AUSTRALIAN
SPATIAL INFORMATION
BUSINESS ASSOCIATION

7 December 2005

The Secretary
Senate Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600

Re: Inquiry into Water Policy Initiatives

The Australian Spatial Information Business Association (ASIBA), together with its key adviser on property rights, Mr John Sheehan, has been a significant contributor to the water policy debate for more than four years.

It was this 'team' that secured funding from the then Deputy Prime Minister, John Anderson, for a research project to define property rights in water. His interest was generated from our extensive work on the legal construct of a property right in water.

The original research paper (see attached) that arose from extensive consultations between key stakeholder groups led to the foundation document of the Report, *An Effective System of Defining Water Property Titles*, which we presented to the Deputy Prime Minister in February 2004. Minister Anderson said later of our contribution to the water debate:

"The Australian government has recognised for some time how important the spatial information industry is to the nation ... the spatial information industry has contributed to one of the most important policy initiatives of the past century: the National Water Initiative, which COAG recently agreed. It was ASIBA, together with the NSW Division of the Australian Property Institute, which first brought an important element in the water debate to my attention – the definition of a property right in water…"

The Organisation for Economic Co-operation and Development (OECD) also recognised how important the work was in its Economic Survey of Australia (2004), in which it said:

"While urban water reforms have made significant improvements, the pace of rural water reform needs to be accelerated. Australia faces particularly difficult water management issues because it is a dry continent. It has become a world leader in some respects in defining clearly a "property right" regime for water."

ASIBA believes that water property rights constitute the root and core of effective water resource management. To date, the intent of the Report, as a basis for a reductive stereotype for water property titling across all jurisdictions, has been thwarted. The states and territories have developed *ad hoc* property rights and systems that bear little resemblance to the cohesive national model that the National Water Initiative originally intended.

Contrary to the objective of the COAG Agreement, the states do not appear to be adopting a single national water property rights model. The trading regime is similarly disjointed and cumbersome and the value to the economy of a single system of property rights has not been realized, despite the lessons that should have been learnt from examples such as the railway gauge debacle or the successful Torrens Title land administration system.

The ACT is already enmeshed in challenges about landholders' rights to ground water; and the NSW government has accused it of using water access as a tax defence rather than as an equitable system for distributing resources. In NSW, the license model does not produce a property right and there is still no base-line measurement of water resources; in Victoria, water trading requires the Minister's approval; in Queensland, conflicting legislation has a detrimental impact on property rights that the National Water Commission cannot address.

Sadly, there is no common base for measuring water resources across jurisdictions. There are no standards upon which governments can rely and the lack of interoperability in spatial data means that cross-jurisdictional trading is seriously hampered.

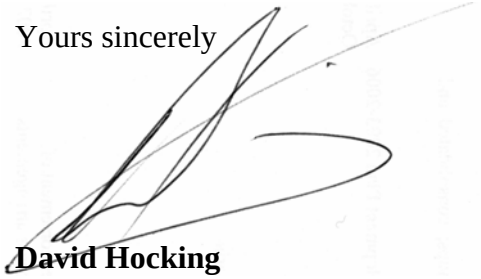
Unfortunately, the Australian Government has not demanded that the states and territories apply or adhere to a single set of established standards. This is due, in part, to the failure to develop such measurement standards in the first place, or to recognize the applied research for spatial data interoperability that ASIBA has already carried out, most notably in the recent and highly successful AusIndustry-funded project, the *Spatial Interoperability Demonstration Project* (SIDP). Although the SIDP used emergency management scenarios to demonstrate interoperability, the principles and indicative results are just as essential to water management and trading issues. The national standards body for spatial information technology – the Open Geospatial Consortium (OGC) – recognised the SIDP body of work as world leading:

"The OGC has accepted and promoted the sound technical documentation and clever educational materials developed under the auspices of the SIDP to its international membership. OGC recognises the value of the SIDP as a catalyst for the growth in uptake of open geospatial standards…" (*OGC's Chief Technology Officer, Dr Carl Reed)*

The states and territories have failed to develop a single system of water property rights. The National Water Commission seems to be allowing them to '*go it alone'* rather than insisting that they apply agreed national standards for measuring water assets and for trading.

ASIBA would appreciate being given the opportunity to discuss a nationally consistent water property rights regime and to propose possible solutions that will help to better manage this important natural resource. I look forward to your reply and can be contacted by return e-mail or by telephone on (02) 6282 5793.

Yours sincerely



David Hocking
Chief Executive Officer

DWPR Initial Scoping Report

Parameters for the research and development of an effective system of transportable property in water.

Background

The existing Australian regime of real property rights includes the implicit right to water associated with land property. This implicit right is balanced by the state's right to regulate water usage in order to achieve the optimum balance of equity and environmental prudence.

Usage of water may differ widely depending on land use. Optimum management of land and water resources is currently hampered by the poor level of discretion available for the deployment of water resources. This is largely because access to water is currently linked too closely to parcels of land property.

The opportunity exists for a superior outcome through the reallocation of water resources between land properties. This could be achieved by the separation of water property as an independent property right capable of independent ownership, trade and deployment. In this way, water resources could be applied flexibly to the land parcels that most need it. This would enable limited water resources to be transferred from land where they are under-utilised to other locations for water-intensive uses. It is commonly believed that if secure and flexible property in water can be created that can be owned, traded and managed independently of land property, then the market process will enable a better mix of land and water resources.

A key part of this strategy is the facilitation of an efficient market in water property. At present there are limited local attempts at fostering the trade of water property rights. These are demonstrating the potential usefulness of a water property market but they are not suited to widespread application.

Aim

This document aims to set out the scope for a research programme to develop an effective system of independent, transportable water property rights comparable to, and derived from, existing land property.

