

The Department of the Prime Minister and Cabinet

National Water Initiative Water trading study

Final Report

June 2006

Executive Summary

Water trading and the National Water Initiative

The National Water Initiative (NWI) is Australia's blueprint for national water reform. Central to the initiative are water markets and trading. Trading is the main means through which available water resources are to be (re)allocated amongst users, representing a fundamental shift away from the historic administered allocation arrangements. Trading may involve a reallocation of water within a sector, between sectors, or between communities.

Our task in this project has been to develop an optimal design for an effective water market, having regard to lessons from other sectors and taking into account the particular characteristics of the water sector.

Although the institutions and processes of the NWI are relatively new, water trading itself is not. Various trading systems have been in place in some areas for several decades, although the robustness, liquidity and efficiency of market arrangements in the past has been less-than-ideal.

While intrastate trading has existed for some time, interstate trade has developed at a slower pace reflecting complexities associated with trading across jurisdictional borders, such as differences in entitlement specification and trading rules.

The NWI is critically reliant on trading being effective to achieve outcomes that optimise economic, social and environmental objectives. The NWI's reliance on trading recognises that past approaches to water allocation – largely administrative systems based on incremental allocation and 'first in' principles – have been inflexible and are ill-equipped to adjust to changing market circumstances. The challenges of emerging delivery constraints in many catchments are especially relevant here.

All States and Territories now are signatories to the NWI. These jurisdictions have therefore undertaken to adopt policies and legislative and regulatory arrangements which support the outcomes and objectives sought by this Agreement. While the paths being followed by the different States and Territories do vary, sometimes in quite important ways, the fundamental design of the water market is not that different across the jurisdictions.

Building on the market design we already have

The design we envisage for the water sector is not dissimilar structurally from the market as it is presently configured. We see a need for further refinement in the market rules and supporting infrastructures, but not a fundamental change in the direction contemplated under the NWI or indeed from that being pursued by most jurisdictions.

Partly this reflects the comparatively advanced level to which water market design has developed within Australia, and the efforts of the Australian Government and State and Territory Governments over the past decade to improve the effectiveness of the water market.

As a result the market requires targeted improvements, not a wholesale redesign. In international terms Australia already is well ahead of the rest of the world. There are few lessons from other countries in water market design which, in some form, have not already been adopted by Australia.

Directions for an effective water market

In addressing the question of market design for the water sector the following matters have been identified (through our consultation and research) as critical considerations.

- whether the current structural characteristics of the market are sufficient to support competition, or whether further structural reform would be required;
- the definition of the market and the 'commodity' traded – a market in what?
- the rules which govern market transactions and whether restrictions on trade ought to be allowed and, if so, in what form?
- arrangements for regulation of market conduct, both of direct market participants (buyers and sellers) and of market intermediaries (brokers, exchange operators); and
- other ways in which the effectiveness of the market as a coordinating mechanism might be enhanced, such as through the provision of reliable market data to participants and the community.

Examination of each of these considerations creates alternative market design options. These have been examined in terms of their implications for efficiency, equity, and administrative simplicity and practicality.

Set out below is a brief description of our examination of these options, key findings and recommended actions to move towards an effective and efficient national water market.

Water trading and competition

Competition in the water trading sense is between different users and alternative competing uses to which water may be applied. In the rural water sector, where water trading is most prevalent, there are fewer structural sector characteristics which impact on competition.

Defined as a market in water access entitlements and allocations, generally there are a large number of (prospective) buyers – despite some continuing limitations on whom may participate in the market – and a large number of (prospective) sellers. Structurally, this should provide the platform for workable competition in the water sector.

There are fewer structural impediments to workable competition in the water sector than in some other sectors, and certainly non of the vertical restructuring issues as were necessary to promote competition in, say, the energy sector.

To the extent the market is not functioning as effectively as it might, this is primarily to do with frictions caused by certain rules and administrative requirements related to the processing and approval of trade, including at the interstate level but also within States. This should not, however, be read as understating the importance of some of these restrictions in curtailing trade and hence competition.

Particular attention is needed to ensure that policies or administrative requirements within irrigation companies do not present as a barrier to trade. Within these entities, irrigators often do not hold separate, statutory entitlements to water, but rather shares in an entity which in turn holds these entitlements at a bulk level.

