Institutional and Organizational Arrangements in Australia

D. J. Constable [10]

INTRODUCTION

ORGANIZED IRRIGATION DEVELOPMENT commenced in Australia just over 100 years ago. Prior to European settlement and colonization, which began in 1788, there was no agricultural develop ment. The continent was sparsely populated, and the indigenous inhabitants were hunters and food gatherers.

Australia is the driest of the world's continents. The average annual runoff in its largest river System, the Murray, is only 14 million liters per square kilometer compared with values of between 180 and 600 **for** the major systems in other continental land masses. Table 2 illustrates this low quantity of mnoff.

Irrigated agriculture accounts for over 80 percent of the water extracted from the rivers. The introduction of irrigation just over 100 years ago led to the necessity to develop water laws to facilitate such development. The competition for water for industrial and municipal use and the need to move toward a sustainable approach to resource development and environmental management have resulted in a major review of the water law and the institutional arrangements for water resources development and management over the last decade.

Under ***Australian Political Jurisdictions*** is given a brief outline of the Australian political system as a federation of sovereign states. In the subsequent sections, some points have been highlighted under the headings of the five subject areas for this Workshop.

Table 2. Comparative runoff rates in some major river basins.

Basin	Country/Continent	Mean annual runoff (mm; or Ml/km^2)
Amazon	South America	633
Changjiang	China	533
Zaïre	Africa	510
Mississippi	United States	*180*
Murray	Australia	14

10 Professor D. J. Constable was formerly Director of the University of Melbourne, Parkville, Vic 3052. Australia.

AUSTRALIAN POLITICAL JURISDICTIONS

At the end of the nineteenth century, Australia comprised six British colonies, each with largely sovereign legislatures which had power to make laws effective for the particular colony.

The Federal Commonwealth of Australia was created in 1901 with the colonies then becoming the States of New South **Wales,** Victoria, South Australia, Western Australia, Queensland, and Tasmania. Unlike federations in other parts of the world, the constitution under which the Australian federal system operates placed strong emphasis on preserving the structure and sovereignty of the States. Only specific powers considered to be best controlled in the national interest were ceded to the Commonwealth Government, e.g., foreign affairs, defense, trade, immigration, and financial and economic policy.

Responsibility for land and water management remains with the State Governments. However, political boundaries have little relevance to catchment boundaries and, in the case of River Murray, the main stem of the river forms the boundary between New South Wales and Victoria. There is still some difficulty in precisely defining the boundary in legal terms.

The current position in Australia therefore is that there are seven independent governments, one for each of the six sovereign States and the Commonwealth Government, with interests in the management of natural resources (the Northern Territory has quasi-sovereign status but is under the jurisdiction of the Commonwealth Government.).

The third level of government, municipal (or local) government has no constitutional standing, but is established under State legislation. The municipal government provides a range of community services, with powers to recover costs from the community by rates and charges.

While the States have constitutional responsibilities for the development and management of water supplies, the Commonwealth of Australia, in its responsibility for the management of the economy and the equitable distribution of national income, makes decisions which have important implications for the timing and cost of water supplies; for example, monetary and employment creation policies. On the other hand, decisions by the States in respect **of** their responsibilities have an impact on the cost of living and the cost-structure of industries, for example, water-pricing policies.

This distribution of power and responsibilities has been a significant element in determining the institutional arrangements for water-resources planning and management. For example, the recovery of operation and maintenance costs for water services from beneficiaries has been practiced exclusively through the State agencies. However, to ensure that, **as** far **as** practicable, water-resources planning, development and management are soundly based, the Commonwealth **has** provided funds since 1964 for collaborative Commonwealth/State programs to accelerate the assessment of **surface** and underground water and, since 1968, for water research.

The Commonwealth has also provided assistance for capital works for water-supply, flood-mitigation and salinity-control projects in accordance with State priorities and for initiating and accelerating a number of projects of national significance.

