning of the 1930s, decided on a different approach to that taken by the Carruthers and McGowen governments: choosing to provide channelled water to landholders rather than to small holders engaged in fruit growing. The Bavin government achieved this by obtaining passage of the *Water (Amendment) Act 1930* in which a newly inserted part 6 provided for the constitution of Domestic and Stock Water Supply Irrigation Districts. Laurie Walker wrote that the Bavin government,

decided that the New South Wales share of the River Murray shall be made available through Irrigation Districts, principally for the use of existing landholders for domestic and stock supply purposes. . . Water will not be supplied. . . for commercial orchards. . . or rice-growing. . . The constitution of these districts. . . for domestic stock and water supply only. . . are. . . formed by the [Water Conservation and Irrigation] Commission. . .⁷²

The significant difference between the irrigation areas, and the irrigation districts was that, whereas in the former the WCIC issued all the land titles, in the latter the land belonged to private landholders. According to Gary Lewis, the purpose of the establishment of these districts was “to assist pastoralists with guaranteed fodder.”⁷³ The first of the districts - to be called the Wakool Domestic and Stock Water Supply Irrigation District - was constituted in 1932 to eventually cover land of around 502,000 acres, between the Edward and Wakool Rivers, west of Deniliquin. According to Walker,

The district comprises 213 holdings owned by 148 landholders. The channels are carried to a convenient point on the boundary of each holding; the landholder does the rest. The area on each holding allotted for irrigation is something like one acre in twelve, and a property of twelve hundred acres is allotted a water right of one hundred acre feet.⁷⁴

Clem Lloyd has remarked that Wakool was the “most ambitious” of these irrigation districts, being “the first major irrigated area to use the Murray waters. Its creation in 1932 inaugurated a period of major development along the Murray.”⁷⁵ The estimated cost of the

⁷² Walker, op.cit., p.216.

⁷³ Gary Lewis, *An Illustrated History of the Riverina Rice Industry* (Rice Growers Co-operative, Leeton, 1994), p.98.

⁷⁴ Walker, op.cit., pp.216-217.

⁷⁵ Lloyd, op.cit., p.248.

works, to the WCIC, associated with this irrigation district, was about £515,000.⁷⁶

(b) Establishment of Irrigation Districts for Utilisation of Water from the Murrumbidgee: early 1930s

As well as being introduced as schemes for utilisation of water from the Murray, irrigation districts were also inaugurated, in the 1930s, as an alternative means to utilising water from the Murrumbidgee. The WCIC's record of water conservation describes how, "In the nineteen-thirties and forties, channels were extended westward from the Murrumbidgee irrigation areas" for the purposes of supplying water to parts of western NSW which contained "large-area farms basically devoted to sheep and wheat, supported by irrigated pastures, cereals and lucerne."⁷⁷

In 1933 the Benerembah Domestic and Stock Water Supply Irrigation District was established, to cover land, of around 120,000 acres, west of Griffith which would be supplied with water from the Murrumbidgee. The cost of these works were around £54,000.⁷⁸

(c) Further Establishment of Irrigation Districts, from the Murrumbidgee and the Murray, in the late 1930s

During the second half of the 1930s, the Stevens government created additional irrigation districts. In 1935 the Tabbita Domestic and Stock Water Supply Irrigation District was inaugurated. This covered land of some 6,000 acres north of Griffith, with water to come from the Murrumbidgee.⁷⁹

Around the time that the Hume Dam, on the Murray, was being completed, the River Murray Commission began constructing a weir (to be completed by 1939), further down on the Murray, between the Victorian town of Yarrawonga and the NSW town of Mulwala. To take advantage of the additional water from the Murray, which would become available on the completion of the weir, the WCIC, while the Stevens government was in office, began work, in 1935, on a 75 mile canal from Mulwala to Deniliquin. This was to provide water for the Berriquin Domestic and Stock Water Supply Irrigation District (provisionally constituted in 1934). This district eventually covered land of over 600,000 acres - consisting of 670 holdings owned by 591 landholders - beyond the town of Berrigan (south of Jerilderie) westwards towards Deniliquin (hence the coined name "Berriquin"). The water would also be used to supply two other irrigation districts, to become operational later on: Deniboota Domestic and Stock Water Supply Irrigation District covering land of over 300,000 acres, south-west of Deniliquin, on which there were, at the end of the 1930s, 147

⁷⁶ *Official Year Book of New South Wales 1934-35*, p.483.

⁷⁷ WCIC, *op.cit.*, p.149.

⁷⁸ *Official Year Book of New South Wales 1934-35*, *ibid.*

⁷⁹ WCIC, *ibid.*

holdings owned by 133 landholders (provisionally established in 1938); and the Denimein Domestic and Stock Water Supply Irrigation District covering land of around 140,000 acres between Deniliquin and Moulamein (provisionally constituted in 1946).⁸⁰ Walker, writing in 1940, described the Mulwala Canal project as “probably the largest irrigation canal in Australia . . . The discharge. . . will be 1,000 cusecs, 6,250 gallons per second; 1,983 acre feet per day, or 540,000,000 gallons per day. The [whole] construction of these [works] . . . will be an engineering feat of some very considerable magnitude, and will cost in the vicinity of £500,000.”⁸¹

(d) Inauguration of Irrigation Districts on other Rivers in New South Wales

In the late 1930s the Stevens and Mair governments began the creation of an irrigation district outside of the Murrumbidgee-Murray axis. The river chosen was the Lachlan, in connection with the construction of the Wyangala Dam, which was to be completed in 1936. The WCIC, in its account of irrigation in NSW, observed that,

The Jemalong and Wyldes Plains Domestic and Stock Water Supply Irrigation Districts are located just downstream of Forbes. . . The Commission commenced construction of works of the districts in 1938. Jemalong Weir, the main diversion weir for the system, was completed in 1939 at Jemalong Gap about 15 miles west of Forbes . . . Over 150 miles of channels reticulate the water to the various holdings. When opened in 1940, the districts served a total of eighty-five holdings which represented a total area of 215,000 acres. Seventy-two of these holdings utilised the water supply for irrigation purposes while the remainder received supplies for stock and domestic purposes only.⁸²

The estimated cost of the works for irrigation in the Jemalong and Wyldes Plains irrigation districts was £140,000.⁸³

8 EARLY PROGRESS AND EARLY PROBLEMS IN THE NSW IRRIGATION AREAS

(a) Expansion in Production via Increased Fruit Exports to Britain, and through Increased Production of Rice

Production in the irrigation areas steadily increased, during the 1920s, with dairying initially becoming prominent. A.E. Bowmaker has written that, during the first half of the 1920s, “For the year ended 30/6/1923 butter manufactured in the Leeton Butter Factory amounted to 946,470 lbs. (three times the quantity of seven years earlier). . . For the year ended

⁸⁰ WCIC, op.cit., pp.157-158; *NSW Official Year Book, 1945-1946*, p.498.

⁸¹ Walker, op.cit., pp.217-218.

⁸² WCIC, op.cit., p.140.

⁸³ *Official Year Book of New South Wales 1934-35*, ibid.

30/6/1925 butter production reached the peak figure of 1,216,586 lbs.”⁸⁴ Afterwards, and particularly after the Depression of the early 1930s, dairy production in the irrigation areas declined.⁸⁵

Fruit growing, however, not only expanded during the 1920s but continued to increase in the late 1930s, despite the setbacks of the 1930s Depression. John van der Meulen observed that, “In 1919, 7,673 acres (or 10.5 per cent of the total area [in NSW] under fruit) were located in the irrigation [areas]; at the end of the period of rapid expansion, 1924-25, there were 20,357 acres (23.5 per cent); thereafter, the area increased slowly to 24,794 acres (28.6 per cent) in 1940.”⁸⁶

Again, parallelling the course of the fruit growing industry in California, growers in the irrigation areas turned to peach growing.⁸⁷ This expanded so much - particularly through the easier access to the British market provided by the 1932 Ottawa tariff agreements - that, according to Laurie Walker, “On March 27, 1939, the Leeton Cannery established a British Empire record, when 350,000 cans of Pullars clingstone peaches were processed on that day. Ten thousand cases of peaches (approximately 220 tons) were pitted to fill the cans, and the number of hands in the cannery was 850.”⁸⁸

California continued to be a focus of interest, particularly for new irrigation crops. In 1920, John Brady, manager of the Leeton Cannery (which continued under the control of the Water Conservation and Irrigation and Commission) was asked by the WCIC to visit the USA to inquire into the canning industry there. According to Walker,

While in California, Mr. Brady saw rice crops growing on land similar to our heavy soils on the Murrumbidgee irrigation areas. . . On his advice the commission requested him to purchase 300 lbs. of rice seed. . . In. . . 1922-23, six or seven acres were planted with about 100 lbs. of [three varieties of rice seed]. . . The crop. . . produced about seventy bushels to the acre. . . After these results the settlers tried out rice growing, and in 1925-26 nearly two thousand acres were planted and the yield was 1500 tons. . .⁸⁹

Again, despite the trade collapse in the early 1930s, rice growing intensified as soon as

⁸⁴ Bowmaker, op.cit., p.102.

⁸⁵ Langford-Smith, op.cit., p.68.

⁸⁶ John van der Meulen, “Some Economic Aspects of the Development of Fruit growing in Australia, with particular reference to New South Wales” in the *Review of Marketing and Agricultural Economics*, vol.27, no.4, December 1959, p.304.

⁸⁷ Owen French observed, in 1960, that “The production of canned peaches in the United States is virtually confined to the state of California”. See B. Owen French, “Trends in Plantings and Production of Canning Fruits in Australia and in some other Countries” in the *Review of Marketing and Agricultural Economics*, vol.28, no.1, March 1960, p.32.

⁸⁸ Walker, op.cit., p.205.

⁸⁹ *ibid.*, pp.205-206.

conditions revived and Walker recorded that, in 1940, “Rice-growing is now perhaps the most profitable undertaking on the areas. . . For the season 1939-1940 over 24,000 acres were planted to this crop, the yield being 35,646 tons, more than sufficient for Australia’s home consumption.”⁹⁰

(b) Indebtedness

Despite an overall increase in production in the irrigation areas, a number of settlers suffered setbacks. Getting into financial difficulties was a common problem. Langford-Smith has noted that even by the mid-1920s, difficulties “were being encountered. . . [by] the soldiers . . . [and] a number of number of civilians were also in serious straits”.⁹¹ In response to remonstrations by the settlers, William Dunn, Minister for Agriculture in the Lang government, arranged a conference at Leeton, in 1925, between the commissioners of the WCIC and the settlers. A year later, the Lang government obtained passage of the *Irrigation (Amendment) Act 1926* which made provision for a reduction of interest rates on advances to soldier settlers and for an extension of time on payment of debts.⁹²

Only a few years later, however, the trade collapse occurred at the end of the 1920s, with many settlers, once more, running into financial difficulties. Lang, once again in power, in the early 1930s, lent a sympathetic ear to their calls for assistance and obtained passage of the *Irrigation (Amendment) Act 1931* providing for the remission of those portions of the settlers’ repayments which they could no longer meet.⁹³ As the depression continued, and more settlers encountered difficulties, the following Stevens government secured passage of the *Murrumbidgee Irrigation Areas Occupiers Relief Act 1934*. This legislation, according to van der Meulen, “provided that the debt on any irrigation. . . lease or purchase in the. . . [Murrumbidgee irrigation areas], of which the area exceeded five acres, was reduced by one-third”.⁹⁴

(c) Academic Cautions over the Agricultural Possibilities of Dry Areas

As well as the many landholders and politicians who strongly advocated irrigation as a means to overcoming dry periods, there were, on the other hand, a small number of academics, mainly geographers, who advocated caution in regard to the optimism being created over the possibilities of extending agriculture into drier areas.