Preferably, irrigators in these areas would hold statutory water access entitlements no different to those of 'river' irrigators. This would allow irrigators to trade in the market more broadly, without the need for an individual entitlement to first be separated from irrigation company's bulk entitlement. It would allow for transparency and separability between the decisions, actions and contracts which govern the use and ownership of infrastructure assets, distinct from the water access entitlement.

In the near term, and as a minimum, there needs to be a clear pathway for irrigators to transfer their share of the bulk entitlement out of the body corporate, into a form which is readily transferable within the market more broadly.

Key Findings

- There is no obvious need for major structural reform to support competition. There are fewer structural impediments to competition in the water sector than in some other markets, principally due to the absence of any significant vertical integration between storage and transmission, and downstream use.
- The optimal structure would be to devolve entitlements down to the level of individual irrigators. Irrigators would continue to hold shares in the infrastructure entity, and would have a commercial supply agreement with this entity for the water delivery services provided, but would have statutory water entitlements equivalent to 'river' irrigators or other entitlement holders.
- Moving to this optimal market structure is not, however, without costs. Costs relating to the existing 'collective' ownership of water access entitlements are predominantly borne by the members of these companies, either directly or indirectly through their ownership of the irrigation company. They would also carry most of the costs of any changes. For this reason, and to respect the legitimate interests of the irrigation companies and their members, Governments should encourage, but not mandate, that ownership of water access entitlements be structurally separated from ownership of infrastructure assets.

Recommended Actions

'Entitlements' to water within irrigation districts desirably should have common statutory basis and be issued at the 'irrigator' or 'user' level. Governments should encourage irrigation companies and their members to adopt such a structure, but should not mandate it. Government should monitor this situation, to ensure that opportunities for structural reform within irrigation companies are not being blocked.

Regardless, there should be a clear path for trade out of and into irrigation districts, which requires that:

- the 'entitlement', in whatever form, is clearly specified;
- it can be traded out of and into the scheme at low cost, and with no difference in fees and other processes than would apply to intra-scheme trades;

- the process for trade must be administratively simple, and be able to be processed in a timeframe consistent with those in the 'external' market;
- there should be no requirement to be a land-holder or shareholder in the scheme to own an entitlement;
- the trading process should be known in advance and predictable in its outcomes – buyers as well as sellers need certainty that the transaction is feasible;
- there must be some mechanism for the external review of these processes periodically to ensure their continued appropriateness; and
- any restrictions on trade into and out of irrigation districts should be removed where they are not consistent with the principles outlined in Schedule G of the NWI.

Defining the market

Markets exist to coordinate transactions in products or services. The product traded must exhibit a number of characteristics for a market to effectively operate. Generally the economic standard for a tradeable entitlement requires that it be:

- clearly specified – the entitlement holder and the market more generally understands the benefits and obligations associated with the entitlement;
- secure – the entitlement holder's rights are protected from arbitrary modification by others, though this does not preclude the right being subject to attenuation under clearly defined terms;
- exclusive – the entitlement holder attracts all of the benefits and costs associated with the ownership and use of the entitlement;
- enforceable and enforced – the right can be monitored as to its use and transfer, and there are tangible remedies to situations where the right is infringed by others; and
- transferable and divisible – the entitlement can be traded in whole or in part (based on ACIL Tasman, 2003).

These standards need to be met for both water access entitlements and for water allocations, as there are separate, though interrelated, markets in each.

As the sophistication of market participants evolves, the consideration of a further level of entitlement unbundling also evolves. Conceptually, the first-best approach would be to completely unbundle the water resource share component of a water access entitlement from any associated rights, ultimately to an entitlement defined at source with individually-specified rights to inflows and storage capacity.

While it is likely that the water market would operate more effectively, and third party interests would be dealt with more transparently and efficiently, with greater separation of entitlements into their constituent 'rights', the critical factor is whether the costs of doing so would actually be greater than the resulting benefits.

Unbundling is also one potential strategy for managing scarce delivery capacity. We are attracted to this concept as a market-based solution, in its various forms. For this reason, we have recommended that the entitlement frameworks in each State have the *capability* for water access entitlements to be further unbundled to a separate delivery capacity entitlement, distinct from the resource share component. Some States have already progressed down this path, or shortly will do so.