ORGANIZATIONS AND THEIR ALLOCATED FUNCTIONS

Land and water management are a State responsibility. While each State legislature enacts its individual legislation, the essential features in water legislation are broadly similar in all States. The following brief **summary** is indicative of events in the State of Victoria, which is representative of the situation in the eastern **States.**

The introduction of irrigation in the 1880s signaled the commencement of a process where common or customary law was replaced by legislation to facilitate State development. The Irrigation Acts of this time prescribed that the Crown (State) has the primary right and responsibility for water, and private rights are derived from the State. This fundamental provision has remained the cornerstone of legislation in all States.

The original Irrigation Act authorized the establishment of local management bodies (called Irrigation Trusts) with powers to divert water from rivers for the establishment of irrigation districts.

By the early 1900s most of these Trusts had failed financially, because of the variability of river flows and the absence of regulating storage. In view of the generally large catchment areas and sparse population, the communities within catchments have limited capacity to pay for authorities capable of providing the range of expertise. and services dedicated within one catchment are limited.

Following the failure of the Irrigation Trusts, the Governments of the day moved to establish arrangements to manage water resources at the State level.

In the State of Victoria, the Water Act of 1905 established the State Rivers and Water Supply Commission, an autonomous body with wide powers to investigate the extent of the State's Water Resources, prepare proposals for their development, implement projects and subsequently manage them. The 1905 Act also empowered the Commission, in accordance with the provisions in the legislation to oversee the establishment of authorities to develop and manage water services to urban communities outside the capital city, where these services were provided by a separate autonomous authority (the Metropolitan Board of Works).

This arrangement worked satisfactorily for a long period of development between 1905 and 1970. The Metropolitan Authority was financially autonomous, with powers to raise capital by loans within global limits approved by the State Governments. The global limits of borrowing by each State are fixed annually by the Commonwealth after consultation with the States

The State Rivers and Water Supply Commission, on the other hand, was not financially autonomous. Its functions included a range of business services, e.g., supply of water for irrigation and urban water supply, a range of State services for which there were no direct beneficiaries, e.g., gauging of rivers and assessment of the extent of surface water and groundwater resources, and a number of regulatory and administrative functions. In respect of its business services. the Commission was expected to be financially self-sufficient. In respect of irrigation, particularly the recovery of all costs from users was not feasible, and in cases of other services Government subsidies were provided to underwrite the costs of services, particularly to small communities, on the grounds of social equity.

The Commission was in essence, the Basin Authority for the whole of the State, with the Water Legislation providing mechanisms for the devolution of responsibility to locally managed authorities, where this was seen to be appropriate.

These institutional arrangements resulted in the two central authorities developing as powerful, bureaucratic, technically competent authorities with a total range of expertise embracing the whole range of functions from dam construction through to the operation and management of distribution systems.

From 1905 to 1970, these institutional arrangements were generally satisfactory and this was a period during which extensive development of water resources occurred. The needs of the metropolitan community could he met by resources developed within the catchment dedicated for this purpose. Elsewhere in the State, community requirements were met by developments within individual basins, and by an extensive system of inter-basin transfers. for which decisions were made by a mixture of bureaucratic and political processes.

By 1970, however, the needs of the Metropolitan Authority had outgrown the resources available within the basin, and new inter-basin transfers were necessary. Friction between the two

authorities, emerging environmental concerns, and community desires for greater and more rapid devolution of powers from the Commission led to the restructuring of these arrangements. In 1976, a coordinating ministry was developed, without any real change in the power and role of the two major authorities. In 1984, a further restructuring occurred with the strengthening of the powers of the ministry as the Department of Water Resources, relative to overall State strategic planning and general coordination within the water sector.

The relative independence of the two major authorities was preserved by providing for them to continue to report directly and independently to the Minister.

The historical development of these institutional arrangements is indicated in Figure 4.

The restructuring in 1984 was part of the overall review process. The State Rivers and Water Supply Commission was reconstituted as the Rural Water Commission and some of its administrative and regulatory powers which it formerly exercised on behalf of the Minister were transferred to the Department, together with the relevant staff. The functions of the Department of Water Resources and the Rural Water Commission are set out in Table 3.