Thomas Griffith Taylor, Professor of Geography at the University of Sydney from 1920-

⁹⁰ ibid.

⁹¹ Langford-Smith, op.cit., p.61.

⁹² ibid., p.62.

⁹³ ibid., p.74.

⁹⁴ van der Meulen, op.cit., p.305.

1928, remarked afterwards, in his book *Australia*, that “more than three-quarters of Australia is probably too dry and hot for agriculture”.⁹⁵

(d) Environmental Problems

A number of environmental problems - some of which remain associated with irrigation to the present day - emerged quite early in the progress of settlement in the irrigation areas.

On an overall level, John Gregory, Professor of Geology at the University of Glasgow, had pointed out in 1906 that not only did “the irrigation of crops in an arid country consume . . . a large quantity of water” but that in the delta of the Nile, for example, large tracts of land “were rendered sterile by continuous irrigation with the comparatively pure water from the river, as it gradually choked the soil with noxious salts.”⁹⁶

In the case of the Murrumbidgee irrigation areas, as Bowmaker recalled, it was in 1924 that the Water Conservation and Irrigation Commission “commenced investigations” into “Seeping, waterlogging and salting. . . which are inseparable from the application of irrigation water to the soil in almost every irrigated area throughout the world.” The WCIC established a research branch to analyse these problems, which had already begun to emerge in the irrigation areas. Some of the measures employed, in the late 1920s, and during the 1930s, to address these difficulties, included, as described by Bowmaker, “tree planting along the channels; cement lining of some channels. . . draining of. . . swamps; curtailment of ricegrowing in the proximity of orchards; introduction of daylight watering of orchards; and education of farmers in more careful application of irrigation water.”⁹⁷

These environmental problems, however, continued to occur and Laurie Walker observed in 1940, that,

In horticultural farms, especially, it is essential that the water be got on and off the land as quickly as possible. Carelessness and incorrect methods of watering have resulted in very serious consequences. Some of the land has become so salted and waterlogged that the plantings have been destroyed or so seriously damaged as to be useless from a productive standpoint.⁹⁸

⁹⁵ Thomas Griffith Taylor, *Australia*, second edition (E.P. Dutton, New York, 1943), p.299.

⁹⁶ J.W. Gregory, *The Dead Heart of Australia* (John Murray, London, 1906), pp.277-279.

⁹⁷ Bowmaker, *op.cit.*, pp., 123-124.

⁹⁸ Walker, *op.cit.*, p.204.

9 CONTINUATION OF NATIONAL DEVELOPMENT: SNOWY MOUNTAINS SCHEME 1940s-1970s

(a) Inauguration of the Snowy Mountains Project: Irrigation and Peopling the Interior v. Hydro-Electricity

Although the outbreak of the war in Europe, and subsequently the war in the Pacific, brought a temporary halt to work on the Keepit Dam, for instance, irrigation planning, as part of national development, continued.

A major revival of Adams's, and Corin's, plans for the Snowy River was made by William McKell - then leader of the ALP opposition in New South Wales - during the 1941 state election, when he delivered a major speech on rural policy, speaking of a "master plan" for rural industry in NSW. He proposed a twenty-year program of construction, to include diversion of the Snowy. Following the ALP's success in the 1941 election, he announced the appointment of an expert committee to investigate such a scheme.⁹⁹

According to Wigmore, "As against pressure for use of the Snowy primarily for the production of hydro-electricity, the NSW Water Conservation and Irrigation Commission . . . [sought] a diversion into the Murrumbidgee, primarily as a means of meeting increased requirements for irrigation".¹⁰⁰

As victory over Japan began to be assured, the Curtin government, on a federal level, began to make plans for Australia's development after the war had ended. In 1943, Chifley, as Minister for Postwar Reconstruction, announced that a national program of public works would be part of the federal government's plans for redevelopment after the war. Chifley declared that "Great tasks await our engineers".¹⁰¹

Competing plans - opposing the WCIC's proposal - came from Victoria. In July 1946, O.T. Olsen, an engineer who had worked on hydro-electric schemes in his home country of Norway before emigrating to Australia to work with the State Electricity Commission of Victoria, produced a series of preliminary notes which, as Wigmore has outlined, formed "a long and detailed exposition of a Snowy-Murray diversion scheme with a total installed [hydro-electric] capacity of 770,000 KW." These proposals were then transmitted by the chief engineer of the State Electricity Commission of Victoria to the head of the federal government's Department of Works. In its report, the federal Department of Public Works, according to Wigmore, presented "an overwhelming case for a scheme. . .to divert Snowy waters to the Murray." The report was subsequently debated at the August 1947 Premiers Conference. Because of continuing disagreement, over the scheme, between McGirr (who had replaced McKell, as NSW Premier, in May 1947) and Cain (who was to remain Premier of Victoria until November 1947), Chifley (who had succeeded Curtin as Prime Minister)

⁹⁹ Wigmore, *op.cit.*, pp.101-102.

¹⁰⁰ *ibid.*

¹⁰¹ *ibid.*, p.103.

decided to form a committee of technical experts to look further into the scheme, during 1948. This body was named the Commonwealth and States Snowy River Committee.¹⁰²

A year later, in May 1949, while the technical experts were concluding their report, Chifley used a radio broadcast to place the Snowy River scheme firmly in the arena of national development. He declared that,

The Snowy Mountains plan is the greatest single project in our history. It is a plan for the whole nation, belonging to no one state. . .it provides not only for the provision of vast supplies of new power but also for an immense decentralisation of industry and population.¹⁰³

A month later, the technical experts forwarded their plan to Chifley. It was, to some extent, a compromise which tended to favour Victoria, but still provided significant amounts of irrigation water for the Murrumbidgee. Wigmore wrote that,

The scheme finally devised by the . . .Committee provided for an installed capacity of 2,820,000 KW. . .It was estimated that. . .[the scheme] would also provide, by diversion and regulation, an average of 2,300,000 acre feet more water each year for irrigation than was then available. . .Of the two main parts of the scheme, the Tumut system, using waters from the northern catchments, would take precedence in the time schedule over the Murray system. . .[this was] chosen in keeping with the interests of irrigation along the Murrumbidgee River. . .A reservoir (Blowering) capable of holding 800,000 acre feet of water was to be formed at a point about seven miles south of Tumut. Its principal purpose would be to make water available as required for irrigation. . .¹⁰⁴

In July, Chifley obtained passage of the *Snowy Mountains Hydro-Electric Power Act 1949*. As described by Wigmore, “The Act. . .decreed that there should be established a Snowy Mountains Hydro-Electric Authority empowered to ‘construct, maintain, operate, protect, manage and control’ works for ‘the collection, diversion and storage of water in the Snowy Mountains area’, and for generating and transmitting electricity.”¹⁰⁵

Although, as Wigmore adds, “there was no reference in the Act to irrigation”, the then federal Minister for Public Works and Housing, Nelson Lemmon, asserted, according to Wigmore,

¹⁰² ibid., pp.126-130.

¹⁰³ ibid., p.147.

¹⁰⁴ ibid., pp.158-159.

¹⁰⁵ ibid., p.148.

that the Scheme would make available for irrigation from three to four times the amount of water then being used in the irrigation areas on the Murrumbidgee; and that a very important and very large task lay before the irrigation authorities to ensure that full and effective use was made of these waters.¹⁰⁶

(b) Completion of the Snowy Mountains Scheme in the 1970s

After 25 years of construction, the entire Snowy Mountains Scheme was completed in 1974. Gregory McColl, writing in 1976, observed that “According to information supplied by the Snowy Authority, the total recorded accounting cost is expected to be approximately \$789 million.”¹⁰⁷ On a yearly basis the scheme provides about 2.37 million megalitres of water annually to the Murrumbidgee and Murray Rivers. Clem Lloyd has written that, “On average, the scheme provided. . . [water] sufficient to irrigate approximately 250,000 hectares of farmland.”¹⁰⁸

(c) Snowy Mountains Waters and the Establishment of the Coleambally Irrigation Area

A manifestation of the use of the waters, from the Snowy Mountains scheme, for irrigation, came through the WCIC’s establishment, in 1960, of the Coleambally irrigation area: the last of the irrigation areas. This scheme was set up in an area west of Nerrandera, just south of the Murrumbidgee. As the WCIC recalled, Coleambally’s first farms

were occupied in 1960, shortly after the initial releases of water from the Snowy Scheme into the Tumut River. . . The supply channels distributing water to Coleambally farms are fed by the Coleambally Canal, a large excavated channel. . . It runs 11 miles southwest and south to the area and then for 17 miles through the area . . . The land. . . was formerly held as large grazing properties. . . It was resumed, subdivided and offered to settlers under perpetual lease.¹⁰⁹

¹⁰⁶ *ibid.*, pp.148-149.

¹⁰⁷ Gregory McColl, *The Economics of Electricity Supply in Australia* (Melbourne University Press, Melbourne, 1976), p.134. Recently the Snowy Mountains Authority has estimated the cost of the scheme at \$819 million (in 1974 dollars) or at around \$5 billion in 1990s dollars. See Snowy Mountains Authority, annual reports 1991-1992, 1996-1997.

¹⁰⁸ Lloyd., *op.cit.*, p.266. See also *Official Year Book of Australia 1975-1976* (Commonwealth Government Publishing Service, Canberra, 1977), p.873.

¹⁰⁹ WCIC, *op.cit.*, p.149.

10 FURTHER WITHDRAWAL FROM GOVERNMENT CONTROL OF IRRIGATION, AND ABANDONMENT OF PEOPLING THE INTERIOR: 1940s-1960s

(a) Initial Continuation of River Damming in NSW: late 1940s

Although, as will be outlined in following sub-section (c), successive governments in New South Wales, after the Pacific War had ended, proceeded to further reduce the role of government in irrigation, those same successive state governments in New South Wales initially continued the building of dams.

