

Inter-Basin Delivery of Water

Synopsis

- Inter-basin delivery of water refers to the process of moving water from a source basin (catchment) to a recipient basin
- The approach has been controversial at times because of both perceived and actual impacts on the source basin and the receiving basin. There are examples of negative impacts arising from schemes in this country and overseas
- Rigorous controls and assessment processes are available for determining how Inter-basin deliveries can be achieved sustainably. These need to be applied meticulously in determining when and how inter-basin delivery can occur.
- AWA believes that inter-basin deliveries are a legitimate means of accessing water, and should be considered equally with all alternatives, including non-supply options such as demand management and water conservation. If well researched, planned, implemented, monitored and adapted in response to unforeseen issues, inter-basin delivery can be a successful water supply strategy

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Background

Inter-basin delivery¹ (IBD) involves a transfer of water from a source basin to a recipient basin. The practice is widely adopted in Australia and overseas. Large urban communities have traditionally drawn their water supplies from basins in their hinterlands and in many instances these are from adjacent river basins. An historical example is the transfer of water from Perth to Kalgoorlie more than a century ago, making viable the development of the Western Australian goldfields. As the sustainable limits of nearer basins are reached, however, more distant basins need to be accessed.

The global literature on inter-basin delivery of water is frequently critical of these projects primarily in relation to the damage done to the catchment from which water has been taken. The World Wildlife Fund Global Freshwater Program published a paper in June 2007 entitled *'Pipedreams? Inter-basin Water Transfers and Water Shortages'*. This paper examined existing global inter-basin water transfer schemes and identified a number of problems, including over-allocation of water as part of the transfer and a range of adverse economic and other impacts.

There are three broad categories of possible adverse impacts with inter-basin water delivery projects: (i) over-extraction in the source basin; (ii) adverse economic and social impacts in the source basin; and (iii) adverse environmental impacts in the recipient basin, including the transfer of pest species in the water, the disruption of flow patterns and water quality impacts.

The above having been said, in Australia, State legal frameworks on sustainable water use and water markets that have been developed as part of the 1994 and 2004 national water reform agreements, together with the current checks and balances, are rigorous and robust. Assuming that appropriate planning, research and participatory decision-making is undertaken, and that decisions reflect current and likely future community values associated with water in both the source and recipient basins, there is no reason why inter-basin transfers cannot be sustainable and carried out with acceptable adverse impacts. Monitoring and adaptive management would be a critical component of success in this regard.

Issues

Over-allocations

A well-known Australian example of adverse impacts that have arisen as a result of large scale inter-basin delivery of water is the Snowy Mountains Scheme. In this case, water is diverted from the Snowy River to the Murray River, with adverse environmental impact on the Snowy, particularly with regard to the reduction of flow in that river. While benefits have accrued to communities in the recipient basin, and beyond, including:

- an increase in land under irrigation and, accordingly, in income in downstream communities dependent on irrigation

¹ The term 'inter-basin delivery' has been chosen because the terms 'transfer' and 'change' may in legal terms refer to the relocation, or some other change, of a water entitlement held by a person.

- an increase in the quantity and diversity of products available to the broader community as a result of irrigation and increased water security
- an increase in employment and tourism primarily in the recipient basin, but also in the source basin and more broadly as a result of the flow on effects of increased agriculture and tourism

Communities of the Snowy River and broader communities of interest have, however, lost income, amenity values and natural assets. Also, despite the transfer, increased activity in the Murray river catchment has meant that that river is still over-allocated.

It will be essential that any future proposals for IBD take into account fully the impacts on both source and recipient basins, particularly with regard to environmental impacts.

The National Water Initiative and other recovery programs

Examples of large-scale water diversions and over-allocation such as with the Snowy and the Murray emerged before Governments and the community came to recognise the importance of setting ecologically sustainable extraction limits for rivers. There is a much greater awareness in Australia now about the impacts of the poorly planned schemes of the past. One of the major steps toward recovering environmental values and reducing over-allocation is the signing by the Council of Australian Governments of the National Water Initiative (NWI) in 2004.

The NWI specifies, among other things, that Statutory Water Sharing Plans (or Water Resource Plans) should be developed. It is intended that these plans should provide greater clarity as to how much water can be sustainably extracted from rivers, based on the best available scientific information. Additionally, for the Murray-Darling Basin, a catchment-wide plan on sustainable diversions will be developed by 2011 which will inform State statutory plans. There are also parallel strategies in place to recover some historic over-allocations to provide 'environmental flows' in the Snowy and in the Murray. Future proposals for inter-basin delivery should be considered in the context of water sharing plans for the source and recipient basins

These steps potentially provide the framework for the sustainable management of water. The 2009 Biennial Assessment of progress under the NWI carried out by the National Water Commission found, however, that progress on the development of water plans had been slow with only 60% of forecast plans completed within the timeframes agreed to in the NWI and a number of completed plans being suspended in the face of unanticipated drought.