The Rural Water Commission has maintained its role as the State-wide operating agency. However, the new legislation includes more positive provisions for the transfer of functions to locally managed authorities, and these initiatives can be taken by the relevant community, rather than the commission.

The new legislation enhances the powers of the Minister to exercise more positive powers of control and direction, while at the same time providing scope for the Authorities in the water sector to exercise a high degree of managerial autonomy in a commercial and businesslike manner.

The management thrust is toward total cost recovery from all consumers served by the Authorities in the Water Sector, with provisions for the government to equalize the cost of services to consumers across the State, by a combination of measures including capital grants towards the initial cost of works, subsidized interest rates on Authority borrowings, or direct revenue grants.

Figure 4. History of institutional arrangements for management of water in the State of Victoria, Australia.

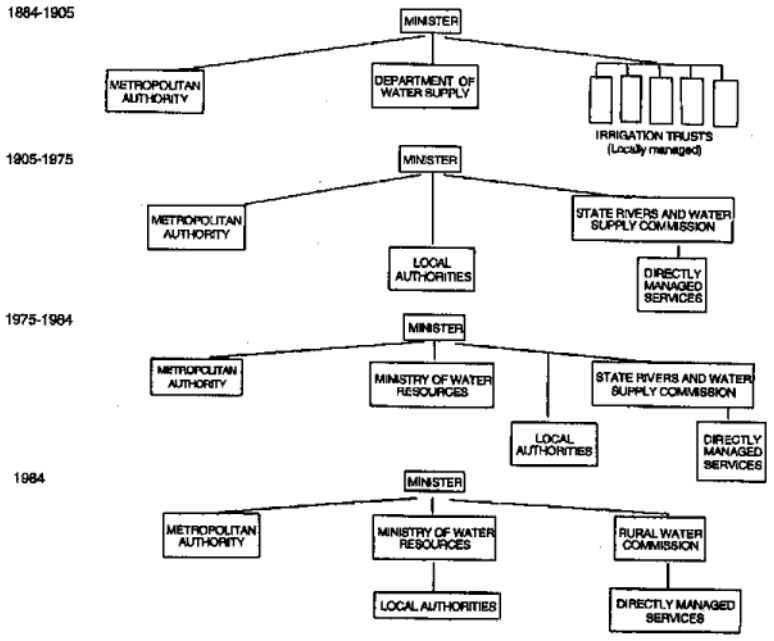


Table 3. Functions of the central water agencies in the State of Victoria, Australia.

Department of Water Resources

- To provide advice to the Minister on:
  a. the management, development and use of the water resource of the State, and
  b. the provision of water services to the people of Victoria;
- To review and develop policy options, plans and programs for the water sector in consultation with operating agencies where appropriate, to coordinate policy development within the industry, and to advise the Minister on industry plans, programs and institutional arrangements;
- To ensure the development of a comprehensive database for the Victorian water sector relating to water resources and water-related matters, and financial, physical, and manpower resources, and to analyze and monitor the database in the development of policies, plans and programs;
- To develop guidelines and planning parameters, to assist operating agencies in the water industry to develop plans and programs and to provide advice to agencies;
- To analyze financial programs and budgets prepared by various operating agencies in the water industry, to identify associated policy issues and to provide advice to the Minister on all aspects of such programs and budgets prior to their consideration and approval by the Government;
- To monitor and review the performance of operating agencies against approved budgets, programs and objectives, and to assist the Minister in evaluating and reporting on industry performance:
- To provide management and technical support and to disseminate information to the various bodies in the water industry;
- To develop public education programs to promote community awareness of the need for more efficient and effective management of the State's water resources,

Rural Water Commission

- To provide water and water-related services for irrigation, domestic and stock uses and for commercial, industrial, recreational, environmental and other beneficial uses in irrigation and other rural areas throughout Victoria;
- To design, construct, operate and maintain the necessary infrastructure to enable the delivery of services;
- To allocate and sell water and, where necessary, purchase water, and implement pricing and demand management policies:
- To undertake resource assessment, and investigations pursuant to the effective and efficient operation and maintenance of rural water services.