We are mindful, though, of the practical difficulties of this level of separation and therefore are reluctant to recommend absolutely that such unbundling be adopted in each and every system and water market. Other strategies for managing delivery capacity constraints, including more limited market-based options, administrative sharing rules, or operational strategies to minimise or avoid the constraint occurring in the first place, are likely to have a role in some system, and probably for quite some time to come.

Key Findings

- Existing entitlements meet (most) requirements for economic property rights, though there are likely to be gains in further unbundling of entitlements. A prime candidate here would be to separate delivery rights from the water access entitlement, in capacity constrained irrigation schemes especially.
- The practicality of further unbundling and other improvements in the economic characteristics of water entitlements (exclusivity and completeness), including bringing indirect users such as forestry and land-use changes into the market, should be retested periodically.
- Continuing with the present 'partially-unbundled' entitlement form means that there needs to be more constraints to trade in entitlements than would be the case were entitlement able to be completely separated from any attendant rights to delivery, site use or other factors. This is not necessarily inefficient, when the transactions costs of alternative approaches are taken into account.

- Frameworks for the specification of water access entitlements should provide the capability for delivery entitlements to be held separately to any water access entitlement, and to be individually tradeable.
- For off-river irrigation districts or areas, there is likely to be greater scope for separate markets in delivery entitlements. As such markets would be inherently local, the operator of the particular irrigation scheme would be a logical choice to organise and administer any trading arrangements.
- For on-river systems where peak constraints already are binding, then a mechanism to buy-back peak delivery rights from irrigators and water users through some form of auction or other market-based mechanism may have merit.
- A range of other operational strategies are likely also to provide a means of dealing with system capacity issues, whether arising from trade or otherwise. These options may be comparatively low cost and easier to implement than some of the more complex market-based approaches.

Recommended Actions

- All entitlement frameworks must separate out the water access entitlement from water allocation, with temporary trade in the latter permitted without changing the ownership or other characteristics of the former.
- In States and Territories, where legislation does not provide for separable delivery and resource share entitlements over water (this is the case in all states and territories other than NSW and Victoria), legislation should be amended to explicitly provide for these components.
- Any change in the specification of a water access entitlement should occur with priority given the potential impact of a change in a statutory right held by an individual that may have encumbrances, etc over the asset. Market uncertainties and change have the potential to limit trade, and changes in the nature of risk associated with holding entitlements should be reflected in the price of the good.
- Where legislation does provide for separable delivery capacity entitlements, the frameworks necessary to create the entitlement and allow for trade should be implemented, such as in NSW.
- Each State and Territory should identify where capacity constraints exist, or where the potential for capacity constraints may emerge. Tools to manage these constraints should be considered having regard to the relative feasibility and cost effective of the alternatives including both market and non-market responses.

Market transaction rules and restrictions

All markets rely on rules. Rules reduce uncertainty for market participants (and reduce impacts on non-participants) and hence, lower transaction costs.

Clear trading rules encourage the emergence of market intermediaries, who can play important roles in aggregating sources of supply and demand, providing risk management services, and bundling financial and physical commodity packages.

Laws governing general commercial conduct of firms and individuals, contracts and financial instruments provide much of the necessary legal framework for markets to operate. Supported by legislative frameworks which give appropriate property characteristics to water entitlements and allocations, this includes for the water market.

On the rules which govern trade in water access entitlements, our view is that the market design should respect and incorporate those rules which can be demonstrated to be the least-cost means of achieving an identified public-interest outcome.

As was found by the National Water Commission in its most recent assessment of States' progress in implementing water reforms, mostly trading rules have a sound basis. But some rules are likely to be an especially blunt means of achieving the desired objective, and may unnecessarily constrain water trading opportunities. The presumption should be towards the opening-up of trading opportunities, which restriction on trade imposed only where these can be justified against rigorous public-interest criteria – not the other way around.

Two areas of particular concern for water trading are those continuing restrictions as to whom may participate in the water market (and in what way), and policies which seek to, or have the ultimate effect of, limiting the amount of trade out of irrigation areas.

