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WATER POLICY: THE DRIVING FORCES

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On May 20 1918, the Sydney Morning Herald reported[1] that there has been a very large increase in the area of cotton production in Queensland with cotton for ginning increasing from 15 tons in 1917 to 55 tons in 1918. In the year 1995/96 the value of cotton produced in Australia was $665 million and generated a further $2 billion to $3.5 billion in downstream processing and service industries. 80%of the cotton in 1995/96 was grown by irrigation.

Australia is the driest settled continent. Periods of drought and flood are common features of a climate which is extremely variable and extremely unpredictable. The Royal Society of NSW has recorded that when the explorer Charles Sturt came to the Darling River in 1829 "found the water was too salt to drink and that the water level was so low that they were able to walk over to the other side." Against this harsh setting the people of inland NSW have had to survive. History demonstrates that water storage construction has followed droughts and river flow failure attended by socio-economic stress which can be readily visualised.

The Lachlan catchment is a typical example as recorded in the Government Water Resources Commission report of over 20 years ago:

- the Lake Cargellico storage was constructed during the great drought of 1896-1904
- Wyangala dam construction commenced in 1928 following extremely low rainfalls in the 1918-1920 period from Crookwell through to Booligal and no flow and low flow conditions from Forbes throughout the early 1920's
- Lake Brewster construction commenced in 1946 to assist the Lower Lachlan areas after the disastrous drought of the first half of the 1940's
- the need for the enlargement of Wyangala dam over the period 1961-1971 was amply demonstrated by the severe rationing of water throughout the valley in the drought of the 1960's and complete failure at Booligal in 1966 and 1968

[1] The Sydney Morning Herald, **On the Land**, 20 May 1918

- Carcoar dam construction in 1960-1970 followed the failure of the usually reliable Belubula river in 1965-68 which revived the grim local experience of the 1940's.

Decisions to build dams and water infrastructure have been made in response to a demonstrated basic need. That need is to provide water for the survival of a rural community, whose economic resilience in an increasingly competitive world market situation is too limited to withstand the impact of severe droughts.

The results of investment in dams and water storages have been substantial. The Sydney Morning Herald on August 3 1919 reported[2] the results of irrigation at Curlwa (in the south west corner of New South Wales) by announcing that "the carrying capacity of the land in its original condition was about one sheep to 10 acres, or an annual value of 120 pounds. The value of the production under irrigation 20,000 pounds." In 1995/96, 30% 0f the State's agricultural production was grown by irrigation using only a small fraction of the State's catchment areas. This provided the State with $2.1billion of food and fibre and a further $7billion to $10billion worth of jobs and economic activity in downstream processing and service activity. For example, in the 1995/96 year 33.4% of the Namoi catchment's agriculture was grown by irrigation using 1.5% of the catchment land area and 0.1% of the catchment's average annual watering. Cotton was the predominant agricultural product in the Namoi catchment in 1995/96. The Treasury value of dams and public infrastructure in the Namoi is $255 million. The value of production obtained by irrigation additional to that which could have been obtained from dryland farming was $267 million and the value of flow on economic activity in downstream processing and service industries was between $801 million and $1335 million. The ratio of the total annual additional economic output to the value of the public infrastructure is between 422% and 631%. This is a significant return on that public investment. The statistical evidence of the significant benefits obtained from irrigation are repeated across all catchments.

ABS data on NSW catchments demonstrate the importance of irrigated agriculture to industry and employment in rural areas and the narrow economic base of most inland catchments. In the Namoi catchment, agriculture represents 48% of enterprises and 17% of employment. In the South Coast of New South Wales, agriculture represents 23% of enterprises and less than 7% of employment. In the Hawkesbury-Nepean catchment, predominantly the Sydney basin, agriculture represents only 1.6% of enterprises and only 0.68% of employment. Agriculture is the heart and the backbone of inland New South Wales. Dr. Roy Powell has recently highlighted[3] that the subsidies and advantages are in favour of businesses locating in cities with the result that, for country areas there is no steady state option if jobs and social standards are to be maintained. Continuing development is a precondition for sustaining business, employment and social standards

[2] The Sydney Morning Herald, **On The Land**, 3 August 1919

[3] Dr Roy Powell, The Level Playing Field and Regional Development, Centre for Agriculture and Regional Economics, Armidale NSW December 1997.

in country NSW. Dr. Roy Powell highlighted that development opportunities may be more likely where there is a sufficient agglomeration of enterprises such as occurs in areas where there is significant irrigation.