Only a year after the ending of the war, McKell secured passage of the *Burrendong Dam Act 1946*, authorising the Water Conservation and Irrigation Commission to build a dam on the Macquarie River near Wellington. Although work on the dam was suspended in 1952, it was recommenced in 1958 and eventually completed in 1967. By that time the capacity of the Burrendong Dam was 964,000 acre feet of water: one of the largest water storage facilities in New South Wales. The WCIC's record of water conservation in the state recalls that, after its construction, "The reliable supplies of water which Burrendong Dam has made available have resulted in substantial increases in development in the Macquarie valley. In 1965 a total of 17,000 acres of land was licenced for irrigation in areas downstream from the dam."¹¹⁰

The McKell government also authorised the building of another water storage facility which would use the waters of the Lachlan. During the same year that it obtained passage of legislation authorising the commencement of the Burrendong Dam, the McKell government secured passage of the *Lake Ballyrogan Storage Act 1946*, providing for the WCIC to develop a storage facility from the waters of the Lachlan, to be constructed in a small area due north of Griffith, and west of the towns of Condobolin and West Wyalong. By the time it was finished, in 1952, the renamed Lake Brewster had a storage capacity of 124,000 acre feet of water.¹¹¹

At the end of the 1940s, the subsequent McGirr government decided to proceed with the construction of water storage facilities on the Darling River, near Broken Hill. To inaugurate this project, McGirr obtained passage of the *Menindee Water Conservation Act 1949*. As described by the WCIC,

Simply stated, the scheme consists of a block dam and weir in the Darling River, designed to raise the water level and enable flows to be diverted into the smaller upstream natural depressions. . . The pond formed behind the block dam and weir is known as Lake Weatherell and stores up to 120,000 acre feet. . . To the west of the Darling River, Lakes Pamamaroo, Menindee and Cawndilla form the three largest lake storages in the scheme. . . water from Lake Weatherell can be passed into Lake

¹¹⁰ ibid., pp.133-135.

¹¹¹ ibid., pp.139-140.

Pamamaroo, the most northerly of these three major water storages. . .this lake can hold in excess of 300,000 acre feet. . .Releases are made from the storages for stock, domestic and irrigation water supply purposes along the lower Darling River. . . landholders along the Darling River. . .take advantage of its flow for irrigation..¹¹²

(b) Reconsideration of Irrigation and Peopling the Interior: 1940s-1960s

During the mid-1940s further warnings were delivered, concerning the expectations about irrigated agriculture. In 1944 the Rural Reconstruction Commission, established by Curtin to advise on the course of postwar development of agriculture, delivered its first report, entitled a *General Rural Survey*. One of the members of the commission was Samuel Wadham, Professor of Agriculture at the University of Melbourne, who had already written a study entitled *Land Utilisation in Australia*. The Commission counselled that,

The history of irrigation is marked by many failures due to faulty practices. It is still commonly imagined that all a drought-stricken pasture wants is water and, therefore, that merely to run water on the land is all that is necessary to turn the place into an irrigation block. . .there are still many problems to be worked out if water is to be used economically. . .¹¹³

During the 1950s and 1960s both academics and state irrigation authorities began to reflect on the progress and outcomes of irrigation. In 1966, in the second year of the Askin government's term of office, the WCIC produced a report entitled *Water Conservation and Irrigation Development in New South Wales*, in which it became clear that the Commission itself had begun to rethink the policy behind irrigation. According to Clem Lloyd, the WCIC estimated that from 1939-1969 "about £250 million. . .[would have] been spent on major water storages." The WCIC also concluded that, "The practice of constructing the largest dam possible on the best available site usually involved a considerable capital expenditure spread over a long period during which heavy interest commitments are incurred without full benefit from the investment."¹¹⁴

In the late 1960s further criticism came from Bruce Davidson, senior lecturer in agricultural economics at the University of Sydney. In his study *Australia Wet or Dry: The Physical Limits to the Expansion of Irrigation*, published in 1969, Davidson reported that, for the period 1947-1965, "the total value of Australian agricultural output, valued at 1965 prices, increased from \$1,583 million to \$3,059 million, an increase of 93 per cent. The rise in value of irrigated products of \$192 million was only 13 per cent of the total increase."¹¹⁵

¹¹² ibid., pp.165-167.

¹¹³ Rural Reconstruction Commission, *A General Rural Survey* (Australian Government Publishing Service, Canberra, 1944), p.39.

¹¹⁴ Lloyd, op.cit., p.282.

¹¹⁵ Bruce Davidson, *Australia Wet or Dry: The Physical Limits to the Expansion of Irrigation* (Melbourne University Press, Melbourne, 1969), p.89.

The implications of this general trend, as far as the policy of peopling the interior was concerned, has recently been summed up by Paul Moy as follows:

By the late 1950s it was apparent that closer settlement schemes, both irrigated and dry land, were not a viable means of developing Australia. Throughout the 1950s and early 1960s rural output expanded dramatically while the agricultural labour force remained stable. Technological change and capital investment were the driving forces behind this expansion rather than closer settlement.¹¹⁶

(c) Extension of Private Arrangements in Irrigation in the late 1940s

While continuing the government's role in the provision of dams, the McKell government indicated, as early as 1946, that it believed that a large-scale government role in irrigation was probably no longer financially viable. This was demonstrated by McKell's setting out to expand the extent of private arrangements in irrigation. A year after the end of the Pacific War, the McKell government obtained passage of the *Irrigation and Water Amendment Act 1946* which, as the preamble stated, was an Act to "enable non-riparian occupiers of land to acquire the right to appropriate water from rivers and lakes". As the WCIC's account of water conservation describes,

In 1946 there were only 2,868 licences authorising the irrigation of an area of about 131,000 acres. At that time the . . . Act was amended making provision for those occasions when, for reasons of economy and convenience, a number of landholders might wish to develop a group irrigation or water supply project. With this amendment an interested group. . . [could] apply to the [Water Conservation and Irrigation] Commission for an authority to establish a joint water supply scheme, and to carry out any works necessary for delivery of water to their properties. The government. . . encouraged this form of private development as an alternative to establishing state-financed irrigation areas and districts which would otherwise absorb a considerable amount of public funds.¹¹⁷

These arrangements expanded into the 1960s, and Kuperan Viswanathan has written that, "The number of individual licences at the end of 1961 was 8,030."¹¹⁸

¹¹⁶ Moy, op.cit., p.289.

¹¹⁷ WCIC, op.cit., p.171.

¹¹⁸ Kuperan Viswanathan, *The Impact of Water Distribution Rules on Farm Production and Incomes* (M.Ec. Thesis, University of New England, 1985), p.8.

11 FLUCTUATING FORTUNES OF IRRIGATED COMMODITIES AND THE IMPACT ON GOVERNMENT POLICY TOWARD IRRIGATION: 1940s-early 1970s

(a) Decline of Fruit growing: the Loss of the UK Market in 1973

Although the outbreak of the Pacific War slowed down the building of irrigation works, it, in fact, temporarily stimulated production in the Murrumbidgee irrigation areas. Bowmaker recalled that, with General MacArthur moving his headquarters to Australia, and the consequent arrival of nearly 500,000 American troops, “The response of growers to undertake the production of vegetables was truly remarkable with no less than 600 farmers participating in the production of 10,000 tons in the 1942/43 season.”¹¹⁹

Associations with California were continued, with Maynard Jocelyn, Professor of Food Technology at the University of California, being sent to the Leeton Cannery to assist with dehydration and other forms of food processing.¹²⁰

After the end of the war, and the departure of the American troops, vegetable production declined, with farmers returning, in greater numbers, to fruit growing. Owen French has given the following figures for growing of peaches, apricots and pears in the Murrumbidgee irrigation areas during the 1950s:

<i>Murrumbidgee Irrigation Areas Fruit Growing</i>	
1954	
Peaches	17,100 tons
Apricots	8,440 tons
Pears	580 tons ¹²¹

Output of fruit growing, however, as outlined in sub-sections 4 (b) and 8 (a) above, was dependent on preferential access for canned fruit products in Britain. In 1973, Britain joined the European Economic Community and preferential access ended. The Industries Assistance Commission (IAC) commented later on that “Production and tree numbers declined sharply after the entry of the UK to the EEC”.¹²²

¹¹⁹ Bowmaker, op.cit., p.236. In 1944 the Leeton Cannery processed 12,500 tons of vegetables and 10,500 tons of fruit. See Tiffen, op.cit., p.55.

¹²⁰ Tiffen, op.cit., p.50.

¹²¹ French, op.cit., p.44.

¹²² Industries Assistance Commission, *Rural Adjustment*, report no. 344 (Australian Government Publishing Service, Canberra, 1984), p.12.

(b) Continued Irrigated Production of other Basic Crops

Although fruit growing began to decline, irrigated production of other basic crops continued. The WCIC reported that, following the completion, in 1967, of the Burrendong Dam, near the town of Wellington in the Macquarie Valley, “By 1970. . .the area licenced or authorised for irrigation [in the valley] had grown to almost 120,000 acres and almost 30 per cent of that area was already under irrigation. The main crops being irrigated in large-scale ventures were. . .sorghum, oats, barley and wheat.”¹²³

Following the completion of the water storages on the Darling River, irrigated production of basic crops also increased along the valley. The WCIC also reported that, “In 1970 there were some 280 riparian landholders authorised to irrigate a total of about 36,000 acres, but only approximately 8,000 acres of the total area was actually irrigated. Almost half of the area irrigated is located downstream of the Menindee Lakes Storage Scheme. . .Water is primarily used for irrigation of lucerne, pastures and citrus orchards along the river between Brewarrina and Bourke.”¹²⁴

(c) Expansion of Rice Growing in southern NSW

As noted above, rice growing, which had been started in the Murrumbidgee irrigation areas in the 1920s, and had increased to cover 24,000 acres of land by 1939, continued to expand in the irrigation areas, in the southern half of the state.

During the Pacific War, with the surge in food requirements for both the Australian forces and for the American troops stationed in Australia, the Curtin government prevailed on the McKell government to allow the first growing of rice in the recently formed irrigation districts. This began, in 1942, in the Benerambah and Tabbita irrigation districts. By the end of 1942, 34,327 acres of rice were planted in south-western NSW. In 1943, rice growing was also endorsed in the Wakool irrigation district and Gary Lewis has recorded that “350 miles of water channels were laid in the Wakool District and 300 farmers permitted to grow rice in 1944.”¹²⁵

After the war, rice production increased with growers not only producing for the domestic market, but also, during the 1950s and 1960s, exporting 20,000 tonnes of rice, a year, to Britain; and around 25,000 tonnes a year to the American occupation forces in Okinawa. As Lewis recalled, by 1961, “There were about 1,100 rice growers in New South Wales... farming 18,635 hectares of paddy fields, producing 118,000 tonnes of paddy. . .In 1963, rice production in New South Wales was second only to wheat as a cereal”.¹²⁶

In an address to the Rice Growers Association of Australia, delivered twenty years later, in

¹²³ WCIC, op.cit., p.135.

¹²⁴ *ibid.*, p.167.

¹²⁵ Lewis, op.cit., pp.111-112.

¹²⁶ *ibid.*, pp.148,192.

1984, Jack Hallam, then Minister for Agriculture in the Wran government, declared that, in south-western NSW, rice had become “the backbone of a system of irrigation areas and districts.”¹²⁷

(d) Rise of Cotton in northern NSW, via Further Stimulus from the USA

Another commodity, however, also suited for irrigated production, was being trialed by the NSW Department of Agriculture: cotton.