SUMMARY OF MAJOR ISSUES.

The task of developing an effective system of water property rights may be broken into four major headings, or research issues. These are:

1) **The definition of existing rights.** The identification of existing water property rights and the determination of that part of them suitable for commodification.
2) **Title system design.** The development of a secure and flexible titling system suitable for water property.
3) **Deployment management strategy.** The design of a suitable management/regulation strategy for the deployment of water property.
4) **Political economy design.** Investigation into related economic and social issues pertaining to the relationship between water property, land property and the community.

Each of these major research issues requires a multidisciplinary approach as shown in figure 1. Tackling these issues will require a combination of study of existing water property markets, both locally and internationally, investigation of the legal, hydrological, environmental and economic issues and the design of pilot trials in water property title. The scope of these activities may be understood using the above four headings which form the major sections of this report.

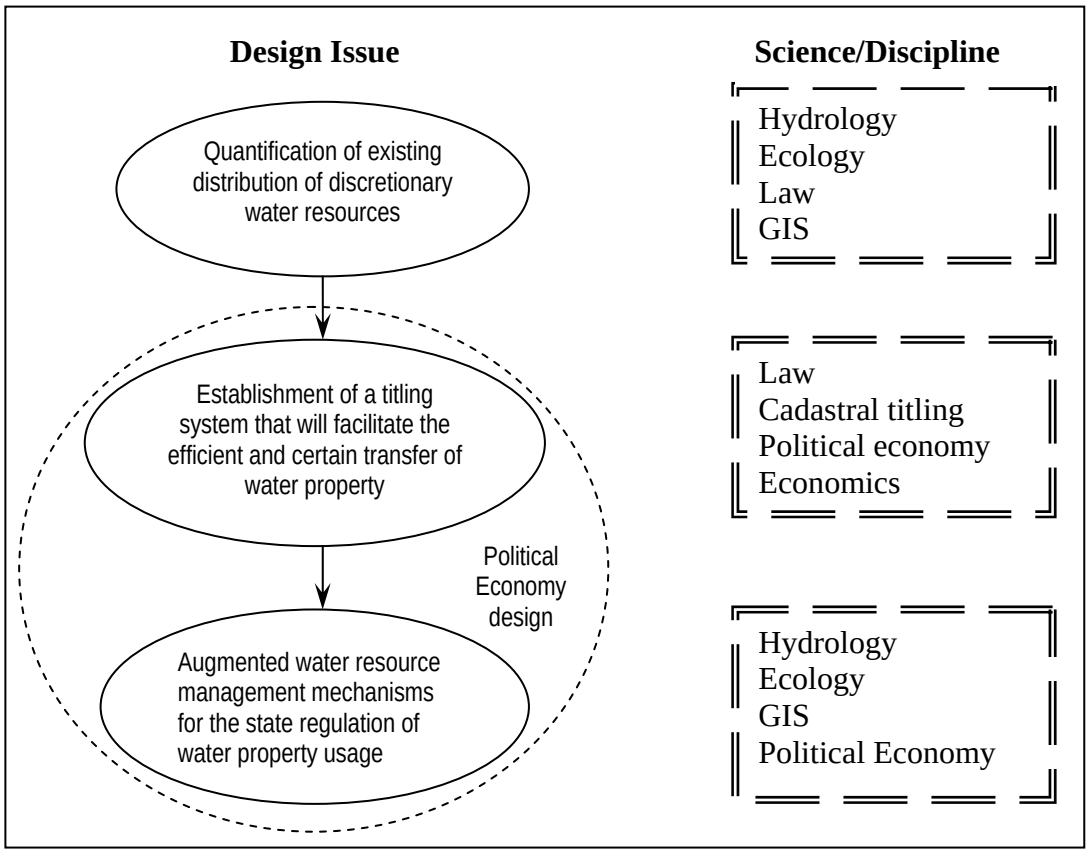


Figure 1.
Major stages in water property identification and titling for transportable deployment.

1 DEFINITION OF EXISTING WATER PROPERTY RIGHTS

The nature and extent of existing private property in water is very imperfectly understood. To date, it has been sufficient to assume that land property includes rights to the water that is available to the land. In order to alienate part of the water property that is inherent in land property, the nature of the legal right needs to be made more precise. Part of this question involves hydrological and ecological questions pertaining to the actual quantum of water and how community and ecological requirements underpin the state's right to regulate water resource usage. It can be broken into two questions as follows:

- What is the nature and extent of the private legal right to water property?
- What are the hydrological/environmental limits to particular private water property rights?

Before these questions may be addressed, a conceptual model of water property must be developed.

1.1 Draft conceptual framework

The extent of the state's right to regulate water resource management would appear to be bounded by common good objectives particular to water. Beyond ensuring the common good, the state would appear to have no right to interfere with private water rights. The common good objectives connected with water resources appear to involve ensuring equity for present and future communities. The state's responsibility to equity for the present community is embodied in regulation aimed at ensuring that no person who has a right to the enjoyment of water resources is inequitably disadvantaged by the water resource usage of others. The state's responsibility to the future community is embodied in regulation aimed at sustainable ecological outcomes.

Water resource usage operates within the reality that the availability of water is highly variable and unpredictable. Australian rainfall and runoff is only partially understood. While long-term averages may be known with moderate reliability, rainfall in any given future period is highly uncertain. The possibility of long-term climate change adds further uncertainty to the task of quantifying the amount of water that will be available at any given future time.

Of the amount of water available to a particular parcel of land, some proportion must be allowed to run off in order to respect the rights to water of persons downstream and for sustainable ecological management of waterways. This would appear to be the legitimate domain for state regulation. The boundary of this legitimate public regulatory rights is the beginning of the effective private right. The remaining amount of water available to a landowner would appear to be rightfully a part of that bundle of rights that comprises private land property.