It is no wonder then, that promotion of irrigation was recognised as an important element in regional, state and national development priorities. The investments made in water conservation storages and which provided community and environmental benefits[4] also facilitated the development of irrigated agriculture.

The Drivers of Reform

Resource Constraints and Competition for Water

The most important driver of reform is competition for water between farmers.

The Sydney Morning Herald article of August 3 1919, which reported the results of irrigation at Curlwa as raising the annual productivity of the land from 120 pounds to 20,000 pounds, also reported "A living area need not exceed 20 acres and the water rates are kept to a minimum, only one pound per acre being charged for 30 inches in 8 waterings. It was a principle "enshrined in both the Water and Irrigation Acts that water should be tied to specific parcels of lands and not traded separately"[5]. Water licences, granting access to water supplies, were traditionally issued for the irrigation of a particular area of land. As the water resources available for irrigation in a valley became fully allocated, "water management mechanisms (were) aimed at providing irrigators with greater flexibility in making use of the available water supplies", particularly during drought[6].

Water licences were changed to a volumetric allocation allowing more land and increased cropping to be irrigated for the same volume of water supplied. Secondly, "with storages particularly low at the commencement of the 1983/84 irrigation season and with the very real possibility of another year of restricted irrigation supplies, the Commission (in NSW) introduced, with the endorsement of the NSW Irrigators' Council, a trial water transfer scheme for that irrigation season. Up to this time both the irrigators and the irrigation authorities still opposed trading in water, fearing potential "trafficking" in water. The facility for water trading increased from this point and water trading is now an established factor in the irrigation industry. Thirdly, to ensure as much of the available resource was used when available, the estimated level of under utilised entitlement was

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[4] Laurie, Montgomerie & Petit, Benefits of Large Water Storages in NSW, Water Resources Commission of NSW.

[5] P. Verdic Transferable Water Rights in NSW, Proceedings of the Joint AWRC AAES Seminar on Transferable Water rights, AGPS, 1986 p 44.

[6] P. Verdic Transferable Water Rights in NSW, Proceedings of the Joint AWRC AAES Seminar on Transferable Water rights, AGPS, 1986 p 45.

taken into consideration when announcing water allocation availability. Fourthly, when water in excess of that required for downstream purposes was flowing in a river irrigators could access this surplus.

It is a widely held belief that in NSW the water resources currently available for irrigation cannot supply all of the water volumes which have been issued by licences and maintain the historic levels of use. The result has seen increasing competition for water between existing licence holders. A moratorium on the issue of new irrigation licences has been in place in NSW for a number of years. The result is conflict between those that have water licences and those who seek water licences. Competition for water for agricultural use manifests itself in disputes over allocation policy, in disputes between farmers upstream and downstream and between farming and grazing interests.

The policy response to this competition has been to increase reliance on market mechanisms as reflected in the COAG Water Reform Working Party Report. The intention being to allow the market to determine the priorities. A recent COAG report has highlighted that some changes driven by the Water Reform Framework "may work against the achievement of water-use efficiency/water conservation goals"[7]. It is important that the resolution of this competition issue be resolved within the agricultural industry. The NSW Irrigators' Council policy is that government needs to recognise and support the imperative for the continuing development and growth of agriculture and that substantial increases in food and fibre production can be achieved.

Today, two major issues in agriculture are global food security and sustainable land management.

The challenge for Australia is to produce significantly more food and fibre to meet the demands of an increasing world population and the desire in Australia to do so in the context of environmental responsibility. Recent work supports the view that a necessary precondition for a secure, caring and sustainable future is that the food and fibre production objectives and the environmental objectives be attained. It is misguided to consider the issue as trading off environmental goals against production goals. It is not a question of balance but a question of how to achieve both sets of objectives. Achieving the goals will require a government policy framework in sympathy with the factors underpinning agriculture, industry and regional development and conducive to securing the necessary investments.

The Future Food and Fibre Demands

[7] Les Russell, Towards and Nation Strategy for Water Conservation/Water-Use Efficiency, Draft Discussion Paper, National Working Group on water Conservation, July 1998,

"Moral responsibility extends to care of our fellow human beings as well as care of the environment... Food demand is most easily described in terms of population growth...Food demand appears likely to double in the next three decades"[8].