The best overall strategy is to ensure the widest possible scope of participation in the market and to free up those remaining restrictions on trade, to the greatest extent possible and desirable. Such a strategy would offer the best chance to limit any one participant's market power – addressing concerns about the emergence of so-called 'water barons', however unlikely we may consider this is.

Restrictions on participation

Market rules should not proscribe any party from participating in the market. Similarly the market should allow for any parties to hold and trade water entitlements, whether or not these are to be used for a particular purpose, or at all.

One of the key motivations for trade is to allow water access entitlements to be redistributed towards high-value occupations. Probably the highest value uses for water are in the urban setting, and continuing restrictions on inter-sectoral trade, for those few systems where such transfers are practicable, will substantially limit the gains which a water market might otherwise deliver.

Several States retain restrictions to the effect that landholders only may hold water access entitlements. These both limit directly participation in the water market and constrain opportunities for development of more innovative market products (options and forward contracts, for instance).

Interstate trade

Permanent interstate trade between New South Wales, Victoria and South Australia had up until recently been facilitated through a pilot interstate trading trial. These states are currently developing the frameworks that would allow tagged trade to commence from 1 July 2007.

In our view tagging is the preferred option for interstate trade. Tagging ensures the entitlement remains administered by the jurisdiction in which it was initially created, and retains all of the rights, responsibilities and risks associated with that system. Tagging is transactionally simpler than the alternative exchange rates model, and avoids also the potential for third party impacts which can arise under exchange rate-based trade.

Progressing the necessary legislative and operational changes required to facilitate interstate tagged trade should therefore be a priority for each of New South Wales, Victoria, South Australia and Queensland. One of the important, but least considered, elements of this is getting the underlying water allocation 'accounting' systems in place and functioning effectively.

The advantages of tagging also would be substantially undermined by an inability to convert between entitlement types within a particular jurisdiction/valley. The processes for converting low to high reliability products (and the reverse) need to be formalised and made more open to market participants.

Allowing conversion between entitlement types, within each jurisdiction and/or specific catchment, would ensure that the product mix with the most value to the market is achieved. This is important not just to interstate trade, but to trade across and within valleys within each State.

Restrictions on trade

We are not convinced that restrictions on water trade to address concerns around stranded assets in irrigation areas are an efficient or indeed even necessary response. Exit fees have the very real potential to stifle one of the greatest opportunities from water trade – the opening up of the market to include the vast volumes of water held by irrigation companies and cooperatives, especially in NSW. Any rules which result in the effective excision of a substantial fraction of the market will be at a very high opportunity cost.

We accept that there are some circumstances in which exit fees may have some role. This might include as a tool to manage the pace of structural adjustment within irrigation districts and the communities which support them or, perhaps to reflect past (implicit) agreements between irrigators and irrigation companies as to the recovery of costs.

Key Findings

- Market rules are necessary because they provide clarity to market participants, reduce uncertainty and transactions costs. Where there are specific additional rules regarding water trade, then these should comply with the principles set out in Schedule G to the NWI Agreement. This should include whatever trading rules are set by irrigation companies, and both intra- and inter-system trade.
- The presumption should be towards opening-up trading opportunities, with restrictions imposed only where these can be justified against rigorous public-interest criteria – not the other way around.
- It is likely that some of the remaining barriers to trade are not institutional in nature, but simply due to inertia or cautiousness in State administrations which mitigate against the expansion of trading opportunities. If the parties to the Agreement comply in spirit and intent with these rules, it would go a long way towards freeing-up the market.
- Greater uniformity in documentation and timeframes for approving interstate trades would remove some of the frictions in this market.
- Tagging is the preferred basis framework to support interstate trade. Exchange rates will still be needed, in the short term, to facilitate interstate trade between those jurisdictions where systems do not presently support tagging, and in the longer term to address issues such as system losses in the spatial reallocation of water.

- Tagged trade would be greatly improved by allowing for the conversion of entitlement types within all jurisdictions. Such frameworks should allow for the conversion of lower to high reliability products, and vice versa. Irrespective of whether tagging is adopted, mechanisms for product conversion within systems will still be needed.
- Exit fees, as currently contemplated, likely constitute a barrier to water trade. Where exit fees are proposed to be applied, there is a need for these to be redesigned to comply with a new set of national principles.
- These principles should require that entities which propose to apply exit fees address as a first order to address the purpose of the fees not just commence with the presumption that exit fees are necessary. Exit fees should only be applied where there is provision for regulatory oversight.
- Exit fees should not apply to the transfer of a water access entitlement, but to a decision to exit the services of the irrigation company's common irrigation infrastructure.