Water is a vital part of the productive value of rural land. While implicit water rights are most easily associated with freehold title, they may also be a part of pastoral leasehold titles. If this were the case, then there would appear to be no reason why pastoral leaseholds could not also alienate part of their water property to create terminating leasehold water property. The relationship between state leasehold water property titles and the leasehold land titles that originated them introduces several additional questions, such as the following:

- Appropriate allocation of rents for each.
- Questions of whether the water property title would exist as a subdivision of the original lease with the leasehold land and the leasehold water separately tenants of the state, or perhaps the water title operating as a sub-lease within the pastoral lease.
- Questions of whether a pastoral lease confers water property beyond what is actually necessary for the intended land use (leaving no margin for private alienation of water property) or all of the discretionary water property that would be available to freehold.
- Mechanisms for dealing with reversion.

Regardless of the tenure type, the amount of water property potentially residing within a land title can considered to be the remainder after variability in availability and ecological and downstream requirements are removed. This quantum of water can be referred to as the *discretionary water right* implicit in the land title. It is the maximum amount of water that the landowner may choose to access for use on the land. This is shown in figure 2. Of the discretionary water right, only part would be prudent to permit to be alienated as a separate parcel of property for possible trade.

Within this framework, the questions pertaining to definition and quantification of that part of the available water resource that can be alienated as independent transportable water property can be explored.

Objectives

To develop and refine a conceptual model of existing water property rights.

Focus.

The nature and limits of the various components and interests in water property.

Scope

- The conceptual/ethical basis of regulatory powers.
- The limits to public regulatory powers in water resource management
- The nature of water resources, their variability and ecological obligations.
- Limits to regulatory powers inferred by their conceptual/ethical basis
- Allocation of ownership/control to the various components of water.

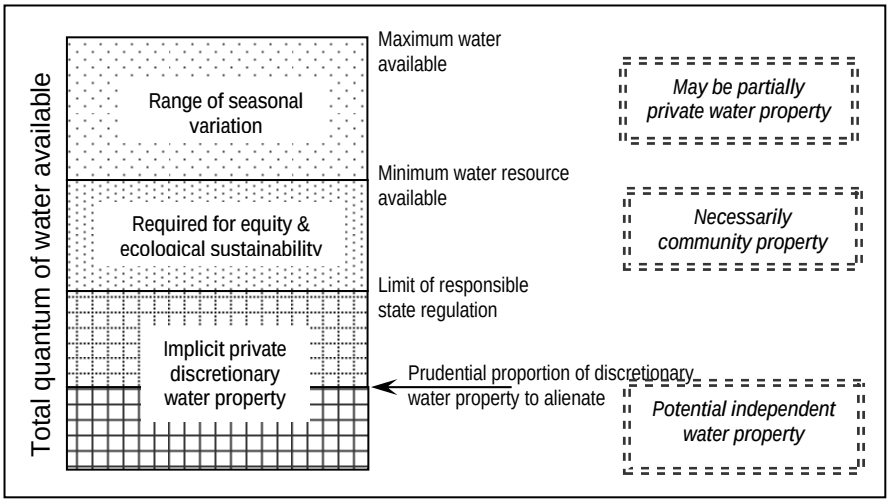


Figure 2
Draft conceptual decomposition of water resources.

In addition to establishing a conceptual model, the nature and extent of legal, hydrological and ecological components of water property will need to be given greater precision. To achieve this aim, it will be necessary to subdivide the issue in to its legal and physical components. These will be developed in the next sections.

1.2 Legal Definition

Background

The right to water physically available to land property has been implicitly assumed to be included within the bundle of rights granted by the crown in freehold title to land. This simple principle is developed in particular cases, such as the following:

- Riparian rights attached to land adjacent water courses
- The right to use and retain water falling on subject land or flowing over it.

The right to water is a vital component of the productive value of land. The right expresses itself as an economic increment enjoyed by land so benefited. In practice, water is relatively scarce compared to potential users. The state has a recognised right to regulate water usage to provide an equitable and environmentally sustainable overall pattern of water usage. Regulation of water usage necessarily impedes the maximisation of the economic value of particular land. It is in effect a dilution of the effective property right as expressed in economic terms. The net extent of private rights to water is currently only vaguely understood.

Private property in Western cultures expresses itself in several ways, the most important of which are control and enjoyment of economic benefits. The right of the state to regulate water resources amounts to a containment of water property rights. The extent of regulatory powers may rest on ethical foundations, such as the ethical responsibility to others in the community, or ethical responsibility to the future communities understood in terms of sustainable ecological management. An adequate theory of regulatory powers is necessary to inform an understanding of the boundaries of those powers.

Likewise, a more adequate theory of property is timely to better understand the basis of land property that forms the origin for water property. Recent developments in land property, such as the development and acceptance of governmental land-use planning control, suggest that the existing theory of property as an unrestrained set of rights is inadequate. There is ample evidence in the history of property theory that most cultures have adopted property institutions that involve combinations of rights and obligations in creating property institutions. The dimensions of water property depend very much on a balance of rights and obligations regarding water resources that naturally attach to land. Given the acceptance of the need for restriction of use implicit in the state's regulatory powers, the whole question of the nature and limits of property becomes very live. An adequate theory of water property will require a renewed investigation of the nature of the limits to property. Without this in place, water property will not be capable of being separated from land.

Objectives

- To examine the extent and limitations of the existing legal private right to water property especially in light of the right of the state to regulate water resource use.
- To develop an adequate theory of property rights suitable to establishing the boundaries to water property.

Focus

- The net effective meaning of a private right subject that is to state regulation.
- The ethical, economic and political foundations of property
- The legal dimensions of private water property rights as influencing economic value.