As will be clear in this paper, if IBD proposals are well planned, taking into account environmental impacts and community preferences as well as other factors, IBD is a legitimate source of water supply that should be considered equally with others, including demand reduction. It is essential, however, that the framework to guide sustainable use of river water be implemented fully in line with the agreements made by all Australian governments lest the mistakes of the past be repeated.

Concerns about Inter-Basin Delivery of Water

Concerns have been expressed about the potential impacts of IBD on regional communities (e.g. socio-economic impacts) on food production and on the maintenance of environmental qualities, including water quality and the introduction of biota to waterways in which they were not naturally present. Critical concerns include, but are not necessarily limited to:

- That large urban centres (and governments generally) will always have greater capacity to pay for water than individual farmers. There is concern that the entry into the water market by urban water suppliers could dominate the market and could elevate water prices to levels that farmers could not afford;
- That the transfer of water could adversely impact regional economies in the source basin (notwithstanding that the water may be purchased from willing sellers) and that these transfers could increase with time;
- That water accounting is insufficiently robust to ensure that water provided to the recipient matches that taken from the source basin, or that water savings claimed to have been achieved in the source basin which have facilitated the transfers have, in fact, been fully achieved
- That water delivered for urban use will have to be of a higher security and that consequently, this water will be delivered, unrestricted, even during times when irrigation allocations are limited; and
- That it appears contradictory to create water use efficiency and water buy-back funding schemes with a view to enhancing environmental flows in a river system, while taking some of the water saved by one of these projects out of the basin.

The responses to these concerns include that:

- The transfer of water to higher value uses can produce economic benefit in both the recipient and the source basin as the former gains from the availability of additional water and the latter focuses on producing higher value, more water-efficient crops or repairing inefficient irrigation systems. The seller also gains income from the sale of the entitlement
- Factors other than the level of water use are often bigger determinants of the success of regional economies;
- The quantities involved in delivery to urban areas are relatively small compared to overall rural use, and these deliveries are already occurring;
- Some farmers and irrigation companies are comfortable with selling annual water allocations and/or their water entitlements ; having their inefficient systems repaired; and increased water prices (in as much as they enhance the value of their holdings); and

- If water is acquired for a consumptive use it shouldn't matter where it is used;

Additionally, The Commonwealth Government appointed (May 2008) a Stakeholder Consultative Committee of twelve people with diverse backgrounds (irrigators, community members, environmentalists and water experts) to provide input to the review of the first round of Commonwealth water purchases in the Murray-Darling Basin. This group has been asked to provide advice on how the Government can best respond to community concerns as the water purchases progress. In addition, the review of the water purchase program will assess the economic, environmental and social impacts of this initial stage of the program, and will inform all subsequent water entitlement purchasing activity.

Environmental impacts arising from IBD will vary from catchment to catchment and it is not possible to document all of them, or their possible solutions within this Position Paper. AWA holds, however, that prior to any IBD being undertaken rigorous environmental investigations as part of a triple bottom line assessment of the efficacy of the proposal should be carried out. Certain environmental impacts may preclude the undertaking of an IBD scheme, but this is not the case in all circumstances and many impacts can be successfully avoided or mitigated through appropriate planning. IBD should, therefore, remain a legitimate option for enhancing water supplies or water security in the appropriate circumstance

Water Entitlement Security

While some variations exist across Australia, water entitlements provide a statutory right that endows the owner each season with a share of a consumptive pool. Each entitlement receives a seasonal allocation to divert a given volume. The actual amount received is not fixed and depends on available pool and the level of reliability of the entitlement, e.g. high security or general security². (The pool is determined by the overall 'cap' for the basin, diversion limits for particular sub-basins, dam storage levels and expected inflows).

Clause 58 of the National Water Initiative specifies that, "the States and Territories agree that their water market and trading arrangements will (inter alia): enable the appropriate mix of water products to develop, based on access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time; recognise and protect the needs of the environment; and provide appropriate protection of third-party interests".

Water entitlements may be purchased as statutory rights of access to water. The market price for seasonal allocations is the price for actual quantities of water that can be delivered in the current season. The market price for entitlements depends on market forces which reflect, among other things, the seasonal allocation plus the expected price of these in future years. The higher the

² The term 'security' refers to the extent to which the allocation will continue to be available when the total pool of water available is reduced because of drought. Thus, a high-security entitlement – such as might be available for urban water supplies – would be accessible even under dry conditions. Lower security entitlements would not be available under these conditions. The National Water Initiative specifies that environmental water entitlements should have a high level of security attached to them.

statutory reliability of an entitlement the higher the price of the entitlement, because the greater the probability that it will receive its full seasonal allocation in any given season. In periods of low water availability the price of seasonal allocations will rise.