GOVERNANCE: TRENDS TO AUTONOMY, PRIVATIZATION

In Victoria, 75 percent of the irrigated area is located within large irrigation districts of 12,000to 400,000 hectares. The remaining 25 percent lies in the private sector, either as private individual farms, or cooperatives or companies.

Traditionally. the water bodies have been legally constituted as public-sector bodies, but with **a** high degree of local management responsibility:

- In urban systems, the responsibility is total, subject to compliance with legislation.
- In irrigation, farmer involvement has been advisory with increasing responsibility in policy development.
- The bodies have been "corporatized," i.e., they have been set **up as** commercial business undertakings (see later comments under *Financial* ***Framework).***

One State Government has initiated moves to privatize large irrigation distribution systems (New South Wales). There **is a** consensus elsewhere that the complexities of full privatization have not been recognized, and it **is** doubtful whether the process will go further than "corporatization" in other States.

In Australia, farm sizes are generally large, and farmers are responsible for the management of the distribution system (tertiary system) within their lands.

LEGAL FRAMEWORK—WATER RIGHTS, LAND TENURE

Almost **all** irrigation land is privately owned, or under lease from the State.

The rights to the control and use of water are vested in the State.

Individual rights to water are regulated by issue of rights and entitlements on **a** volumetric basis from the Central Agency, acting on behalf of the State.

In irrigation districts, there are no user association laws as such, but legally constituted irrigation districts have legal assignments of water, within which the rights of individual farmers are specified (see also comments under *Farmers'* ***Role and*** *Status*).

Processes for allocation of water have undergone change in recent times. Prior to 1984, water was allocated by administrative actions of the Central Water Agency. After 1986, this administrative system was replaced by a more market-oriented system in which rights are transferable. The changeover from one system to the other was managed in the transitional period, 1984–86.

Details of the procedures in these three periods are given in the following paragraphs.

The Administrative System, before 1984

- Headworks Development Projects were approved by the Government following an open public inquiry by an all-party Parliamentary Public Works Committee.
- Subsequent water allocations were then issued in accordance with the approved project conditions and **uses.**

- For allocations to Irrigation Districts. legal assignment of the total District Allocation was made by legislation and recorded by the Central Agency.
- Individual entitlements to landholders with lands within the district were issued up to the total volume of the authorized District Assignment. with allowance made for district distribution losses.
- These individual entitlements were recorded in a Register of Lands for the District, which is apuhlic document.
- The authorized District Assignments formed the basis of storage operation release rules.

Transition Period 1984–86

- The system of "free" allocations of water by administrative actions by the Central Agency was scheduled to he replaced by a more market-oriented system.
- The State Government instituted a process of hearings by a specially constituted "Anomalies Tribunal" by which persons aggrieved by previous administrative decisions which affected their water allocations could have those decisions reviewed. Where judged necessary by the Tribunal, corrective allocations were made.

Allocation and Transferability Process, after 1986

- Existing District Assignments were redesignated **as** Bulk Water Licenses
- New Bulk Water Licenses would be issued subject to the outcome of a public inquiry process established by the Minister at which time the effects of the proposed new allocation would be canvassed.
- **Bulk** Water Licenses would be subject to bulk water charges (see comments under *Financial Framework).*
- Bulk Water Licenses can be transferred between holders by negotiation or private treaty.
- Water rights to individuals within Districts can be obtained by either:
  - **a.** Purchase of new allocations within the District Bulk Water License (if available), or
  - **b.** By purchase and transfer from another person within the District.

Processes for Transfers

i. The intending buyer seeks a permit to purchase which **is** issued by the District Management agency after considering:
   - **a.** the effect on existing canal distribution capacity and service to other water users, and

b. potential environmental effects (waterlogging and salinity hazards).

ii. On the issue of the permit, the buyer seeks purchase by private treaty — permits are restricted to a single supply system.

iii. Transfers are registered in the management agency records.

- The management agency is empowered to buy water rights from individuals, and may do so for system efficiency purposes, e.g., buy out residual small allocations on high cost canal systems.