Scope

- The parameters of the legal theory of property.
- Exploration of the meaning of property rights, especially the nexus between property rights and economic value.
- The economic parameters of the state's right to regulate water usage.
- Specification of the effective meaning of the net right to water within state regulation

1.3 Hydrological And Ecological Dimensions Of Existing Water Rights

Background

The physical availability of water is limited in most cases to levels well below that desired by all possible users who would aim to achieve the highest and best land use. As more is known about the delicate requirements for sustainable environmental management, the apparent levels of water available for human redirection and may be further compromised.

Portable water property rights imply the ability to responsibly and durably reposition the human utilisation of water resources well beyond the land property to which they naturally attach. The first part of this problem is to assess the quantum of water that is perennially available above what is required for sustainable environmental support of the land and waterways. This quantum could be considered to be the amount that is available for human discretionary use.

At present, water resource management is heavily regulated. The present standards should provide an important starting point for the quantification of the distribution of water resources potentially available for private use. It will be necessary to decompose the standards into quantities required for various objectives. Some of these, such as downstream requirements, may capable of moderate adjustment as water property is redistributed, while others, such as salinity control, may remain spatially fixed.

The second part of the problem is to decide on what part of the discretionary quantum should be permitted to be alienated, at least in the first instance. Issues that influence this problem include the following:

- Durable physical availability may change over time, either as a result of refined understanding of availability, or through climate change.

- The study of requirements for sustainable environmental management of land and waterways is relatively immature. Future research may raise the level of water that is necessary to leave in place for environmental reasons.
- Once alienated, it may be difficult to re-attach water resources in the event that physical availability, or environmental demands move to reduce the discretionary quantum available.

Until such time as the community's understanding and experience with the mechanisms and benefits of transportable water property matures, it may be imprudent to release too great a proportion of discretionary water resources into the water property market. With experience and maturity, the proportion could be extended, but it would be difficult, and perhaps costly, to attempt the reverse.

A geographical information system (GIS) would appear to be the appropriate platform upon which to build a hydrological/ecological database. The system would also be employed in the regulation of water resource use outlined in section 3 below. The system would need to be set up to quantify water resource management objectives individually and as a whole with the flexibility to handle redistributions of water property.

Objectives

- To map the distribution of existing water property resources.
- To develop a GIS database to chart and quantify water resource management objectives.
- To determine the proportion of existing water property resources that would be suitable for alienation in the first instance of transportable water property titles.
- To develop and apply a method of assessing the physical quantum of water currently attached to actual land parcels that would be available for trade as an alienable water property right.

Focus

The hydrological and environmental dimensions of water resources attached to particular land parcels.

Scope

- The hydrological distribution of water resources
- The durability of water resources
- Downstream requirements
- The environmental needs for a base level of undisturbed water flow
- The allocation of a suitable proportion of the durable water resource remaining after sustainable environmental needs are considered that should be made available for trade as a transportable water property right.

2 A TITLING SYSTEM FOR WATER PROPERTY

Background

Transportable water property will require a system of title control analogous to land property, but independent to the cadastre. Property titling represents an administration mechanism to give certainty to the legal existence of a property right and thereby support its economic value. It does not necessarily contribute to the physical administration of the property, although it does facilitate it indirectly.

Land property titling has developed over time and Australia is well placed as an innovator in the area. A titling system for water property will require a development in the concept of property title analogous to the developments that have happened in the titling of land property. The Torrens system applied an approach first employed for shipping to land, but combined it with charting aspects that are peculiar to land. Strata titles extended the notion of land property to include multiple property titles attaching to a single land parcel. The relatively recent development of community titles has extended the concept embodied in the strata title concept to provide greater flexibility. In another dimension, partial rights connected to land property, such as easements, are well developed techniques for separating and trading specific rights to land without affecting the underlying unique private ownership to the land itself. All of these innovations have aspects that will be important to the development of a title system for water property.

Water property shares many characteristics with land property that make a title system similar to the Torrens system appropriate for water. The following general characteristics describe the relationship between land property and water property:

- Water property usually derives from a land title
- Water property must be capable of being traded independently of the land property from which it originates
- To be physically utilised, water property will in most cases need to be reconnected to specific land property.
- Water property, like land property, is fundamentally a conventional right of great value that requires certainty and transparency of title to secure its asset value.

The best starting point for considering an independent title system for water is the easement. Like transportable water property, easements remove specific rights from land parcels and attach them to others. The movement of rights does not affect the ownership of the land parcels, though they do affect value. Originally easements could only burden and benefit land, and were subject to other restrictions of ownership. Those conditions were found to be inappropriate in the case of public authorities needing to be beneficiaries and also during the development process. This led to changes in the Conveyancing Act. Currently easements may benefit public authorities, but they must be continuously connected either to land or a public authority as beneficiary.

Transportable water property could be considered as a form of easement that is capable of being created by burdening one land parcel, but is able to exist independently of its application to benefit any other entity. Its value lies in its *potential* to confer a benefit to land or a public authority, not necessarily in its actual application, and not leading to any permanent application. Its transportability lies in its ability to be independently owned and flexibly applied (deployed). To be independently owned, water property rights will require a separate title register. Once an independent title system exists, flexible deployment (application of the benefit to a particular land parcel or public authority) can be managed using similar transfer mechanisms to those existing at present.

The development of a State register for water property analogous to the Torrens system for land property will achieve this end. Unlike land, water is highly portable, and conceptually homogenous. These attributes will require a new system of title specific for this type of property.