As a general principle, when water is traded the security of the entitlement is also obtained by the purchaser – within trading rules. (Water Resource/Sharing Plans also allow for entitlement holders to enhance the security of their entitlements with a commensurate reduction in the quantity of the entitlement.) Entitlements for urban water purposes are usually deemed to be essential and are obtained at high security. However, where an IBD is made possible as a result of water savings generated in the source catchment, the security of entitlement attached to the supply is the same as that applying to the saved water. Hence the seasonal allocation given to those entitlements (i.e. the allocation from which the savings were generated) would also apply to the saved water and the savings in each corresponding seasonal allocation received by the irrigation scheme in question would have to be calculated. Thus, if the water savings are generated in irrigation schemes for which the allocation in a particular season is zero, the inter-basin transfer would correspondingly get a zero allocation.

Return Flows and Water Accounting

Under the sustainable water resources planning model established by the National Water Initiative, once an allocation has been given for consumptive purposes there is no expectation that any of that water would return to the river.

In the case of the Victorian Food Bowl project, the proposal is to repair leaky old irrigation infrastructure and improve system efficiencies to achieve water savings, of which a third in volume will be delivered to augment Melbourne's water supply. Concerns have been expressed that, in some cases, part of the water leaking from irrigation channels is returning to the adjacent river (and supplementing flows downstream). Similarly, some of the leaking water may also be entering adjacent aquifers and supplementing the groundwater supplies of irrigators.

In short, this highlights the importance of accurate water accounting to demonstrate that real savings are being made and allocated correctly.

General Comments

A well planned and managed IBD scheme can benefit both the source and recipient catchments. While there have been notable failures in the past, there is considerably more rigour in our understanding of water flows, environmental requirements for water, the inter-connectedness of surface and groundwater systems and the socio-economic impacts of water transfers. IBD can therefore provide a long-term, sustainable water supply solution in the appropriate circumstance. Furthermore, IBD can promote water use efficiency and help to ensure that the economic value derived from each unit of water transferred is maximised. General prohibitions on inter-basin transfers therefore to be resisted as such limitations will unnecessarily reduce the range of options available in securing sustainable water supplies.

That said, as with any water supply option, the economic, social and environmental impacts of a proposal for inter-basin delivery of water must be rigorously assessed. It will be particularly important that we are cognisant of the failures of the poorly managed schemes of the past; ensure that new schemes are appropriately managed and that accounting for water transferred and diverted is transparent; and that the water management framework of the source basin governs the extent of allocation. This means that new entitlements should only be granted where there is a management plan which allocates water on an equitable and sustainable basis between existing consumptive users, the environment and any proposed inter-basin delivery. In this context the quality of the water transferred and the quality of water with which it might be mixed (including biota that may be transferred with the water) must be specifically addressed.

The current work to assess the economic, environmental and social impacts of water entitlement purchasing activities in the Murray-Darling basin will be of great value. It is expected that governmental adjustment schemes will address the economic and social changes that arise.

Summary of AWA's Position

AWA does not favour 'policy bans' on any water supply option to serve communities and recommends the objective consideration of all options and impacts. These include: recycled water for potable purposes, desalination, rural-to-urban trading, new dams, inter-basin and cross-border delivery of water and decentralised solutions, as well as non supply options such as demand management. Rather, the Association favours triple-bottom line assessments being carried out on each proposal or system to assess its suitability within the conditions for which it is proposed. Not all options will suit all circumstances; equally, however, the elimination of potentially sound options prior to such assessment being carried out is not appropriate.

Inter-basin delivery of water is supported as one of a number of appropriate mechanisms for water management and water supply, provided such delivery can be undertaken on a sustainable long-term basis without damage to the environments of either the source basin or the recipient basin, and without significant negative social and economic impacts on either basin. Conceptually, there is no difference between a withdrawal and consumptive use within a basin and consumptive use of the same water in a different basin, assuming rigorous assessment of socio-economic and water quality impacts has been undertaken in both catchments and found to be manageable.

AWA believes legal frameworks and processes are available currently to ensure that a proposal for IBD can be rigorously assessed. One of the objectives of the 2004 National Water Initiative is that Australia should have a nationally-compatible market, regulatory and planning-based system for managing surface and groundwater resources to enable water to move to its highest value uses. AWA supports this objective and, accordingly, favours the progressive removal of barriers to trade in water to facilitate the broadening and deepening of water markets.

While water allocations to urban water users are usually provided at a higher level of security than irrigation supplies, in the case of the inter-basin delivery of water from irrigation uses to urban uses,



the reliability (security) of the water entitlements obtained at any one time by the recipient, either through trading or through water savings, should be the same as those applying to the source scheme.

It is important that accurate and transparent water accounting procedures be established with all IBD projects so that the communities involved can gain a clear perception of fairness.

References

Options for Water and Energy Resources Development in Dams and Development: A New Framework for Decision Making. The report of the World Commission on Dams, November 2000.

Pipedreams? Inter-basin Water Transfers and Water Shortages, WWF, June 2007

“The Future of Water”. In *Future Dilemmas: Options to 2050 for Australia’s Population, Technology Resources and Environment*, CSIRO Sustainable Ecosystems, October 2002

Sugarloaf Pipeline Project: Environmental Implications of Transferring Water Savings from the Goulbourn River, HD, Melbourne Water, John Lolland and SKM, February 2007