In the 1820s, British settlers in New South Wales had been able to grow, and export, a small amount of cotton. After the separation of Queensland, in 1859, Captain Robert Towns, a merchant and member of the NSW Legislative Council, started a cotton plantation near Brisbane and, according to E. A. Benians, “imported sixty islanders, chiefly from the New Hebrides, for light field labour.”¹²⁸ Cotton production then tended to remain, on a small scale, based in Queensland, with a cotton research station being opened there in the 1920s.¹²⁹

In the late 1950s, however, the Cahill government began to make definite efforts to encourage cotton growing in New South Wales. Abdullah Al-Harun has described these efforts, and the first commercial production of cotton in the state, as follows: “In 1958 an experimental farm was established between Narrabri and Wee Waa by the New South Wales Department of Agriculture with the purpose of determining . . . various potential crops in the region. Field trials were conducted with various crops. . . The results achieved showed that irrigated cotton could be the most profitable to farmers”.¹³⁰

With the advent of cotton production different approaches began to develop in the administration of irrigated agriculture. Whereas the establishment of the WCIC, particularly as envisaged by the McGowen and Holman governments, was to enable the development of crops by relatively large numbers of smallholders, the advent of cotton saw the definite emergence of large-scale companies into irrigated production. In 1963, for example, two American farmers, Jim Blasdell and Richard Rhodes, obtained financial backing from J.G. Boswell, a large cotton concern in California, to purchase three properties, totalling around 7,500 acres, near Narrabri, in the Namoi Valley. Subsequently, Blasdell and Rhodes formed

¹²⁷ Hon. Jack Hallam MLC, NSW Minister for Agriculture and Fisheries, *Irrigation Agriculture in South East Australia*, speech to the Rice Growers Association of Australia, 14 June 1984 (NSW Department of Agriculture, Sydney, 1984), pp.1-2.

¹²⁸ E.A. Benians, “The Western Pacific 1788-1885” in Ernest Scott (ed.), *The Cambridge History of the British Empire*, vol.12 part I, *Australia* (Cambridge University Press, London, 1933), p.347.

¹²⁹ McHugh, op.cit., p.3.

¹³⁰ Abdullah Al-Harun, *An Economic Assessment of the Split Rock Dam of New South Wales* (M.Ec. Thesis, University of New England, 1986), op.cit., pp.8-9. Some these American farmers had come from the San Joaquin Valley in Southern California. See McHugh, op.cit., p.6.

a company, Auscott, which in turn sub-leased to twenty Australian farmers. Siobhan McHugh has commented that “Auscott intended to grow cotton on a scale that had never been contemplated in Australia before. A fleet of tractors arrived and dozens of locals were hired in a military-like operation to prepare the farm for planting. . .the latest machinery [was] brought in to do the earthworks, the clearing, the planting and the picking.” In its first year of operation, 1964, Auscott planted 4,000 acres of cotton.¹³¹

(e) Cotton and the Continuation of River Damming in NSW: 1960s and 1970s

Despite the emergence of a re-evaluation of the strategy behind irrigation, the acceleration of cotton growing in New South Wales induced the Askin government, elected in 1965, to continue with the building of smaller-scale dams to support the expansion of the cotton industry. As Alfred Lawrence has commented,

Jack Beale (an engineer) was appointed as the Minister for Conservation in the NSW Liberal-Country Party government. . .The Minister expounded an ambitious water conservation development programme for NSW, which led to a prodigious dam construction programme in the mid-1960s to late-1970s, at a time when investment in irrigation was generally waning.¹³²

A year after its election, the Askin government obtained passage of the *Pindari Dam Act 1966*, authorising the Water Conservation and Irrigation Commission to build a dam, north of Inverell, across the Severn River, which itself flowed west into the Macintyre River. The dam, in its first stages, was designed to have a capacity of 30,000 acre feet of water and was completed in 1969.¹³³

Only a year after passage of legislation providing for the construction of the Pindari Dam, the Askin government secured passage of the *Copeton Dam Act 1967*, authorising the building of a dam near the headquarters of the Gwydir River, south of Inverell. Work on the dam was begun in 1968, with the projected total storage of the dam estimated at 1.36 million megalitres of water, capable of irrigating around 50,000 hectares of land along the Gwydir River and its tributaries. Copeton Dam became fully operational in 1976.¹³⁴

During the same year that legislation was approved for the building of the Copeton Dam,

¹³¹ McHugh, op.cit., pp.15,54.

¹³² Alfred Lawrence, *Organisations and Change: A Comparative Analysis of Seven Australian Water Authorities* (MA Thesis, Canberra CAE, 1986), p.62. Peter Millington, Director General of the Department of Water Resources, said in 1990 that one of the department's roles was “sponsoring the cotton industry. . .on the basis that we supply the water”. See McHugh, op.cit., p.179.

¹³³ WCIC, op.cit., p.130.

¹³⁴ Cyril Udoe, *An Economic Study of the Gwydir Irrigation Scheme* (M.Agr.Sci. Thesis, University of Sydney, 1984), pp.18-21.

the Askin government also obtained passage of the *Carcoar Dam Act 1967*, authorising the WCIC to build a dam across the Belubula River, a tributary of the Lachlan River, in an area south of Orange. At a cost of \$45 million, the dam was intended to have an estimated storage capacity of 30,000 acre feet. According to the WCIC, water from the dam would be used “to irrigate rich alluvial flats in the lower reaches of the Belubula Valley” and also to “stabilise grazing interests and increase. . .stock carrying capacity of properties along the 90 miles of the Belubula River between the dam and the Lachlan River.”¹³⁵

In 1968, New South Wales gained another dam, through the Snowy Mountains Scheme, when the dam on the Tumut River, Blowering Dam, was completed.¹³⁶ According to the WCIC, “Blowering Reservoir, with a capacity of 1,322,000 acre feet, ranks among Australia’s largest water storages.”¹³⁷

During the 1970s, Beale continued the Askin government’s commitment to dam construction. In the mid-1970s, the Askin government obtained passage of the *Split Rock Dam Act 1974*, authorising the WCIC to build a dam across the Manilla River, a tributary of the Namoi River (and further upstream from the Keepit Dam), near the town of Manilla. Work on the project temporarily lapsed, during the second half of the 1970s, following the election of the Wran government in 1976.

By the mid-1970s there were about 70,000 hectares of land in the Namoi Valley which were under irrigation.¹³⁸

12 THE CHANGED DIRECTION IN PROVISION OF WATER FOR RURAL PRODUCTION: 1970s-1990s

(a) Extent of Irrigation Works in NSW During the 1980s

Despite the fact that there was a changing emphasis towards providing irrigated water for cotton, grown in the north of the state, the cumulative result of irrigation work, throughout the 1910s to the 1970s, still meant that most of the irrigation channels, for instance, were in the southern part of the state.

By the 1980s, the Murrumbidgee and Murray valleys still accounted for 70% of the total area of irrigation undertakings in New South Wales. In the Murrumbidgee region there were 2,675 kilometres of irrigation channels, and in the Murray region there were 2,822

¹³⁵ WCIC, op.cit., pp.138-139.

¹³⁶ *ibid.*, p.118.

¹³⁷ *ibid.*, p.145.

¹³⁸ McHugh, op.cit., p.40.

kilometres of irrigation channels.¹³⁹

There was, however, a marked slowing down in the construction of irrigation works. The Wran government did revive the Split Rock Dam scheme in north-western NSW: obtaining passage of the *Split Rock Dam Act 1983* which authorised the then Water Resources Commission to build the dam on the Manilla River (which in turn flowed into the Namoi River). The cost of the dam was around \$47 million, and its capacity was 372,000 megalitres of water.¹⁴⁰ The completion of the dam, in 1988, however, tended to mark the end of big construction works in irrigation.

(b) **Changing Focus of Rural Production: Further Decline of Smallholder Fruit Growing**

As described in section 11(a) above, Britain's joining the EEC resulted in a substantially reduced ability, on the part of fruitgrowers, to maintain exports. This is illustrated by the following figures:

<i>Exports of Australian Canned Deciduous Fruits to the UK: 1974-1980</i>	
1974	11.6 kilotonnes
1976	9.9 kilotonnes
1977	7.8 kilotonnes
1978	7.1 kilotonnes
1979	7.2 kilotonnes
1980	7.7 kilotonnes ¹⁴¹

Even at the time that Britain was preparing to join the EEC, the McMahon government, in Canberra, was moving to assist in the departure of fruitgrowers from the industry (in the expectation that reduced sales would inevitably force some to leave). McMahon effected this by obtaining passage of the *States Grants (Fruit growing Reconstruction) Act 1972* which, according to the IAC, provided

tree-pull assistance. . .for the removal of canning peach, canning pear, canning apricot, fresh apple and fresh pear trees. Its provisions were designed to reduce

¹³⁹ Gutteridge Haskins and Davey; ACIL Australia; Coopers and Lybrand W.D. Scott, *Water Distribution Operations in Irrigation Areas and Districts in NSW*, report prepared for the NSW Department of Water Resources (Sydney, 1989), pp.4,21-24,89.

¹⁴⁰ Al-Harun, op.cit., p.11.

¹⁴¹ Industries Assistance Commission, *Canning Fruit*, report no. 307 (Australian Government Publishing Service, Canberra, 1982), p.92.

production levels. . .Eligible canning fruit growers received a loan of up to \$500 per acre (\$1,236 per hectare) to remove all or some of the trees. . .To be eligible for assistance the. . .grower must have been predominantly a horticulturist in severe financial difficulty who intended to leave the industry. . .¹⁴²

Four years later the Fraser government obtained passage of the *States Grants (Fruit growing Reconstruction) Act 1976* which provided more generous assistance for struggling fruitgrowers to leave the industry. The IAC remarked that, “The assistance given to fruitgrowers for the tree-pull has been initially provided in the form of a loan. Provided the grower does not replant the cleared area with fruit trees in a specified period, the loan is converted into a grant at the end of this period.”¹⁴³

Three years later, in 1979, as Tiffen has written, the members of the Leeton fruitgrowers co-operative met to discuss their organisations’ “insolvent state. . .By June 1980 the position of Letona [trading name of the co-operative] became critical, with the prospect of a loss of over \$1 million again possible for the year.”¹⁴⁴

In May 1982, the Fraser government, according to the IAC, announced “the introduction of a tree-pull scheme for canning fruit to operate until 31 December 1982.” Part of this scheme was particularly directed at struggling peach growers.¹⁴⁵

On a state level, the implications of the tree-pull schemes were fully appreciated by the then Wran government. The IAC, in its 1982 study on *Canning Fruit*, reported that,

The New South Wales government has declined to take part in the present scheme. NSWDA [New South Wales Department of Agriculture] said that implementation of the ‘scheme would mean the effective end of the Leeton Cannery’.¹⁴⁶

A year later, the Hawke government, in Canberra, provided assistance to the Cannery via a \$4 million loan to the NSW state government, to be paid through the State Bank of NSW. In 1986, however, the Leeton Cannery sustained further losses. Despite fruitgrowers being able to increase exports of canned fruit to Canada and Japan, five years later in 1991, half-way through the recession of 1990-1992, the Cannery recorded a loss of \$2.37 million. Two years later, the Cannery sustained a further loss of \$2.86 million for the 1992-1993 financial year and in August 1993 a receiver was appointed. In July 1994 the Leeton Cannery, after 80 years of operations, finally closed.¹⁴⁷

¹⁴² *ibid.*, p.30.

¹⁴³ Industries Assistance Commission, *Rural Adjustment*, p.23.

¹⁴⁴ Tiffen, *op.cit.*, p.75.

¹⁴⁵ IAC, *Canning Fruit*, p.30.