In addition, the title system must be capable of integrating with the land title system to adequately accommodate the following:

- The alienation of water property from existing land property.
- The possible direct grant of water property rights by the crown.
- The connection of water property with land property for the purpose of utilising water resources.
- Possible resumption of water property by the crown
- Use of water resources by public authorities

2.1 Draft design

2.1.1 Title Register

It is proposed that a register of water property titles be initiated similar to the existing certificates of title for land. Like certificates of title for land, they should have the following characteristics:

- A unique identifier. Any numbering system could be adopted, such as a six digit number prefixed with a capital “W.”
- A description of the property. This would be no more than the quantum of water per period that the title confers on the owner. The description may include reference to the land title, crown grant, or other source of the water property. There may be cause for specifying the nature of the title that originated the water property. For example, in the case of state leasehold land, the quality of the water property title can be no greater than the originating title, so the water property would also be a state leasehold of equal term.
- A schedule for the owner/s. Within and electronic system, this reduces to the current owner.
- A second schedule for encumbrances. This would include mortgages where the title is being used as collateral and especially notations for its deployment.
- Like land title, the register will be underwritten by the state. Each transportable parcel of water property will exist as a certificate of water property with a defined set of rights.

2.1.2 Creation of water property parcels.

The usual method of creation will through the alienation of a quantum of water property from a land parcel. This alienation may be thought of as analogous to the transfer of an easement right.

In the case of an easement, a specific right or set of rights is transferred out of a land title to others. It is recorded on the title for the land burdened and has the practical effect of limiting the physical utilisation otherwise available to the landowner. This impacts on the land's consequent value. The creation of water property has the same characteristics as a burden to the originating land parcel and could be shown as a burden on title similar to an easement.

Where water property is alienated from a land parcel, the amount of water alienated will need to be stated on the title burdened. This is shown in Figure 3. It may be desirable to state the total quantity of discretionary water property that has been identified for the land parcel originating the water property. In this way, the remaining water property will be evident.

It will not be necessary for the entire discretionary water allocation to be alienated as separate water property. Landowners may elect to alienate none, some, or all of the water property permitted to be traded. If part of the allowable water has been alienated, a landowner may choose to alienated more, up to the permitted prudential limit, at a later time. The process may be compared to subdivision of land property.

Once the water property title has been created, it will not need to have any necessary connection to the land title that originated it. In the case of state leasehold titles, the water property may either expire the day before the land lease, reverting to it before the whole reverts to the crown, or be arranged to revert direct to the crown at the same time as the land lease. The preferable method is open to study.

In addition to creation by alienation from existing land property, the state should be permitted to grant water property titles directly. This would definitely apply to providing certain title to water property for public use, such as urban water supply, but could also have applications including the recognition of the water property inherent in crown land.

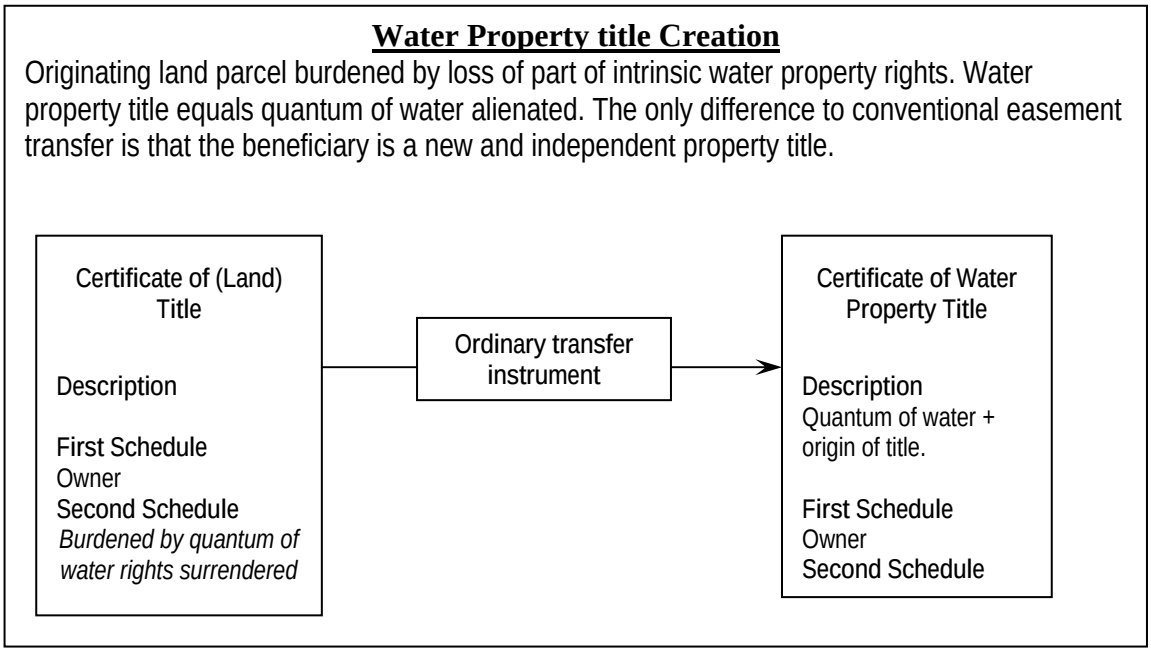


Figure 3
Water property title creation

Once water property exists, it may be appropriate to investigate the desirability of including discretionary water rights in future land grants. It may be found that the future granting of land and water property independently may serve the community's needs better. This would be analogous to the separate grants of land and mineral rights.

2.1.3 Transfer and ownership of Water property titles

Transfer and ownership will be identical to Torrens title land parcels. As a state guaranteed property parcel, water property titles should be suitable as collateral for mortgages.