- World population will increase from its present level of 5.2 billion to 8.4 billion by 2025. The population of the Asia Pacific region will double by the year 2025 from 2.7 billion to 5.4 billion.
- UNICEF estimates that over 40,000 children under 5 die every day from starvation and malnutrition and a third of the world go to sleep hungry every day.
- The President of the UN's International Commission on Irrigation and Drainage, Shahrizaila Abdulla said "we have a twin problem here, not only to deal with population growth but also the growing demands of nutritional requirements because as the countries get affluent, the need is even greater to have a larger calories input, a diversified input also." Malaysia, for example, changed from 90% self sufficiency in food in 1974 to 65% in 1995.

Estimates of population beyond 2025 vary but only the most optimistic predict that the population will not continue to rise. The Department of Foreign Affairs and Trade have estimated in June 1996[9] that meeting the demand would require a five fold increase in Australian production over the next 16 years, which would translate to a 30% increase every year. For the immediate planning horizon covering the next twenty years population doubling will require substantially more food and fibre and these production goals will need to be met.

"If we do not use intensive agriculture, we must consume more land of low yield capacity and thus leave less room for wildlife and natural vegetation"[10]. Irrigation has a primary role in producing the necessary food and fibre and in providing sustainable development for secure, caring and sustainable rural communities.

Water Policy and Water Efficiency

Significant investment in water and irrigation infrastructure will be needed to realise the water efficiency savings which are available and necessary to provide for the production and environmental water needs. This is in addition to continuing improvement in both production methods and environmental management techniques through research and education. There are significant opportunities as well as the moral and social imperative to lift production. The economic, social and environmental benefits will be significant.

The Council of Australian Governments water reform initiatives and the Murray Darling

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[8] Professor Lindsay Falvey, The Context for Sustainability in Food Production and Environmental Car, 2nd National Workshop on Integrated Catchment Management, ANU Canberra, September 1997.
[9] East Asia Analytical Unit, Foreign Affairs and Trade, Subsistence to Supermarket, 1994
[10] Professor Lindsay Falvey, The Context for Sustainability in Food Production and Environmental Car, 2nd National Workshop on Integrated Catchment Management, ANU Canberra September 1997.

Basin water cap policy provide opportunities to achieve fundamental reform conducive to long term increases in investment and in production. These opportunities are currently being lost. The Murray Darling basin water cap policy was intended to provide a framework of incentives for action. Unfortunately, it has become (like the 1988 Salinity and Drainage Strategy) an excuse to do nothing. Do nothing that is, except to take water from farmers and stifle development. The very opposite result to what is required for a secure, caring and sustainable future. The cap established the level of infrastructure and the river operating rules in existence in the year 1993/94 as the base. The cap provided incentive for individuals and communities to improve water management efficiency and invest in infrastructure to enable more water to be available for necessary development. More water would come from the water saved in the efficiencies achieved and not by simply extracting more water from the rivers. Water savings can be made on farm, in the delivery systems, in the operation of rivers and water infrastructure and in improved infrastructure for and management of environmental needs. However, the State has not devolved salinity credits and trading in credits below State level.

Examples include:

- The improved management, by such infrastructure, of the Moira wetlands in the Murray River catchment, is estimated to save 6,300 megaliters of water a year. There are another 2,00 wetlands between Hume Dam and the junction of the Wakool and Murray Rivers.
- The private sector proposal for the improved storage management of Menindee Lakes can save annually between 50,000 and 100,000 ML of water currently lost in evaporation.
- Advances in irrigation farm management and technology, including land management and plant water demand technology can save between 5% and 50% of water currently used on farm.
- Improved infrastructure to better manage water to wetlands and forests, automated structures; to reduce losses and to improve riverine environmental infrastructure such as installing fish ladders, removing unnecessary permanent weirs; and to reduce losses in transmission can save up to 20% of the substantial volumes of water flowing in rivers and delivery systems.
- Investment in new storages; the improvement of existing storages such as by installing multi-level discharge towers; and improved management to reduce losses in storages can deliver up to 20% water savings.