Recommended Actions

There is a need to ensure that, for interconnected systems across State and Territory boundaries, rules are competitively neutral in their design and application.

Separating transfer and use approvals

- To expedite trading processes and to increase market participation, approvals related to use and trade should be separated. Trading processes should be distinct from use approvals to allow non-users to hold and trade both water access entitlements and allocations.
- Use approval processes and requirements should be clearly communicated to potential market participants, potential users of water will effectively coordinate obtaining use and trading approvals. Processes that allow market participants who intend to use water to gain both use and transfer approvals expeditiously should be available.
- State and Territory Governments should examine current frameworks that govern trading approval processes to examine whether there is scope to augment or develop generic rules, and introduce mechanisms for pre-approval of future trades.

Stranded assets and exit fees

- Exit fees should not be permitted to be applied to the transfer of a water access entitlement. Exit fees should only be applied where an irrigator decides to 'exit' the common infrastructure services provided by the irrigation company, corporation or trust.
- An independent regulator should be responsible for providing transparent oversight of the pricing policies of irrigation infrastructure service providers, with an explicit mandate to monitor and provide direction for charging exit fees.

Exchange rates and tagging

- Both NSW and Victoria (from 1 July 2007) have developed the legislative basis to support interstate tagged trade.

In other States and Territories where cross-border trade is feasible (in particular, South Australia and Queensland), governments should amend legislation and administrative systems to support tagged trade.

- More timely and compatible water accounting systems need to be developed to facilitate large-scale tagged trade. Current water accounting frameworks are insufficient to adequately account for large-scale tagged trade, and in fact need to be improved to facilitate any significant expansion in (temporary) trade.
- All States and Territories should consider further the potential for the removal or relaxation of administrative forfeiture rules to allow carry-over, subject to limitations associated with storage capacity and their hydrological considerations.

Market participation

- Restrictions that limit market participation should be removed, including those requirements to hold, own, or occupy land to hold water access entitlements or allocations, restrictions on trading sleeper licences, and restrictions on inter-sectoral trade.
- Late-season restrictions on temporary trades from Victoria to New South Wales should be removed.

Completion of regulatory and water planning frameworks

- Trading policies and regulations should incorporate a mechanism, such as a 'trigger point,' that provides for their review. Regulatory triggers may include where extreme climatic conditions (such as drought) significantly impact on the characteristics of the resource, or where legislation and/or regulation is reviewed that impacts on the availability or characteristics of water resources.
- Governments should continue to develop the appropriate regulatory frameworks that provide the basis for entitlement specification and the rules that govern trade. In particular, Governments should undertake to complete groundwater management planning process as expeditiously as possible.

Market regulation and trading mechanisms

Market expansion is often also characterised by an increase in intermediary activity (such as broking services), where these fulfil a useful market role and profitable opportunities exist to structure and deliver services to market participants. The water market in recent years has seen the emergence of various brokers – often real estate and stock agents – and also a number of private sector water trading 'exchanges'. The question is whether some form of regulation may be warranted to monitor these activities or market conduct more generally.

Any form of regulation imposes costs. These include the direct costs of designing, administering and enforcing the regulatory framework, and costs through curtailed competition should the regulatory mechanism limit the number of market participants in some way. Sufficient assurance is therefore required that the net benefits of any further regulation of the water sector are positive.

In those markets where some form of regulation or licensing has been adopted, usually the primary motivation is consumer protection. Regulation of real estate agents and motor vehicle traders, for instance, is intended to protect consumers against fraud and ensure that some minimum requirements are met as to information disclosure and handling of monies.

During our consultations, there was little support expressed, and no obvious need identified, for specific market regulation over the water sector. The market has evolved over the past few decades, and is generally regarded to be operating reasonably well, with few cited instances of overt market manipulation, fraud or impropriety.

As to the basic architecture of the market, we do not see any merit in trying to push the market in any particular direction, whether that be through mandating that trades occur through one or more centralised 'exchanges' or otherwise.