¹⁴⁶ *Ibid.*

¹⁴⁷ Tiffen, *op.cit.*, pp.85-102. See also “Canned Fruits” in National Farmers Federation (ed.), *Australian Agriculture*, second edition (Morescope Publishing, Melbourne, 1990), p.359.

(c) Emergence of Difficulties for Rice Growers: High Water Consumption and Declining Markets

While fruit growing continued to decline, rice growing, temporarily, continued to expand. Although, when Britain joined the EEC, annual sales of rice to the UK fell from 20,000 tonnes to 5,000 tonnes, sales of rice to Papua New Guinea, for instance, which had begun in the 1930s, increased to 40,000 tonnes in 1968. By the mid-1970s there were over 2,000 rice growers in New South Wales, farming around 90,000 hectares of land. Rice growing accounted for 40% of irrigated production in NSW.¹⁴⁸

Jack Hallam, in his speech referred to above, also highlighted the large amount of irrigated water used for rice production in these areas:

<i>Percentage of Irrigation Water used for Rice Production in southern NSW Irrigation Districts</i>	
1964/65	14%
1981/82	64% ¹⁴⁹

Between 1974 and 1975, however, there was a dramatic fall in the international price of rice. Lewis has written that, “Record rice harvests were reported all over the world in 1975. Prices plunged from US\$600 a ton to US\$250 a ton. . .prices for medium-grain [then] plunged from US\$130 a ton to US\$80 a ton in July 1975.”¹⁵⁰

By 1980, however, prices recovered to around US\$190 a ton, and in 1982 there was a record harvest of 830,000 tonnes of rice. Only four years later, prices had fallen again, to US\$120 a ton, and exports of rice, in 1984, only amounted to \$112 million. A year later, according to Lewis, there was “a record. . .crop (843,835 tonnes). . .but. . . [it returned] very poor prices.” By 1986, significant numbers of rice growers had begun leaving the industry. From around 2,200 in 1981, about 1,200 remained in 1986. Of those remaining, about 25% were encountering substantial financial difficulties.¹⁵¹

Although rice production rose again to 893,584 tonnes, in 1990, stimulated by prices of around US\$150 a tonne, not only were exports, to countries such as Papua New Guinea, falling but imports, principally from Thailand, were increasing (20,000 tonnes of rice entered Australia, from Thailand, in 1992).¹⁵²

¹⁴⁸ Lewis, op.cit., pp.98,148,156,202.

¹⁴⁹ Hallam, op.cit., p.3.

¹⁵⁰ Lewis, op.cit., p.164.

¹⁵¹ *ibid.*, pp.203,207-208,215,219.

¹⁵² *ibid.*, pp.224-226.

As will be mentioned later, in sub-section (f), because of their high consumption of water, rice growers were particularly affected when charges for water began to be substantially increased - from the mid-1960s onwards.

(d) Continued Expansion of Big Business Cotton Production in northern NSW

Cotton growing, in the northern part of the state, however, continued to expand. By 1976, 70,000 acres of the Namoi Valley were being irrigated, with the majority of that irrigated land being used for cotton. By 1992, total Australian production of cotton amounted to 2,200,000 bales.¹⁵³ Robert Milliken wrote, in the early 1990s, that, “Cotton has become the country’s fourth largest agricultural exporter after wool, meat and wheat. It produced almost \$800m export income in 1991-92.”¹⁵⁴

Big business involvement in cotton growing increased during the 1980s and 1990s with large cotton concerns establishing operations on the Darling River, near Bourke. Siobhan McHugh has written that, in 1982, Clyde Agriculture established “a vast corporate farm of some twenty thousand acres. . .spread over four properties.”¹⁵⁵ By the mid-1990s, Auscott had acquired cotton farms covering 32,000 acres, not only in the Namoi Valley but in the Gwydir Valley and Macquarie Valley as well.¹⁵⁶ An even bigger cotton concern is Colly Farms. Siobhan McHugh wrote in 1996 that, “The Gwydir and Macintyre valleys. . .[have become] the base for Australia’s biggest cotton operation, Colly Farms. . .which alone markets up to twenty per cent of Australia’s annual cotton crop. Colly’s main property, Collymongle, west of Moree, comprises. . .30,798 hectares”.¹⁵⁷

(e) Ending of the Government’s Direction of Irrigation: the Influence Rice and Cotton Growers

Influences on government, to gradually reduce its direction of irrigation, began to occur in the mid-1960s, during the Askin government’s term of office, and increased in the 1970s.

In 1967, with severe drought in NSW, the Wakool Landholders association (many of whom were ricegrowers), according to Lewis, began “protesting [against] Commission water allocations”. Responding to these requests, the WCIC, as Lewis adds,

also permitted the temporary transfer of water between family members within and between Districts in the Murray Valley. This initiative. . .provided a powerful precedent for transferable water rights, still anathema to most irrigators for whom

¹⁵³ McHugh, op.cit., pp.40,177.

¹⁵⁴ Robert Milliken, *On the Edge: The Changing World of Australia’s Farmers* (Simon and Schuster, Sydney, 1992), p.72.

¹⁵⁵ McHugh, op.cit., p.93.

¹⁵⁶ *ibid.*, p.54.

¹⁵⁷ *ibid.*, p.53.

the nexus between land and water rights was essential in protecting farm values.¹⁵⁸

A year later, in the Murray River irrigation districts, as the WCIC outlined in an annual report, “approval was given of excess water to the extent of 10 per cent of permanent allotments being made available to landholders, if required, during the 1968-69 irrigation season.”¹⁵⁹ By the end of the 1960s, a volumetric allocation of irrigation water began to emerge in the Murray Valley.

As also described above, cotton growing was a significantly different undertaking compared to other kinds of crop growing (except possibly rice). Cotton growers’ requirements for water were much larger. As also outlined above, when the WCIC had first begun to issue licences for private irrigation, in the 1920s, these were for small blocks of up to 400 acres.

Gradually the cotton growers began to come into conflict with graziers, who wanted to use the water, on a less extensive level, for stock purposes. McHugh has described the essential emergence of these differences as follows, “By 1965, cotton irrigators were using about 80 per cent of the water from the Keepit Dam [on the Namoi River]. . .The irrigators had a whole different approach to water regulation: they wanted the storage maintained as high as possible to have a maximum volume of water available for their crop, while the graziers . . .favoured a low-level storage to offset flood effects.”¹⁶⁰

To achieve their ends, the cotton growers decided to exert pressure on the Askin government to change the current arrangements for water allocation. McHugh cites the academic Helen Wheatley in outlining how the cotton growers achieved this:

As Helen Wheatley suggests in her . . .comparison of the American and Australian cotton industries, ‘the Americans [on the Namoi] had learned to . . .band together politically in the United States. . .they used the co-operative skills developed in California to found a Water Users Association. . .thus introducing a new form of politics to Australian methods of allocation.’¹⁶¹

A platform of the cotton growers’ Namoi Water Users Association was that, according to McHugh, “rather than supply theoretically unlimited water to one area of land, a licence should provide a specified volume of water.”¹⁶²

With charges for supplies of water, for irrigation, still remaining comparatively low, the

¹⁵⁸ Lewis, op.cit., p.194.

¹⁵⁹ WCIC, annual report 1969-1969, p.52.

¹⁶⁰ McHugh, op.cit., pp.27-28.

¹⁶¹ McHugh, op.cit., p.29 citing Helen Wheatley, *Power Farming: A Comparative Study of Modern Cotton Production in the United States and Australia* (PhD Thesis, Johns Hopkins University, 1993).

¹⁶² McHugh, op.cit., p.33.

cotton growers also began to extract amounts of water far greater than previously drawn by many other primary producers in north-western NSW. Siobhan McHugh writes, citing a WCIC officer, Myles McCrae, as observing at the time that,

‘our own farm water supply system was still designing pumps for 400 acres with an eight-inch or ten-inch pump and these fellows were putting in twenty-four inch axial flow pumps. . .around 905 litres a second or eighty megalitres a day’. . .Corporate growers like Auscott. . .had ‘several batteries’ of these pumps extracting proportionately huge amounts of water - as they were free to do, there being no upper limit to the amount they could take.¹⁶³

Meanwhile, during the mid-1970s, the Askin, and subsequent Lewis and Willis, governments established a Machinery of Government Review. One of the outcomes of this review, conducted between 1974 and 1975, was, as described by Lawrence, “the reconstituting of the WCIC as the Water Resources Commission, with an additional mandate to undertake state wide water resources planning”.¹⁶⁴ This was effected by the Willis government’s obtaining passage of the *Water Resources Commission Act 1976*: irrigation was no longer in the title of the new organisation.

Significantly the Willis government’s legislation contained provision for the establishment of two water advisory bodies: the Water Utilisation Council, comprising representatives of the major water authorities, and the Water Supply Advisory Council, on which, according to Lloyd, were “representatives of water user bodies such as. . .licenced pumpers and irrigators”.¹⁶⁵

Rather than trying to direct irrigation throughout the state, as governments in the early 1900s had attempted to do, via the Water Conservation and Irrigation Commission, the Willis government’s legislation appeared to indicate that now, in water matters, governments in New South Wales might tend to follow the lead provided by property owners.

Under the following ALP state government, led by Neville Wran, which gained office in 1976, this change of direction in water provision continued.

In 1976 the Copeton Dam, on the Gwydir River, became fully operational. Cotton growing subsequently boomed, and Siobhan McHugh has commented that the Gwydir Valley “outstripped the Namoi. . .to become by far the largest cotton-producing area in the country, capable of growing around a quarter of Australia’s total production.”¹⁶⁶

Again, cotton growers in the Gwydir Valley formed a Gwydir Water Users Association. Big

¹⁶³ ibid p.26.

¹⁶⁴ Lawrence, op.cit., p.89.

¹⁶⁵ Lloyd, op.cit., p. 290.

¹⁶⁶ McHugh, op.cit., p.49.

business cotton operations became represented in the association. In the mid-1990s, for instance, Ken Arnott, manager of a large cotton farm owned by the National Mutual company, was also chairman of the Gwydir Water Users Association. These large-scale concerns built extensive water storage facilities. McHugh has written that, “In order to take advantage of any extra or ‘off-allocation’ water that might turn up as floods or rainfall, Gwydir irrigators built massive on-farm storages which together can hold about 250,000 megalitres - about half the entire annual allocation for the valley.”¹⁶⁷

A year after obtaining office, and about ten years after Namoi Water Users Association had proposed that “rather than supply theoretically unlimited water to one area of land, a licence should provide a specified volume of water”, the Wran government, as shall be described in sub-section (f), legalised this approach by obtaining passage of the *Water (Amendment) Act 1977* which introduced volumetric allocations for water provision. As Kuperan Viswanathan has observed, this changed the approach to land provision, for irrigation, that had prevailed during the 1910s and 1920s until the 1960s:

Under the [volumetric allocations] scheme individual irrigators were permitted to remove up to 6 megalitres of water per hectare of land authorised to be irrigated. The [Water Resources] Commission’s intention under the volumetric allocation procedure. . .[was now] *to ensure the maximum production from a given volume of water rather than from a given area of land.*¹⁶⁸

A year later, in 1978, as Lewis has written, the Wran government “promoted the idea of ‘valley committees’, joining river pumpers, horticulturalists and large area farmers in the irrigation areas and districts to rationalise and amalgamate functions. The emphasis in relations between the [Water Resources] Commission and farmers was shifting from a primary industry specific basis to a generic ‘irrigation industry’ concept.”¹⁶⁹

Six years later, in 1984, the Wran government established a Water Management Audit headed by John Paterson, who had previously been in charge of the Hunter District Water Board and who, in Lloyd’s description, “had made a reputation. . .by developing ‘user pays’ tariffs for household water supplies”.¹⁷⁰ When Paterson delivered his report, his proposals suggested that government exert even less control over the direction of water provision in NSW. According to Lloyd, Paterson commented that,

Although we attach the greatest importance to ownership by the state of all rivers, watercourses and lakes. . .we think that the state ought to delegate its power (with certain limitations) both as to construction and management of work to those. . . whose interests are immediately concerned.¹⁷¹

¹⁶⁷ ibid., pp.49,59.