None of this will be cheap. The investments needed are huge and will only come with a much different policy approach than the current reduction of water to irrigators. As Noel Fitzpatrick the former Chairman of the Murray Darling Basin Commission said "many of the problems of the Murray Darling Basin are the result of previous Government decisions". The Murray Darling Basin Salinity and Drainage Agreement of 1988, provided the framework of incentives to encourage community investment and action to reduce the impacts of water and land salinity. The opportunities have not been realised because the current regulatory framework and administration does not allow the benefits of salt credits to be owned by the particular groups or local communities. The market

incentives which would drive community action have been denied. The salinity problem, particularly caused by salt carried downstream from erosion and leaching in upland areas is being primarily addressed by reducing water use downstream. The Murray Darling Basin Ministerial Council water cap of 1996 provides another example of opportunities lost.

This is not a sustainable policy.

Water Policy, Private Investment and Regulatory Policy

Achieving the water efficiency goals will require a government policy framework in sympathy with the factors underpinning agricultural, industry and regional development and conducive to securing the necessary investments.

At present farmers consider that policy in NSW is solely concentrated on water users. There is the laissez-faire expectation that restricting water to present users and increasing prices will make water users more efficient and that they will cope. Professor Falvey recognised the constraint that farmers are faced with long term decline in food prices for their production[11] and the Industry Commission has concluded that the agricultural sector is constrained in its capacity to increase supply and to influence demand and that individual producers have virtually no control over the prices that they receive for their output nor the prices paid for their off-farm inputs to production[12]. Professor Falvey observed that "it is clear that unless agriculture is profitable, there can be little expectation of farmers investing in environmental remediation and conservation activities" let alone investing in more water technology. Australian farmers have been at the forefront in efficiency. The President of the UN International Commission for Irrigation and Drainage Shahrizaila Abdullah, has commented on the very high efficiency of Australian irrigation compared with that of other countries. He quoted 10 tons per hectare rice yields in Australia with only half that yield in most of the rest of the world. More can and will be done to drive on-farm efficiency even higher but at a substantial investment cost. Secure, long-term entitlements to water need to be guaranteed for these on-farm investments to be made.

In the current political climate it can be expected that the private sector investment will need to play a significant investment, construction and operating role. However, if this is to occur far greater devolution of water management and river operations will need to occur. The Commonwealth/States Salinity and Drainage strategy of 1988 has not produced the investments in salinity works because the ownership and market in salinity credits has not been devolved below State level. The Private Sector needs to be empowered.

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[11] Professor Lindsay Falvey, The Context for Sustainability in Food Production and Environmental Car, 2nd National Workshop on Integrated Catchment Management, ANU Canberra September 1997.

[12] Industry Commission, Land Degradation and the Australian Agricultural Industry, June 1996, p. ix.

Where is the opportunity for the private sector firms to offer to invest in, construct and manage water conservation infrastructure? Where is the opportunity for the private sector, including community and environmental organisations to offer to invest in and manage wetlands so that they can be wetted and the water delivered downstream for use as part of a managed dry out cycle. Where is the opportunity for organisations with off river storages of any kind to supply water downstream? As it enters or re-enters the river or stream, ownership of the water reverts to government. Where is the opportunity for the private sector to invest in salinity works and to gain credits which can be traded?

The Environment

There are genuine environmental and river health issues in responsible water management. However, there are significant environmental and river health benefits from irrigation and rural water management. The environmental lobby groups have targeted irrigation as the cause of all environmental problems and therefore attempted to resolve environmental issue by removing irrigation. Unfortunately Commonwealth and State bureaucrats, in a period of cut backs in staffing in traditional areas, have seized upon the environment as the basis for building new bureaucratic feifdoms. In NSW, the policy and administration has become so biased that water to irrigators has, in the words of the Murray-Darling Basin Audit Group, reduced water to irrigators by a combination of the MDBC Cap and river flow objectives. The industry must hold governments, politicians and bureaucrats accountable for their statements and actions and challenge those statements and actions when they are wrong.

Conclusion

In presentations of the NSW Irrigators' Council over the last twelve months it has been stressed that water policies must deliver secure, caring and sustainable communities. It has also been stressed that the current government policies will not deliver secure and caring communities and are not sustainable. They also do nothing to tackle the real environmental and ecological problems in inland rivers and catchments. The COAG, the ARMCANZ and the Murray Darling Basin Ministerial Council have politicians of all persuasions and there has been no dissenting voice against the policies that have been set.

Industry must now take the lead in promoting responsible alternative policies. Fundamental reform, including devolution and decentralisation of water management functions and secure ownership of water is essential to obtaining the private sector investment necessary for a secure, caring and sustainable future.