The fundamental content of a title to water property is the right, but not obligation, to use a given quantum of water (expressed as a rate per unit of time) within the overall regulatory framework of the public strategy for water resources management. Like land, the title confers exclusive use, but does not insist on active utilisation. The owner of a parcel of water property may hold the property without using it at any given time, just a landowner can hold a land parcel without using it. Like unused land, if water property is not utilised in a given time period, its value is forfeited for that period.

Unlike land, water property does not necessarily attach to the cadastre. The alienation of water property removes that property from the cadastre. It is only when the water is to be used to benefit another land parcel (or public authority) that it is reconnected to the cadastre. Charting of unallocated water property is therefore unnecessary. Water property is no more than the state-sanctioned right to the potential private use a quantum of water.

2.1.4 Deployment

Like land, water property may be held, used personally, leased for use by others, or sold. Also like land, title does not confer the automatic right to a particular use, but is subject to state regulation. Land use is dependent on working within the regulatory regime of state planning mechanisms that may control actual utilisation of a land parcel, despite its private ownership. Similarly, water property will continue to be subject to the water resource management regulation of the state.

These two aspects of the deployment of water property need to be investigated. The first is the title control, or legal, aspect, and the second is the physical water resources management aspect. Only the former will be discussed here, as the latter will be treated under its own head.

For water property to be used it must be attached to a beneficiary, either land or a public authority. This would appear very similar to the way that easements are attached to beneficiaries and could use a similar mechanism, based on transfers causing entries into the second schedules of the respective titles. Unlike easements, where the rights transferred become part of the title of the beneficiary property, ownership for water property will normally remain independent of the land property owner. The conferring of water property rights therefore appears more like the lease of property, than permanent transfer. While this is very different to the way that easements work, it is comprehensible in terms of a lease. There are also precedents for second schedule entries that do not infer transfer of ownership, or permanent attachment. These would include mortgages and some caveats.

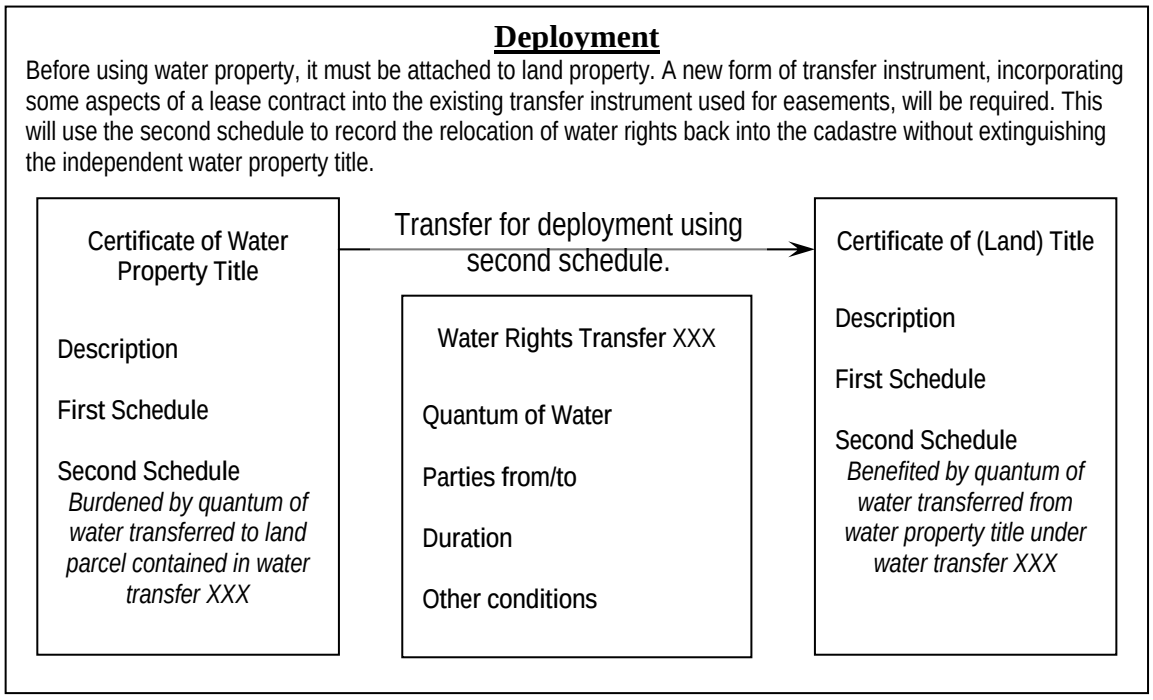


Figure 4
Water Property Deployment

To achieve this, a specialised transfer instrument will need to be designed that has the nature of a lease, but where the leased (water) property rights are recognised on title within the second schedule like an easement. This is shown in figure 4. In particular, the water rights transfer instrument will need to specify the timing and conditions for reversion. It may be necessary to use a second instrument for the extinguishments of the transfer. The use of the lease form of deployment transfer will be necessary to preserve independent ownership of the water property.

In some cases, the intention may be to permanently augment the water rights of the beneficiary. In these circumstances a transfer similar to that is used for easements may be used which will consolidate the acquired water property into the land title.

The easement analogy may be extended to include public authorities that may be beneficiaries of water property. This will be necessary for water property to be used for public purposes, such as town water supplies.

Objectives

To critically develop, refine and apply a system of water property titling similar to the draft system described above.

To design the form of water property titles

To design the appropriate transfer instruments and management mechanisms.

Focus

The legal title system for land and water property and transfers between them.

The retention of independent water property titles surviving particular deployment.

Flexible provisions for creation and deployment of partial quanta of available discretionary water property.