Farmers' Role and Status

Farmers own land individually.

Within each legally constituted irrigation district, there is an Advisory Board of farmers, elected from the body of irrigators, in accordance with bylaws in the Water Act.

The role of Advisory Boards has evolved over the years from advising the management authority on day-to-day operational matters to greater involvement in policy development and development of "Level of Service" specifications.

In 1992, in Victoria, Management Boards have been constituted with responsibility for overall policy development and management of the distribution system assets.

The Central Agency retains responsibility for management of the headworks (reservoirs, river diversion works).

Financial Framework

Traditionally, recipients of water and drainage services have been expected to pay full cost of service provision as far as operation and maintenance are concerned. This is levied directly by charges of fees on the property owner.

The legislation **has** provided for Government subsidies for capital and renewal costs in some cases of economically weak and isolated communities, where adverse economies of scale exist.

Current Government policies are moving toward full cost recovery in irrigation. This is acknowledged to be a long-term process.

In irrigation, the legislation provides for farmers to pay full cost, including capital cost of distribution systems. However, government intervention in the past has reduced the percentage of cost recovery in various districts, depending on economic viability, to between 50 percent and 80 percent.

Traditionally, the capital cost of headworks (dams and regulators) has been borne by the State, with farmers paying a proportion of operation and maintenance costs.

Most Australian Governments are now adopting policies as follows:

- Distribution costs: Irrigators will pay 100 percent of operation, maintenance and renewals costs (i.e., maintenance in perpetuity)

- Headworks costs: Will be recovered from **all** water users through Bulk Water License fees. Irrigators will pay a negotiated lower fee in the short term

The distribution cost and headworks cost will be levied on a volumetric basis.

In irrigation districts, water charges based on costs of operation and maintenance comprise two elements:

- A fixed compulsory charge related to water rights allocated
- An additional charge related to usage above water rights (if available)

The fixed charge, if not paid, remains a charge on the land, and may be recovered by the authority by forced sale of the land.

RIVER BASIN MANAGEMENT INSTITUTIONS AND INTERGOVERNMENT COOPERATION

As described earlier, the responsibilities for land and water management remain with State Governments, the land and water in fact being "owned" by the States.

Each of the States of Queensland, New South Wales, Victoria and South Australia has significant areas located within the catchment of Australia's most significant river basin, the Murray-Darling Basin, whose location is shown in Figure 5.

The need for formal institutional arrangements at the basin level became obvious during the period of early development of water resources within rhe upper States. when these individual developments began to affect existing and potential developments in the lower State.

These early concerns led to the establishment of the River Murray Commission in 1915 to coordinate the planning and development of the resources of the basin, by works along the main stem of the river to facilitate development within each State. The second institution *at* the basin level was established in 1949 when the Snowy Mountains Hydroelectric Authority was created.

The essential features of these institutions is that they were established following agreements between the contracting Governments. These agreements followed comprehensive technical investigations in which the relevant Governments were represented. These investigations identified a set of potential development schemes with indicative benefits and costs, and the relative share **of** costs and benefits which would accrue to each of the parties to the agreement. In each case, the institution was established to implement and subsequently manage an agreed set of project developments. The locations of major irrigated areas are shown in Figure 6.

In the case of the Murray River, capital costs of projects would he shared equally by the Commonwealth and the **3** States involved, and the operating costs would be borne in equal shares by the **3** States. The water resources of the basin were to he shared on the basis that the downstream State (South Australia) receive a fixed annual entitlement in specified monthly allotments and the upper two States share equally in the remaining resources controlled by the works of the River Murray Commission, with the right to utilize individual State tributary flows.

By these arrangements, the obligation to recover operation and maintenance costs remained with the benefiting States.

In the case of the Snowy Mountains there are two institutions, the Snowy Mountains Hydroelectric Authority, responsible for carrying out the construction, operation and maintenance of the works, and the Snowy Mountains Council, which directs and controls the operation and maintenance of the works. The total costs of the works are met by electricity sold to the Electricity Commissions of New South Wales, Victoria and the Australian Capital Territory.

