

NEW DIRECTIONS AND NATIONAL LEADERSHIP IN DEVELOPING WATER POLICIES IN FEDERATIONS-INDIA AND AUSTRALIA

Prof Jennifer MCKAY and Diwakara HALANAİK
Director and Member Water Policy and Law Group,
School of International Business, University of South Australia,
City West Campus, Adelaide, South Australia.

Abstract

There has been a growing realisation in many Federations that the water governance has been hampered and inter State rivalries and other competitive forces have often led to unsustainable water sharing arrangements. These arrangements have led to over-exploitation of water resources, lack of sharing of water data, lack of compatibility of data sets, water mining by upstream riparians and a host of other problems, which have resulted in economic and environmental degradation. Indeed, there are serious interstate water sharing disputes in Australia and India at the present time, for example between NSW and Victoria and the Cauvery water dispute between Karnataka and Tamil Nadu.

Australia and India are two major world Federations and both have recently addressed water-sharing issues nationally. This has relied on hitherto untested powers and combinations of powers in their Constitutions. The text of the reforms in both countries will be examined in detail however the clear aim is to overcome the interstate sharing issues and hence to encourage reforms in water management. The methods proposed and employed by the two Federations will be examined and comments will be made on the types of reforms proposed and the tools selected to achieve the reforms. There are many case studies available from Australia and India and in particular judicial decisions of late, which tend to provide greater power to the national government than has previously been considered the norm. Indeed the use of international treaties, obligations to promote Ecologically sustainable development and privatisation of water utilities does provide more powers to national governments over water resources than they have enjoyed in the past.

India and Australia have clearly pointed to a new way forward for water management but the question remains, is there enough guidance as to how to implement the new policies?. In particular, how to reverse the deeply held beliefs and expectations in the community as to the use and price of water. In many cases, the existing State level water allocation policies have been unsustainable, under enforced and under priced. All these will need to change to reflect the demands of ecologically sustainable development.

Australia

The Australian water industry still operates under State laws as the Federal constitution drafted a mere 100 years ago leaves the power to provide water infrastructure in the hands of the State governments. Indeed, water was a key issue impeding the settlement of the Constitution in that period and section 100 was specifically inserted in order to prevent the Commonwealth power over navigation and trade and commerce (section 51) in inland rivers from abridging the powers of the States to the reasonable use of waters for conservation or irrigation.(Lane 1986).

The legacy of this power sharing and particular inter State rivalries has been that the State Governments have acted introspectively and each State Government has created unique systems for the allocation and use of water. Each State measured water with different types of infrastructure which have proven to be incompatible and hence it is difficult to get adequate data. (Jones et al 2001) Each State adopted the public sector model for the provision of water, gas and power and the bodies became powerful in each State but did not work together often. Each State did not look beyond its own boundaries until a crisis in a shared resource forced the formation of agreements such as *Murray Darling and Border Ranges agreements*. (McKay 2002b)

In the 1970's the problems with this type of multiple structures on one continent came to be first recognised (Senate 1970) in ecological damage. Attention was paid to some issues in a set of reforms known as the Council of Australian Governments reforms in 1994. These reforms were linked to National competition payments in 1995 which meant that the State governments risked forfeiting up to \$16 billion in redistribution of federal Taxation money if the reform agenda was not adhered to. The micro economic reform agenda committed all governments to:

1 Universal application of pro competition laws and corporatisation¹ of the former Government Business Enterprises (GBE) into three business units, water provider, environmental regulator and competition regulator

2 the creation of independent regulators to regulate the pricing of services

3 structural reform of government to facilitate competition and the review of legislation that restricts competition.

Prior to the reforms it has been stated that in relation to water most consumers were unfairly charged, water suppliers were inefficient, investment decisions were poor and institutional governance was inadequate. (Shadwick 2002).

The reforms are multifaceted and require the community to participate in the evolution and implementation of new water sharing arrangements which need to be sustainable on the three dimensions of economics, environmental and social. The specific aims of the reforms are:

- *To achieve full cost recovery in the rural and urban supply of water,*
- *Reduction, removal or at least transparency in cross subsidies*
- *consumption based pricing and Investment appraisal,*
- *water allocation reforms and water trading, environmental allocations, water property rights separated from land, institutional reforms, holistic approach to water management.*
- *Integrated catchment management and community consultation (McKay 2002a). The property rights debate has not settled and recently the federal Government has outlined a need to determine better more sound ways to allocate and enforce property rights. (Anderson Hon Minister for Transport and Regional Services 2002)*

Australia, is still in the transition phase in the adoption of the reforms in water and generally in other former GBE's (Australian Financial Review 2002). Each State has adopted these requirements for the water industry in different ways in the last 6 years (McKay 2002a).