Scope

The design of a title and transfer system

Consideration of uncommon cases

3 WATER PROPERTY DEPLOYMENT REGULATION

Background

State regulation of water resource management has a long history in Australia. In earlier times, management had the focus on maximising availability for rural applications, reducing concentration problems through the encouragement of local dams, and runoff control to conserve soil. In more recent times, environmental factors and equity considerations have become more prominent, in some cases reversing earlier approaches to management. Underpinning this history is the recognition that the state has the responsibility to the present and future communities to regulate the use of water resources for the optimum equitable benefit of all affected parties.

In practice, this has meant that in addition to the implicit right to water resources residing within land property, landowners must obtain approval from the regulatory authority before being able to utilise their water property. This requirement should remain, though a better understanding of the parameters of water resource management will be necessary since water property will have the potential to be redistributed.

It is envisioned that landowners wishing to use a particular amount of water on their land must acquire rights to an adequate quantum of water rights they wish to use, and also apply for permission to use those rights within the existing regulatory framework. The only modification required to the existing regulatory system will be its enhancement to accommodate a redistribution of water property. This will mean that permissions to use water will need to be sensitive to the quantum of water rights explicitly available on title, rather than the existing rationing systems.

Existing norms for the allocation of water use permissions will need to be reviewed. Although they may have been adequate for rationing water use in the past, study will be required to achieve the following:

- A superior spatial understanding of the limitations to human water resource usage by resource management issue. This means that for the various hydrological and environmental issues that make water resource management necessary, each will need to be spatially defined in terms of the limits to human water resource usage that will be tolerable.
- An interactive spatial model that will be able to accommodate differential water resource usages through a catchment.
- Administrative adjustments that will be required to accommodate the possible concentration of water property rights.

Study Objectives

- To develop a GIS based model showing limits to water resource usage by issue.
- To develop an integrated management system that is capable of computing the environmental impact of variations in the human usage of water resources.
- To develop administrative strategies suitable for accommodating the spatial redistribution of water property rights.

These objectives should be read in connection with those of section 1, above.

Focus

- The spatial quantification of environmental water needs.
- The equitable regulation of water resource usage within a system of spatial redistribution of water property rights

Scope

- Environmental water needs by issue
- Total catchment management.
- Effective administrative mechanisms.

4 POLITICAL ECONOMY DESIGN

Background

Property rights in land carry an overhead of economic significance for the community. These include equitable access, contribution to the community through land tax and other rates and taxes, as well as issues connected with price stability. The separation off of water property will impact on these as well as possibly creating additional issues that must be considered in order to ensure an equitable and stable outcome.

Australia's relatively short history has been well filled with examples of attempts to use property for the good of the community, making access equitable and stable. These include the early schemes to facilitate immigration, the attempts to contain the land concentration of the squatters, the establishment of the ACT and the widespread use of state leasehold title, especially in rural areas.

The establishment of a new species of property right demands the reassessment of these issues and the careful design of the relationship between the new property right and its complimentary obligation to the community. In addition, there may be concerns regarding the level and stability of the value of water property and issues of community values. These also demand very careful consideration. A third issue that is important to consider at the outset is the desirability of limitations on the possible concentration of water property rights leading to possible market aberrations.

In some rural situations, water rights may become the dominant element of property value. It is most timely that the matter of possible concentration is addressed before transportable water property is initiated. Also, it is conceivable that in the future there may develop a competition between demand for human consumption, say as town water supply, and commercial use. It is important that safeguards be put in place that protect the pre-eminence of human water needs above commercial use.

The creation of a system of transportable water property rights constitutes the initiation of a new property institution that will very likely be as permanent as the culture that creates it. It is very important to take the opportunity to explore exhaustively the implications of the institution being created in order to minimise the likelihood of future regrets. In particular, care should be taken to try to take the review of potential issues beyond currently dominant political/economic views to encourage a more robust design that will be able to satisfy the needs of future generations and accommodate different values.

Some attention will be needed to the potential problem of subsequent redistributions of water property producing an externality effect on neighbouring land. Given that water resource regulation will set local limits on water resource usage, the concentration of water property on one parcel may inhibit surrounding land use by choking off possible future permission to use water in the locality. This would be independent of the water property associated with that land. While the apparent solution may be to sell off water property that will not be able to be used, the value of the water property may not equate to the loss of value experienced by the property as a whole. The matter is similar in some ways to externalities produced by neighbouring land use decisions, but is more complex since it pertains to actual spatial redistribution of property rights that will only admit a limited responsible degree of redistributed use.

Study Objectives

- To explore the social and political economy implications of the creation of transportable water property titles
- To investigate approaches to water property use and trade that will facilitate equity.
- To investigate equitable mechanisms for the contribution of water property to the community in terms of taxation, especially with respect to land property.
- To investigate approaches to water property use and trade that will control unhealthy concentration.
- To investigate approaches to water property use and trade that will facilitate price stability.
- To explore externality effects and recommend mechanisms for equitable outcomes.

Focus

- The relationship between water property and the community.
- Political economy issues pertaining to property generally that may have particular bearing on water property.

Scope

- The nature of property rights and obligations with application to water property
- Relationship to land tax and the appropriateness of an equivalent levy on water property.
- Historical precedents in the development of equitable and stable systems of property.
- Mechanisms for the control of dysfunctional speculation and concentration.
- Encouragement of an efficient market in water property.
- Factors and mechanisms affecting price stability and its management.
- Non-economic community values that should be held out of market influence, such as the possible necessity to provide water for human consumption independent of the market process applicable for commercial water use.
- Effect and management of externality effects, especially within anticipated regulatory regimes.