¹⁶⁸ Viswanathan, op.cit., p.137.

¹⁶⁹ Lewis, op.cit., p.201.

¹⁷⁰ Lloyd, op.cit., p.293.

¹⁷¹ ibid.

Two years after Paterson delivered his report, in the last months of the Wran government, according to Lewis, the then Minister of Natural Resources, John Aquilina,

announced the imminent formation of boards of management for irrigation water, to assist the government in pricing and other policies relating to water use. The announcement officially confirmed that the WRC was preparing to withdraw from traditional responsibilities in respect of water administration, land use, water entitlements and pricing, allowing irrigators and markets to determine the allocation of resources.¹⁷²

The following Unsworth government subsequently obtained passage of the *Water Administration Act 1986*. As the then Minister for Water Resources, Janice Crosio, stated in her second reading speech, the legislation abolished the Water Resources Commission and established a Department of Water Resources that “supports the Minister in managing the state’s water resources.” As far as control of water was concerned, the legislation also established the Water Administration Ministerial Corporation “with responsibilities for water management and rural water supply” and provided for the appointment of “the Minister as its sole manager.” The overall intention of these changes was “to ensure the provision of water. . . .meets the needs of water users in a commercial manner”.¹⁷³

The combined effect of the Wran government’s changes appeared to make the Minister for Water Resources a kind of government businessman, supplying, and selling, water commercially. As the Environmental Defender’s Office has commented recently, “The Water Administration Ministerial Corporation. . .has the exclusive right to use and control water in creeks, rivers and lakes. Effectively this means that the [present] Minister for Land and Water Conservation owns the water”.¹⁷⁴

What appeared to be implied in this legislation was an acknowledgment of the decline of smaller-scale fruit growing (and rice-growing), and the rise of big business cotton production. As Crosio also remarked, in her introduction of the legislation, its provisions would “undoubtedly give rise to. . .industry restructuring”: in other words, that the change to provide water, for rural production, “in a commercial manner”, would accommodate the commercially viable cotton industry, while contributing to the scaling down of those other, now commercially unviable, sections of irrigated primary production.¹⁷⁵

This change in approach, by the Wran government, foreshadowed the emerging dominance of big business in other sections of primary production. As Robin Tiffen noted, in her

¹⁷² Lewis, op.cit., p.209.

¹⁷³ Second Reading Speech, Water Administration Bill 1986. NSW Parliamentary Debates. Legislative Assembly. 13 November 1986, pp.6394-6398.

¹⁷⁴ Environmental Defender’s Office, *Law of the Land: A Guide to Environmental Law for Farmer* (Environmental Defender’s Office, Sydney, 1996), p.27.

¹⁷⁵ Second Reading Speech, Water Administration Bill 1986. NSW Parliamentary Debates. Legislative Assembly. 13 November, 1986, *ibid*.

account of the Leeton Cannery, “food processing. . .[by] the early 1990s saw considerable changes. Goodman Fielder. . .bought the Uncle Toby’s division of ICM Australia; Pacific Dunlop bought Petersville Sleigh including Edgell - Birds-Eye; H.J. Heinz bought Watties frozen food companies of New Zealand. The big were getting bigger and small companies like Letona were failing”.¹⁷⁶ Gary Lewis has commented that, even by the mid-1980s, rice growers had become convinced that the Wran government “was determined to price the traditional family-based rice farm out of business and hand ricegrowing over to whoever could pay.”¹⁷⁷

It was the following Greiner government, elected in 1988, which truly began to implement this new policy. A year after its election, the Greiner government obtained passage of the *State Owned Corporations Act 1989*, laying the basis, on a general level, for the corporatisation of various parts of what had been, hitherto, state government undertakings. Between 1989 and 1990, the Greiner government divided the Department of Water Resources into a “state” section, responsible for the management of water resource functions, and an irrigation areas and districts “commercial” section responsible for the delivery of water within the irrigation areas.

A year later the Greiner government obtained an amendment to the legislation covering the irrigation areas by securing passage of the *Statute Law (Miscellaneous Provisions) Act 1991* by means of which a new section was inserted into the *Water Act 1912* (Section 133E) allowing for the governor, by proclamation, to revoke previous proclamations constituting irrigation districts. This allowed for the possibility that the irrigation areas and irrigation districts could be abolished and replaced by management boards.

Three years later, the subsequent Fahey government obtained passage of the *Irrigation Corporations Act 1994* providing for the establishment of state owned corporations to manage and operate the existing rural irrigation schemes that were currently under the Department of Water Resources.

(f) Changed Approach to Water Charges

In the days of the WCIC’s administration, charges for water use, in rural production, tended to be subsidised: remaining at reasonable rates compared to other states.

Changes to charges for water began to be made during the mid-1960s. Shortly after the election of the Askin government, in 1965, the new Minister for Conservation, Jack Beale, as Lewis has recalled, “announced big increases in water charges; more than 18 per cent in some cases”. Seven years later, in 1972, the new Minister, George Freudenstein, according to Lewis, “issued an ominous warning: the government was proposing to adjust water prices to include the capital cost of dams, storage and delivery works.” Two years later, in 1974, Leon Punch was appointed Minister for Public Works with responsibility for the WCIC. Almost immediately after being appointed, as Lewis has described, he announced “increases

¹⁷⁶ Tiffen, op.cit., p.97.

¹⁷⁷ Lewis, op.cit., p.207.

in prices of up to 90 per cent in some areas. The increases were necessary, the Minister said, in order to reconstruct the Yanco Weir system and to ensure adequate supply for landholders”.¹⁷⁸

During the 1976 election, according to Lewis, the then ALP opposition leader, Neville Wran, promised “to reduce prices by 40 per cent if elected. . .[however, after gaining office] the new government announced that Labor’s election promise. . .was to apply to the 1975/76 season only. . .[in 1976/77] water charges were raised, by 8 per cent”.¹⁷⁹

Despite these increases, charges for water continued to remain relatively low. Paul Moy has written that “in 1980. . .200 irrigation licence holders. . .[in the vicinity of the] Copeton Dam paid a nominal metering fee of \$0.28 per megalitre.”¹⁸⁰

Charges for water in NSW also seemed to remain cheap, by comparison with other states. Robert Fulcher has written that,

As of 1977, charges for irrigators ranged from 37c per megalitre [ml] on the Darling River tributaries in NSW, to \$4.50/ml for the water right in the Murrumbidgee irrigation areas. . .[compared to] to \$14.30/ml in South Australian irrigation areas, to \$85/ml for the highest priced block of excess water for South Australian users.¹⁸¹

In 1984, however, Janice Crosio, Minister for Natural Resources in the Wran government, as Lewis has recalled, “announced water price increases of 22 per cent. She said this cleared the way for a long term WRC policy to ‘recoup its recurrent costs of administration, operation and maintenance for the state’s rural water supply and distribution system.’”¹⁸²

As described above, two years later, the Unsworth government obtained passage of the *Water Administration Act 1986*, one of the purposes of which, as described above, was to “to ensure the provision of water. . .in a commercial manner”. In the new Department of Water Resources’ first annual report, the director of the department indicated the new direction of policy by declaring that, “Many irrigators want a subsidised high level of service at little cost. The realities are that this high level cannot be sustained.”¹⁸³

Studies by academics, undertaken in the 1980s, appeared to verify some of the Unsworth government’s views. In 1984, Cyril Udoe estimated that if, on top of the construction cost

¹⁷⁸ Lewis, op.cit., pp.192,197.

¹⁷⁹ ibid., pp.199-200.

¹⁸⁰ Moy, op.cit., p.225.

¹⁸¹ Robert Fulcher, *Competing Demands for Water: The Development of a Management Plan for Equitable Sharing of Water between Town and Agricultural Users* (M. Nat. Res. Thesis, University of New England, 1983), p.36.

¹⁸² Lewis, op.cit., p.207.

¹⁸³ Lloyd, op.cit., p.296.

of \$47 million, the subsequent maintenance cost of the Copeton Dam, in the Gwydir Valley, was around \$200,000 a year - and if the then Water Resources Commission only charged 0.28 cents per megalitre for water in the valley - the WRC would lose around \$100,000 a year.¹⁸⁴ Two years later, Abdullah Al-Harun, in his analysis of the Split Rock Dam, on the Namoi tributary, concluded that “Split Rock Dam is economically unsound from society’s point of view. . .while it would be highly profitable to new irrigators.”¹⁸⁵

As also outlined above, it was the subsequent Greiner government which set out to increase the extent of the commercialisation of water provision in the state. During 1989 and 1990, the Greiner government changed the pricing arrangements for provision of irrigated water. Although, as John Pigram wrote, the Greiner government continued “to meet the full costs of operating and maintaining irrigation storages”, it also required those using water, provided by irrigation, to pay operating and maintenance costs; to pay 70% of the costs of running the rivers; and to pay a contribution, in the form of a levy, towards asset refurbishment.¹⁸⁶

During the 1990s this process has continued both at a national and at a state level. In 1993, at a national level, the Keating government instituted the consultative process - the Council of Australian Governments (COAG) - to pursue the process of the greater commercialisation of Australian government instrumentalities. In June 1993 the COAG commissioned a study on Water Resource Policy. The report was subsequently prepared by a team chaired by the former chairman of the Westpac Banking Corporation, Sir Eric Neal. When the report was delivered, in 1994, it recommended, in regard to rural water services, “changing pricing regimes to ensure that in time charges fully recoup operating costs and contain a component to enable supply systems to be maintained and refurbished”.¹⁸⁷

At a state level, this policy has been continued under the ALP government, led by Bob Carr, which gained office in March 1995. Five months after being elected, the new Premier informed a meeting of the Business Council of Australia that,

Rural water charges in NSW are. . .under-recovered. . .Achieving a greater degree of cross recovery in rural water services by the year 2001 was a critical part of the COAG water. . .agenda. We have referred this matter to the GPT [Government Pricing Tribunal] who will make an independent assessment how COAG principles can be applied here and we will be bringing down some short-term water pricing

¹⁸⁴ Udoye, op.cit., p.382.

¹⁸⁵ Al-Harun, op.cit., p.90.

¹⁸⁶ see NSW Department of Water Resources, *Rural Water Pricing Policy and 1989/90 Water Charges*, as amended April 1990 (NSW Department of Water Resources, Sydney, 1990); John Pigram, “Property Rights and Water Markets in Australia” in *Water Resources Research*, vol.29, no.4, April 1993, p.1315.