Given below are a number of features from the Australian experience which may have relevance in the examination of institutional arrangements for sustainable management of water resources where multiple political jurisdictions are involved.

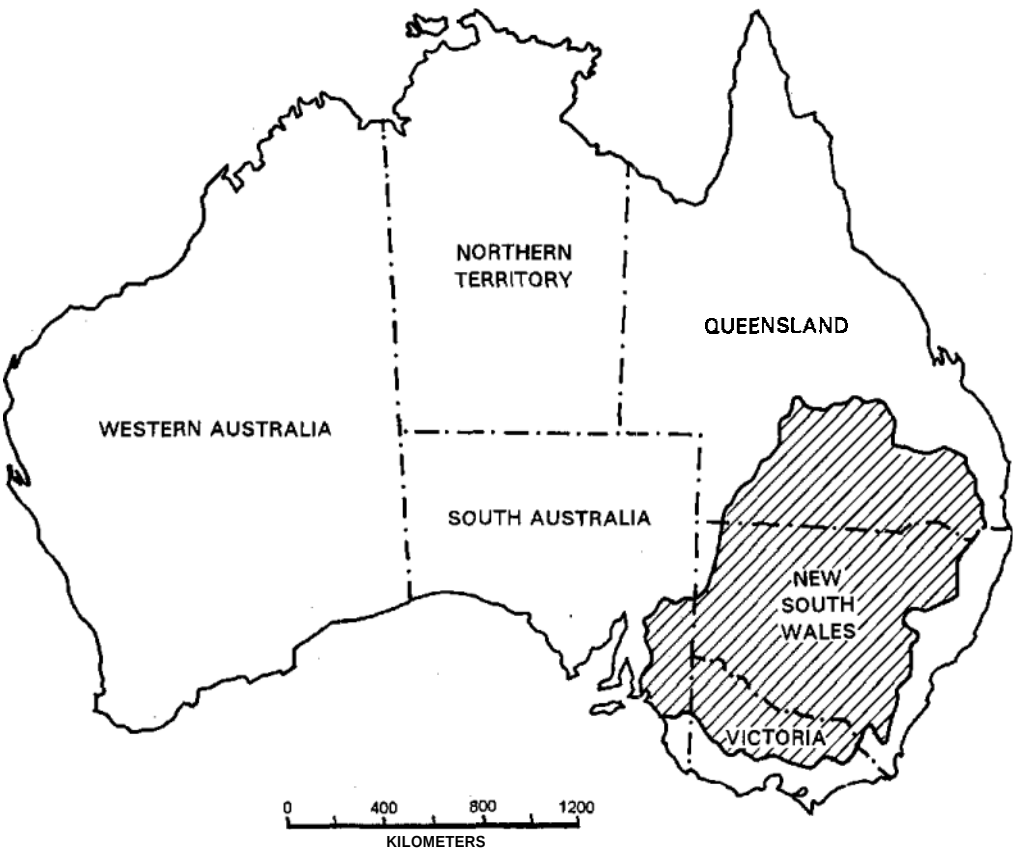
a. Any agreement will generally be limited to the extent of the individual rights and privileges each jurisdiction is prepared to cede in order to achieve the common good.

b. The institutional arrangements established to administer such an agreement must provide clear-cut and uninhibited processes for ensuring that each party is able to access information relevant to its own political, economic and environmental interests. These arrangements should include measures to reach agreement at the technical, operational management and policy levels.

c. The charter under which the institution operates should have sufficient depth and flexibility to address **all** relevant matters. Each party should be represented and provided with expertise of each relevant discipline.

d. There must be clear identification of the rights and obligations of each party, but the institution shouid possess sufficient executive powers to act independently of individual parties for the common good.

Figure 5. Location of the Murray-Darling River Basin in relation to state boundaries.



% Basin in State		% State in Basin	
New South Wales	57	New South Wales	83
Victoria	12	Victoria	50
South Australia	6	South Australia	7
Queensland	25	Queensland	17

Figure 6. Major irrigation areas **in** *the Murray-Darling Basin.*