RESEARCH PROGRAMME

The above issues represent the scope of the research and design programme required to develop a workable system for transportable water property. Much of the content of the foregoing consists of theoretical and administrative developments that will facilitate a practical water property titling and management system. In order to test the effectiveness of the result, a pilot water property scheme should be considered. The pilot water property system should have the following characteristics:

- The pilot system should only apply to a limited geographical area, preferably a single catchment.
- A community education programme to communicate the aims and opportunities of the project.
- An analysis of the possible risks involved in running a pilot system and the development of a risk management strategy.
- Adequate flexibility to allow persons in the pilot area to be involved, or to abstain from the project.
- The water property titles should be initially be created as terminating interests with reversion to the originating land titles,
- A set of dead lines should be established to give the pilot project performance control points. These would include:
    - Minimum trial establishment period
    - Review points for assessing the success of the system.
    - A nominal trial end point.
    - A reversion date
- A mechanism for converting successful water property transfers into permanent arrangements beyond the end of the pilot study if considered successful.
- A strategy for the review, revision and extension of the pilot after successful completion.

The pilot system will require careful design to ensure that these characteristics are adequately covered.

Pilot Study Design Objectives

- To design a suitable trial for water property.

Focus

- The relationship between water property and the community.
- Political economy issues pertaining to property generally that may have particular bearing on water property.

Scope

- A complete working trial of water property titling and trade

CONCLUSION

The study design outlined above sets out the scope for a programme of research that makes independent water property titles achieveable in Australia. The draft conceptual framework for the limits of water property regulation appears to offer the promise of providing an achievable quantification of existing private water property. The draft titling system design utilises existing title systems and concepts in an innovative way to enable a accommodate this new form of independent property right. The proposal for regulation respects existing mechanisms and institutions while still providing the flexibility that is required. The various community and equity issues that may erupt will be considered within the research into the political economy design.

The initial research and design will be of limited value if it is not given a carefully controlled field trial. It is believed that by the time that the field trial is concluded Australia will have a workable mechanism for water property that will be a world leader. In addition to obvious opportunities to export water property to other countries that could benefit from the system, it could also be applied to separate other property rights from land as the need arises.

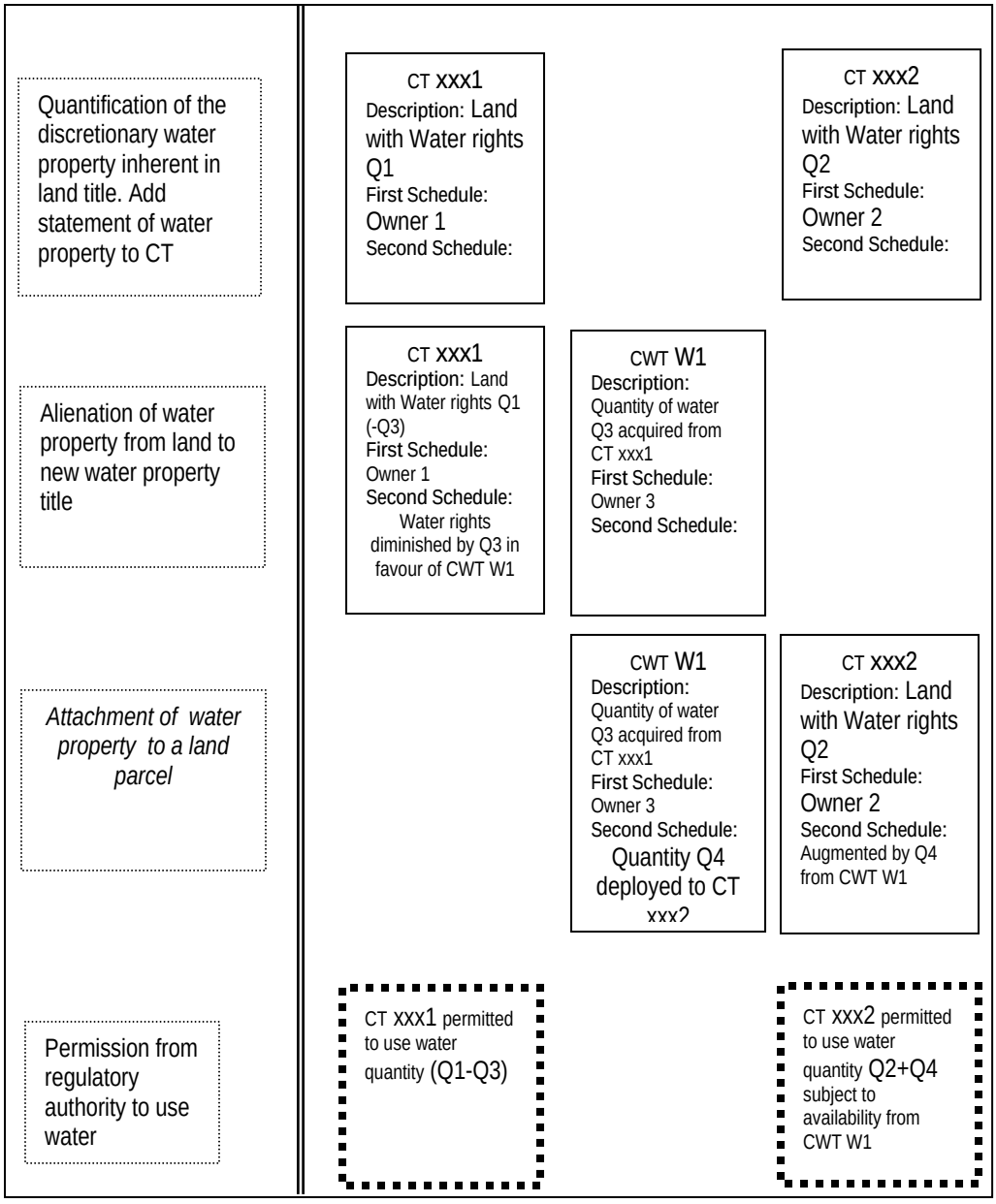


Figure 5
Schematic for Water Property Title Creation and Deployment