¹⁸⁷ Council of Australian Governments, *Water Resources Policy*, report of the Working Group on Water Resource Policy,, February 1994, p.3.

proposals for country water. . .¹⁸⁸

Subsequently, according to McHugh, in September 1995 the Carr government “raised the price of water by up to 50 per cent”. The increase, as described by John Stapleton, was “a flat \$1.35 per megalitre across all types of rural consumption, including. . .irrigation”.¹⁸⁹

(g) Changing of Water into a Saleable Item

As described above, in the late 1960s both rice and cotton growers had exerted pressure on the Askin government for an alteration of the policy underlying provision of water for rural production. In particular the cotton growers’ Water Users Association had advocated that, rather than supply an unlimited quantity of water to one licenced area of land, a licence should entail a specified volume of water. This was an approach to the provision of water, for rural production, which had the potential to lead to water becoming a saleable commodity.

With the opportunities provided by cotton production expanding during the 1960s, private landholders began to apply for more and more irrigation licences. As described in section 11, above, the McKell government, in 1946, had obtained the passage of legislation which allowed for groups of private landholders to apply for authorities to establish joint water supply schemes, and to carry out works for the delivery of water to their properties. As the WCIC itself observed, as quoted above, the McKell government “encouraged this form of private development as an alternative to establishing state-financed irrigation areas”. By 1970, half-way through the Askin government’s term of office, there were, according to Viswanathan, “over 15,000 individual licences and some 270 authorities [issued] for joint water supply schemes.”¹⁹⁰ Some of these applications appear to have been purely speculative. Uduye has commented that,

Each riparian landholder. . .[continued to be] granted a licence to irrigate a maximum of 162 hectares [around 400 acres]. In the case of joint schemes, however, up to four single licences of up to 162 hectares each could be issued under a single authority. In practice, however, this rule has been so interpreted to enable some family-owned properties to obtain more than one licence. In this regard, members of the family partnerships or companies apply separately for licences to irrigate specific areas registered under each individual’s name. Since the possibility of getting water to a farm has the tendency to boost the value of a property, it is not surprising that applications for water licences have continued to increase . . .and that the rules have been interpreted. . .to secure multiple licences, purely to achieve

¹⁸⁸ *Economic Directions for NSW*, speech by the Hon. Bob Carr MP, Premier of NSW, to the Business Council of Australia, 24 August 1995, p.7.

¹⁸⁹ McHugh, op.cit., p.174; John Stapleton, “Water Wars” in *The Australian*, 15 September 1995, p.13.

¹⁹⁰ Viswanathan, *ibid.*

this objective rather than to increase production.¹⁹¹

A step towards transforming water into a saleable item was undertaken by the Askin government, in the early 1970s, when it obtained passage of the *Private Irrigation Districts Act 1973*. According to Andrew Dragun and Victor Gleeson, within the private irrigation districts constituted by the Act, “permanent water transfers. . .[were] permissible . . .without any encumbrance of land transfer.”¹⁹²

Only a year after taking office, the Wran government initiated further moves towards transforming water into a saleable item. During 1977, according to Lewis, Lin Gordon, Wran’s Minister for Conservation and Water Resources, declared that, “no more new irrigation licences would be considered after October 1977 as all dams were now fully committed”.¹⁹³ Wran subsequently obtained passage of the *Water (Amendment) Act 1977* which, firstly, laid a basis for an eventual moratorium on the issue of licences. In his second reading speech, Gordon declared that, under the proposed amendment to the Act, the now Water Resources Commission would “be able to restrict or suspend rights to take water from any river”.¹⁹⁴ This was effected by the insertion of section 20Y in the Act, which provided that “Where the Commission is satisfied that a water source which is subject to a scheme is unlikely to have more water available than is sufficient to meet the water allocations of holders of existing licences. . .it may. . .declare that. . .no applications. . .for additional licences. . .will be granted”.¹⁹⁵

Allied to the introduction of a basis for a moratorium on the issuing of licences, the Wran government’s legislation, in 1977, provided for a water allocations scheme, effected by the insertion of a new division 4B into part II of the Act. As Gordon also declared, in introducing the legislation,

representations [have been made] on behalf of private irrigators advocating a water allocations scheme instead of the present [allocation by] area basis. . .Provision is made for the governor. . .to declare a river, lake or section of a river. . .to be subject to a volumetric allocations scheme.¹⁹⁶

As Andrew Dragun and Victor Gleeson have commented,

Under these provisions an area. . .[could] be declared subject to a volumetric

¹⁹¹ Udoye, op.cit., p.25.

¹⁹² Andrew Dragun and Victor Gleeson, “From Water Law to Transferability in New South Wales” in the *Natural Resources Journal*, vol.29, Summer 1989, pp.659-660.

¹⁹³ Lewis, op.cit., p.200.

¹⁹⁴ Second Reading Speech. Water (Amendment) Bill 1977. NSW Parliamentary Debates. Legislative Assembly. 21 September 1977, p.8156.

¹⁹⁵ *Water (Amendment) Act 1977*, section 20Y.

¹⁹⁶ Second Reading Speech. Water (Amendment) Bill 1977, p.8155.

allocation scheme by an order of the Governor published in the Gazette. Following declaration, the [Water Resources] Commission. . .[would be] charged with the task of preparing a scheme to assess the total quantity of water available for apportionment to licence holders, which then determines the maximum quantity that may be taken by the individual licence holders. . .In practice, the Commission sets the number of irrigated hectares per person and the volume of water per hectare for each type of authorised irrigated crop.¹⁹⁷

Tony McGlynn has observed that, whereas until this time, “water use on regulated streams was controlled through limits on the area of land which could be irrigated”, the 1977 legislation, however, laid the basis for “water entitlements [to] effectively become shares in a yearly available supply.”¹⁹⁸

This provision of the *Water (Amendment) Act 1977*, however, was not initially proclaimed so, three years later, the Wran government succeeded in obtaining passage of the *Water (Amendment) Act 1980* which finally provided for the introduction of volumetric allocation of water for irrigation throughout NSW. As Lin Gordon, still Minister for Water Resources, explained in his second reading speech, “Whereas a volumetric allocations scheme has not yet been proclaimed, it is intended that such schemes will be proclaimed in respect of certain rivers.”¹⁹⁹

In 1982, according to McHugh, “an embargo was placed on the issue of any more large-scale irrigation entitlements.”²⁰⁰ A year later, as Gary Lewis has written, during 1983-1984, “A volumetric system of supply was introduced into the Murrumbidgee Valley, similar to that in the Murray Valley.”²⁰¹

Changing the provision of water into shares in a yearly available supply meant that water could eventually be traded, something which was effected by the subsequent Unsworth government, at the same time that it abolished the Water Resources Commission, replacing it with the Department of Water Resources. This was foreshadowed by John Aquilina, Minister for Natural Resources in the last months of the Wran government, when he declared that, “The efficient use of the resource depends on an ability to trade in it.”²⁰² By obtaining passage of the *Water (Amendment) Act 1986*, the following Unsworth government

¹⁹⁷ Dragun and Gleeson, op.cit., p.656.

¹⁹⁸ Tony McGlynn, “Making Sense of Water Licences and Transfers”, paper presented to the *Rural Legal Practice Issues Conference*, Sydney 1997, p.7.

¹⁹⁹ Second Reading Speech. *Water (Amendment) Bill 1980*. NSW Parliamentary Debates. Legislative Assembly. 17 September 1980, p.1094.

²⁰⁰ McHugh, op.cit., p.100.

²⁰¹ Lewis op.cit., p.205.

²⁰² *ibid.*, p.209.

introduced, according to Janice Crosio, Minister for Natural Resources,

a new approach regarding acquisition by landholders of water entitlements. . . present. . . allocation does not ensure that the resource is initially allocated to the highest valued use. . . It is proposed that entitlements be sold. . . People will be able to acquire water allocations from existing entitlement holders.²⁰³

This was effected by the inserting of schedule 9, division 4C “Transfer of Water Allocations” into the Act, which introduced sections 20AG and 20AH. Section 20AG required the newly inserted division 4C to be construed as if it formed part of division 4B, which had previously been introduced by preceding Wran government, in its *Water (Amendment) Act 1980* (to provide for the introduction of volumetric allocations of water). On the basis of the combination of these two divisions, section 20AH was able to provide that “The holder of an entitlement. . . may, with the approval of the [Water Administration] Ministerial Corporation, transfer the whole. . . of the water allocation for the entitlement”.²⁰⁴

In the years following, these amendments to the legislation came to mean, as Tony McGlynn has outlined, that “a licence cannot be issued, nor an application made, unless it replaces in whole or in part an existing licence.”²⁰⁵ A newcomer to irrigation, to gain a licence to irrigate, would first have to find someone, already irrigating, willing to sell their licence.

These amendments by the Wran and Unsworth governments laid the basis for an eventual trading in water licences - though, as Janice Crosio had added in her second reading speech, “Complete and permanent disposal of a precious state resource is not proposed.”²⁰⁶

Corporate forms of irrigated crops - principally cotton - with their accompanying features of production, appear to have influenced this shift towards the sale of water. Siobhan McHugh has remarked that, in the 1990s, Clyde Agriculture, for instance, “Between their four properties and their 20,000 acres of developed land. . . can store. . . nearly. . . 48,000 megalitres” of water.²⁰⁷

Trading in entitlements for water has now meant that licences currently cost substantial amounts of money. Rural affairs writer Asa Wahlquist has reported, in mid-1997, that some “irrigation licences. . . now sell for \$650,000.”²⁰⁸

²⁰³ Second Reading Speech. *Water (Amendment) Bill 1986*. NSW Parliamentary Debates. Legislative Assembly. 13 November 1986, p.6397.

²⁰⁴ *Water (Amendment) Act 1986*, schedule 9, sections 20AG and 20AH.

²⁰⁵ McGlynn, op.cit., p.8.

²⁰⁶ Second Reading Speech. *Water (Amendment) Bill 1986*, ibid.

²⁰⁷ McHugh, op.cit., p.100.

²⁰⁸ Asa Wahlquist, “Water Wars: Farmers versus Greens” in *The Australian*, 23 August 1997, p.26.

(h) Environmental Issues

During the 1980s another consideration emerged which also began to influence the direction of the provision of water for rural production: the environment. Growing environmental problems also caused irrigation to be considered in perspective, causing environmentalists to weigh up, on the one hand, the value of irrigated agriculture, against the damage caused to the environment on the other.

Although the money value of irrigated agriculture, by the late 1980s and early 1990s, was still considerable, it was not, on a percentage basis, a major part of Australian production. On a nationwide basis, in 1991-1992, the value of agriculture - combined with forestry, fishing and hunting - amounted to \$10.08 billion. The value of production from irrigated agriculture - including most fruit, vegetables, dairy products, wine, cotton and rice - was around \$4.5 billion.²⁰⁹

Agriculture itself, as a percentage of total Australian production, however, is quite small. In 1991-1992 it was about 3½ % of Australia's Gross Domestic Product. On the basis of the money values of agriculture, and irrigated agriculture, cited above, irrigated agriculture would account for about 1½ % of Australia's GDP.

Contrasted against this are the adverse environmental effects, which appear to be a consequence of irrigated agriculture.