The market exists at present as a mixture of bilateral transactions between irrigators, some of which are facilitated by brokers (particularly important for permanent trade), and a reasonable proportion being conducted through one of the number of existing exchange systems (mostly for temporary trades).

No particular form of trading mechanism has an absolute advantage over another, and the choice of market exchange need not be mutually exclusive. In the case of the water market it is probably appropriate that different forms of trading co-exist.

One desirable feature of the existing exchanges is the transparency they provide, around price in particular. While some other markets have taken different paths as to market disclosure of price information, we would see a benefit in providing for, at least while the market continues to develop, greater dissemination of market information, including prices for both temporary and permanent trades.

Key Findings

- Specific regulation of the water sector would not seem warranted at this time. The need for and format of any market regulation, including options such as licensing of market intermediaries, should be monitored and retested as the market develops.
- For the water sector a mix of trading mechanisms, as is currently employed, is likely to be appropriate. This suits the different dimensions of the market (temporary versus permanent exchange, especially) and also provides flexibility and choice for market participants.
- Equally the prospect of new and different forms of market exchange developing should not be discounted.
- It would be desirable for one or more exchanges to develop the capability to accommodate permanent interstate trade, as the trading rules and boundaries for cross-jurisdictional trade are revised. Governments should monitor whether this development appears likely and, if not, consideration should be given as to how it might be facilitated.
- If the impediment is a financial one, then there would be merit in governments contributing towards the costs of developing the necessary exchange, probably off of the platform of an existing exchange, given the value to the market of the price transparency this would create

Recommended Actions

- Tools that govern the conduct of market intermediaries, such as codes of conduct, accreditation or licensing should be reviewed periodically to ensure they remain effective in an evolving market.
- Government has a role in monitoring the development of the market and therefore should examine periodically whether exchanges that develop to facilitate trade provide sufficient market information and an efficient mechanism for trade.

Enhancing market coordination (effectiveness)

An essential feature of any market is the mechanism for recording the transfer of ownership from one party to another. Registry systems need to support market confidence by providing open and transparent information on ownership and property characteristics.

The National Water Commission is currently overseeing a separate project which is further developing this requirement. This process has established a conceptual model for a compatible register system, the elements of each component, and identified where States comply or do not comply.

From a market design perspective, the conceptual framework defined by the NWC should be sufficient to support an effective market – it embeds sufficient cross-jurisdictional compatibility in establishing registries and the requirements for a market to operate effectively, recognising particularly that most trading activity will continue to occur intrastate. Relevant too is that trade which does occur across State borders is proposed to be facilitated under a tagged trade model, and hence the entitlement never leaves the register in the State of origin.

A critical aspect of the registries framework is the need to separate out the system for managing ownership and encumbrances on entitlements, from the ‘accounting’ system used to track the use of and trade in water allocations. We are attracted to the conceptual description of these water accounts as being akin to a ‘bank account’, recording water used and sold (debits) and water assigned from the primary entitlement and purchased through temporary trade in (credits).

As the vast majority of trade occurs in the temporary market, and this trend likely will continue, the efficiency with which each State’s water allocation accounting system is able to record trades is probably more important than for the entitlements register. There is no obvious reason why temporary trades should not be able to be processed in a shorter period of time than is currently achieved, and water accounts updated accordingly.

Markets also rely on robust, reliable and symmetrical information. Where information is imperfect, uncertainty and transaction costs will be higher, and opportunities for trade may be foregone. In particular information should be available on the status of entitlements, allocations and storage levels, the trading process and summary data on trades.

Various governments have flagged their intention to use the market as a means of acquiring water for environmental flow purposes. Most recently this included the announcement by the Australian Government that it was to seek tenders from irrigators to buy-back water saved from the use of water conservation farming practices, with the environmental water to be secured not later than 2009.

Accordingly, direct Government intervention in the market raises the prospect of the market being influenced by the participation of a very large buyer, who may apply a quite different valuation approach to water than would other market participants.

The issues here are less around market design and more around the governance arrangements and specific 'rules' for the conduct of Government agencies which may seek to purchase water, on either/both the temporary or permanent markets, for environmental flow purposes. Beyond anything else, governments need to have a robust and reliable estimate of what the community's valuation of environmental flows is. This is a complex task.