As mentioned above, as far back as 1906, Professor John Gregory had warned of the lessons provided by other countries, regarding the harmful effects of irrigation. During the 1920s, as also cited above, farmers at Leeton and Griffith were already seeing the emergence of these problems in their irrigated properties. Robert Fulcher has outlined some of the main environmental problems, associated with irrigated water, as follows:

The major sources of pollution of water supplies from rural land use are animal wastes, fertilisers, pesticides, plant residues and saline waste water . . . Large scale irrigation development substantially alters the hydraulic regime of a river basin, by increasing the evapotranspiration loss. . . However the more permanent effect of irrigation development, and the more difficult problem to solve, is that of salinity.²¹⁰

During the 1970s, salinity continued to emerge in prominence as a major problem in irrigation. In 1977, according to Lewis, the Fraser government "announced grants for a River Murray Salinity Control Project as part of a \$200 million national water resource program". Subsequently the Wran government, later in 1977, "confirmed that work would

²⁰⁹ Barry Pestana, "Agriculture in the Australian Economy" in National Farmers Federation (ed.), *Australian Agriculture*, fourth edition (Morescope Publishing, Melbourne, 1993), p.9; John Pigram, Kim Shaw and Michelle Coelli, *Climate Change and Irrigated Agriculture: Implications for the Murray-Darling Basin* (Centre for Water Policy Research, University of New England, Armidale, 1992), p.30.

²¹⁰ Fulcher, op.cit., p.41.

begin on the Wakool. . .Sub-Surface Drainage Scheme”.²¹¹

In 1978 the River Murray Commission initiated a Water Quality Monitoring Program. During the 1980s, government ministers began to issue warnings, to producers in irrigation areas, that salinity, and other adverse effects of irrigation, could seriously harm the quality of the land in the Murrumbidgee and Murray valleys. Jack Hallam, in his 1984 address to rice growers, in southern NSW, declared that, “Unless the disastrous trends in land degradation are checked, and then reversed, much of this region may well be rendered sterile within two generations.” He added that, “about 3,000 hectares of the combined irrigation areas and districts have been lost through the process of waterlogging and salinisation.”²¹²

Salinity and other side-effects of irrigation continued to be reported during the 1980s, particularly in regard to land degradation. John Pigram and his colleagues remarked that “In 1987 it was estimated that losses due to land degradation in cropping and irrigated areas were in excess of \$220 million per year. Much of this degradation is irreversible or expensive to rehabilitate.”²¹³ During the 1990s warnings continued to be issued regarding salinity, with the Minister for Primary Industries and Energy in the Keating government, Bob Collins, declaring in 1994 that the level of salt build-up in the Murray-Darling Basin could affect nearly 1½ million hectares of land in the following fifty years.²¹⁴

Recently, the River Murray Commission’s successor, the Murray-Darling Basin Commission, released a study entitled *Salt Trends: Historic Trend in Salt Concentration and Saltload of Stream Flow in the Murray-Darling Drainage Division*. According to this report, about 700 tonnes of salt now moves daily in the Murrumbidgee River, at the point where it passes through the south-western NSW town of Wagga Wagga.²¹⁵

As well as land degradation, the build up of salt (and other chemicals) has naturally been harming the contents of the rivers themselves. In a recent investigation of fisheries management in New South Wales - undertaken by the NSW Legislative Council’s standing committee on state development - the principal fisheries scientist with NSW Fisheries, John Harris, remarked on the present environmental state of the Murray River itself. He told the committee that, in regard to the state of the fish in the river, the Murray cod had been “badly impacted by overfishing and environmental change. At the moment the commercial catch

²¹¹ Lewis, op.cit., p.199.

²¹² Hallam, ibid.

²¹³ John Pigram, et al, ibid.

²¹⁴ Julian Cribb, “Governments Slammed over Inaction on Murray-Darling” in *The Australian*, 7 December 1994, p.1.

²¹⁵ D.R. Williamson, G.W.B. Gates, G. Robinson, G.k. Linke, M.P. Seker and W.R.Evans, *Salt Trends: Historic Trend in Salt Concentration and Saltload of Stream Flow in the Murray-Darling Drainage Division* (Murray-Darling Basin Commission, Canberra, 1997), p.9.

of Murray cod is at only 10 per cent of its level in the 1950s.”²¹⁶

Despite its rather small contribution to Australia’s GDP, however, irrigation consumes an enormous proportion of total national water supply. Paul Moy has written that within “Water use data for 1977. . .The dominance of irrigation as the major sector. . .[was] apparent. Irrigation in the Murray-Darling Division account[ed] for 80.5% of all. . .use.”²¹⁷ In the late 1980s, Andrew Dragun and Victor Gleeson have estimated that “three-quarters of the nation’s regulated water. . .[is] directed to irrigation”.²¹⁸

A defining moment happened, in November and December 1991, when an outbreak of blue-green algae occurred in the Darling River - extending along about 1,000 kilometres of the river’s length. The occurrence of two particular chemicals in the water - nitrogen and phosphorous - was considered to be the cause of the outbreak which, essentially, temporarily poisoned the river. As McHugh has remarked, since the “algal bloom of 1991, the management of the Murray-Darling system has come under increasing scrutiny, from scientists, government, the media, environmental groups and the community.”²¹⁹

Contrasting the huge consumption of water by irrigated agriculture, compared to its relatively small place in national production - and its accompanying harmful effects - could bring an observer to the view held by some people, as John Pigram has pointed out, that “Irrigated agriculture is. . .a system which is not sustainable.”²²⁰

13 CONCLUSION

Only a short while after being investigated, as a means to address drought in the colony, irrigation very soon became subsumed into a wider goal of state, and then national, development. Almost as soon as the 1885 Royal Commission on the Conservation Water began to investigate irrigation as a remedy for drought, the commission also began to declare that irrigation was “of great national importance” with the potential for introducing “a new era of pastoral and agricultural prosperity”. Twenty years later, in 1905, Charles Lee, the then Minister for Public Works, highlighted the additional role of irrigation in helping to people the interior of New South Wales, when he declared that the regulated use of the waters of the Murrumbidgee, the Murray and the Lachlan would form the basis of a “great national scheme of water conservation for the development. . .and settlement of the central and western divisions” of the state. This became the grand design for irrigation during the 1920s and which, to some extent, continued during the 1940s with Chifley declaring that the

²¹⁶ Parliament of NSW. Legislative Council. Standing Committee on State Development, *Fisheries Management and Resource Allocation in New South Wales* (NSW Parliament, Sydney, 1997), p.205.

²¹⁷ Moy, op.cit., pp.223-224.

²¹⁸ Dargun and Gleeson, op.cit., p.660.

²¹⁹ McHugh, op.cit., pp.101-103.

²²⁰ Pigram, et.al., p.58.

Snowy Mountains Scheme could bring about “an immense decentralisation of industry and population.”

This grand plan, and the perceptions of policy makers on the progress of irrigation in the USA (particularly in California), correspondingly orientated the approach of those same policy makers towards the inauguration of large-scale provision of water for rural production. Irrigation would, in turn, be part of a large-scale land settlement program, with the overall aim of inducing significant numbers of small farmers into production in inland NSW. To ensure the viability of these smallholders, government, rather than big business rural concerns, would provide the water: since big business concerns, as perceived in operation in California, were viewed as likely to eliminate the small farmer.

California, however, while being a source of concern for policy makers, was also a source of inspiration. Australia and California were the points, on either side of the Pacific Rim, of the farthest extent of modern European population, on either side of the globe. In irrigated agriculture, policy makers seemed intent on aiming to parallel production in California: with fruit and rice, and subsequently cotton, production paralleling the output of these same commodities in California.

Changing realities, however, altered the course of this plan. With the loss, in 1973, of the British market - on which fruitgrowers were so dependent - smallholder settlement as a basis of irrigation strategy (despite the temporary success of rice growing) seemed no longer sustainable. In turn, governments began to be impressed by the strength of the, significantly different, cotton industry.

Alfred Deakin originally counselled against big companies acquiring “ownership of . . . water” since that could result in “the tiller of the land” being “compelled. . .to go out of cultivation.” By the late 1970s, with the loss of overseas markets for smallholders produce, it seemed that the “tiller of the land” would be “compelled” anyway to leave both fruit growing, and rice growing.

With the reasons for Deakin’s warning now appearing non-existent - there (eventually) being no “tiller of the land” to have to protect from big owners of water - governments now seemed inclined to provide water to those, indeed, who could make the biggest profit from it (essentially companies involved in rural production): with the proviso, however, that, rather than these same companies actually owning the water, the government would now be the owner of the water, as one kind of businessman in amongst other business people.

Deakin’s early cautions still appear to hold some validity, though for reasons which he may not have seen at the time. Despite government, at base, still owning the water, its entering into a different arena of operation (one business person in amongst a group of others) seems to have changed the outlook of those using the water. Siobhan McHugh quotes a grazier as complaining that “Irrigators. . .all reckon they own the water”.²²¹ This seems, in turn, to have the effect that, rather than considering the water needs of the overall community,

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McHugh, op.cit., p.83.

irrigators, the largest of whom have become the biggest users of water, direct that large share of river water solely to their own uses. Anthony Hoy, rural affairs reporter for the *Sydney Morning Herald*, wrote in December 1997 that “The daily trickle of the once mighty Barwon River at Walgett yesterday registered a mere 230 megalitres”. These “remnants of water”, according to Hoy, were what remained after the river had passed the “massive corporate irrigation holdings”.²²²

The future of irrigation clearly seems to depend on achieving on what, Peter Millington has called, “A reasonable balance”.²²³ On the one hand there are the benefits that irrigated production still provides: to the state, and to the nation as a whole. David McKenzie has written that, in 1997, cotton was “One of the shining stars of the rural scene. . . [on a national level the] Area planted and production jumped to record levels of almost 400,000 hectares and more than 600,000 tonnes of lint during 1996-97. Exports leapt more than 40 per cent to top the \$1 billion mark.”²²⁴

On the other hand, there is the issue of the state of the resource itself. The warnings of geographers on the generation of salinity, with irrigated agriculture, seem now to have become reality. A new concern is chemical contamination of rivers and, as regards the contents of the rivers, John Harris, who is also head of the inland fisheries division of NSW Fisheries, has stated in a recent audit report, on the inland rivers of NSW, that, “Native fish are in severe decline, rivers are rapidly losing their biodiversity and river degradation is widespread.”²²⁵

Asa Wahlquist has written that “All the Murray-Darling Basin governments are formally committed to balancing consumptive. . . uses with the needs of the river.”²²⁶ Achieving such a balance remains an involved, and demanding, obligation.

²²² Anthony Hoy, “Desperate Times for Farmers as Inland Rivers Slow to a Trickle” in the *Sydney Morning Herald*, 16 December 1997, p.5.

²²³ McHugh, op.cit., p.181.

²²⁴ David McKenzie, “Land’s Edge” in *The Australian*, 30 December 1997, p.26.

²²⁵ James Woodford, “Feast Your Eyes on the Cod you Won’t See in the Murray” in the *Sydney Morning Herald*, 16 August 1997, p.1.

²²⁶ Asa Wahlquist, “Water Wars: Farmers versus Greens” in *The Australian*, 23 August 1997, p.26.