It is reasonable for all market participants to be charged fees to trade in the market in order to cover the costs incurred by other agencies (water authorities, government) associated with the trade. However, to encourage participation and minimise market distortions, these fees should be as low as possible and should be structured to support competitive neutrality between States.

As the market continues to develop, there may be some benefit in keeping fees relatively low in the short to medium term in order to stimulate market participation. This will help the market grow, which in turn will allow the fixed costs associated with trading (such as registers) to be spread over a greater number of participants and hence minimised in the long term.

Key Findings

- Registry systems developed in accordance with Schedule F to the NWI Agreement should be sufficient to support water trade, recognising that the bulk of trade is and likely will continue to be intrastate transfers.
- Of benefit are mechanisms which provide for greater price disclosure to the market, for both permanent and temporary trade, at least as an interim measure while the market continues to develop and mature.

- Efficiency would be enhanced by allowing for the widest possible participation in the market, including of governments as purchasers of environmental water. The issues here are less about market design and more about the specific governance arrangements for the conduct of government agencies.
- Processes for managing trades and entitlement registers should be subject to regular audit to ensure the internal controls around them are adequate and trading and entitlement rules are complied with.

Recommended Actions

Water registers and accounting frameworks

- Governments should ensure that water registers and water accounting frameworks are compatible across jurisdictions. This does not require them to be perfectly consistent in all respects.
- The working group developing a conceptual model for a compatible register system has recommended a number of additional actions in relation to entitlement registers, including:
 - further work is required to investigate and adopt approaches to maximising the integrity of trade price data, and to support price disclosure on registers;
 - a comparative table of terminology for entitlements and for transactions should be prepared and which can form the basis for agreement of common terminology where it is required; and
 - the potential to establish compatible registry systems to handle trade in entitlements within the Irrigation Corporations and Private Irrigation Districts in NSW, and the Irrigation Trusts in South Australia. The group should include representatives of these organisations.
- The establishment of compatible registry systems to handle trade within private irrigation districts is the highest priority.
- Water allocation accounting systems should be updated frequently to account for use and trade. These accounts should be reconciled regularly (at least annually), with provision for independent auditing. Account information should be provided regularly (say quarterly) to entitlement holders.

Facilitating innovative product and contract types

- Innovative product and contract types will evolve as market participants seek to manage risks associated with water resources where the market is operating efficiently. Market intermediaries are best-placed to facilitate the development of these products, where there is demand for the risk management services they provide.
- To facilitate this, Governments have a broader role to ensure water markets are operating as efficiently as possible by removing restrictions on trade and market participation, and contributing otherwise to the effective functioning of the market through transparent and predictable regulatory actions and robust supporting infrastructure.

Compatibility

- Governments should ensure that market design elements are, as much as is feasible, compatible and consistent between jurisdictions.
- There is a continuum over which consistency is more or less important to trade, though some absolutely critical elements of market design (eg, the level of unbundling of water access entitlements and water allocations) remain outstanding and should be addressed as a matter of priority.

Market participation by government

- Appropriate governance frameworks need to be developed to manage government purchases of water, including water procured for environmental purposes.
- State and Territory Governments should, in preparation for directly purchasing water in the market, develop frameworks that require:
 - governments to clearly define the objective/s for each water purchase and the parameters around them (eg, the community's valuation of environmental outcomes and the resulting price that should be paid in the market);
 - decide on the type of product that will address its objective (e.g. general reliability or high reliability water in NSW to deliver a mix of environmental flows, where to purchase water);
 - establish appropriate governance arrangements for participation in the water market; and
 - establish a mechanism to coordinate purchases between jurisdictions (as appropriate and with consideration to potential *Trade Practices Act* issues).

- These issues should be addressed prior to any large-scale purchases of environmental water.

Minimising transaction costs

- South Australia should review the need to levy stamp duty on water trades, to bring its practice into line with other jurisdictions;
- In NSW and South Australia, arrangements for salinity charging should be reviewed, in conjunction with Victoria, with the objective of agreeing a competitively neutral approach to salinity management; and
- All jurisdictions should facilitate the review of access and exit fees.

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