The problems with these reforms are:-

- *low levels of background benchmark data on all three dimensions economic, environmental and social*
- *very different legislative bases and different levels of attachment to the old schemes.*
- *Low skill base of employees to make the transitions, and*
- *reform fatigue, and*
- *The corporatization has resulted even in lower rates of information sharing as some operational procedures are commercial and confidential.*

At present there are no performance management standards for the operation of the new corporatised bodies and this is demonstrated by the wide array of qualifications of directors (Table 1) and the different price setting bases for water. In addition the water quality standards differ in the nation between capital cities. (McKay and Moeller 2000). Furthermore, the upper house of Federal Parliament in a report (Senate 2002) noted that even within each State there is a huge amount of fragmentation and 300 water utilities.

The restructuring under CoAG, aimed to create competitive markets that would achieve more efficient allocation of resources. However, critics have suggested that in practice, that the reforms have increased the number of institutional players in the water industry and further
Table 1 here please.

complicated the task of achieving integrated catchment management, (Senate 2002, McKay 2002a).

All State laws require all those involved in water allocation systems to have regard to

¹ Corporatisation means government owns the asset but contracts out the management. The only mooted privatisation was to be in Australian Capital Territory (Perkins 2002)

- ecologically sustainable development,
- present and future generations,
- social and economic benefits ,
- integrated management and
- separating water licences from land.

These terms have no agreed meaning in the Acts, the Queensland acts recites the Brundtland definition, but others take a more conservative approach. No act provides guidance to officials who are obliged to act in accordance with these principles as to how to achieve the aims. Hence the reform fatigue is acute and implementation is very patchy.(Jones et al 2001)

In addition, some Act require these additional factors to be considered:

- indigenous rights
- equity and
- sharing

The rules on water markets and access rights to water vary widely between the States.

The corporatisation of the Australia Water industry has left Australia with a multitude of bodies and one of the main issues is generating meaningful comparisons or even meaningful data to compare the bodies. The table below illustrates that the skill base of Directors of the water bodies varies widely between the States. In addition, the requirements in the water acts many other acts are relevant in each jurisdiction (McKay 2003b). This creates a situation of legal indeterminacy where there is too much uncertainty, which can lead to reform fatigue and atrophe. In addition, in all cases, the Board does not have the final power about the dividend return to each State Government. For example, the Board may only recommend to the State Treasure an amount to be paid as Dividend into consolidated revenue. The Treasurer has the power to demand another dividend amount and to ask for interim dividends. So the boards of these bodies are not in the same position as their pure corporate cousins but a likely to have their re-investment plans de-railed by the short term needs of a Government to take some funds into consolidated revenue.

Table 1. Selected Australian corporatised water bodies-skill base of Directors and obligations in Act(s)

Selected organisation	Act name and number of Directors	Expertise/qualifications	Obligations as in Act(s)
Sydney Water NSW State Government decorporatised it recently and separated its catchment management functions	Sydney Water Act 1994 State Owned Corporations Act 1989 and Water Management Act 2000 s.281 where major utility.	I chair appointed by voting shareholders and 9 others with expertise in business management, environmental protection and public health. Appointed by public advertisement	Operating licence sets out main objective is to protect public health by supplying safe drinking water to the public. Separate licences may be held for storing and supplying water, providing sewerage, providing stormwater drainage, and disposing of waste water.s12
Melbourne Water Wholesaler of water (481 GL) harvested from catchments stored in major reservoirs and transported to the three State owned water companies.	Water Industry Act 1994	Minister must ensure directors have qualifications relevant to the operations of the Corporation. S 19 Directors of retailer the same.	Three retailers hold water and sewerage licences under s.17 Water Industry Act. Three retail companies have customer contracts under s. 19 which impose performance measures. These include service delivery and environmental issues. Aim to create competition by comparison.

SA Water Adelaide 1995	Set out in Public Corporations Act 1993 which provide the framework for the commercial focus and SA Water Corporation Act which specifies 6...” members who together have the abilities and experience required for effective discharge of business and management obligations.”	Object is to receive a commercial rate of return on assets after allowing for community service obligations. EPA is the external environmental regulator. 15 year outsourcing contract to maintain and operate Adelaide’s metro water and waste water.	United Water must meet 142 performance targets every day such as reductions in burst water mains.
Murray Irrigation Ltd* NSW Rural provider	Irrigation Corporation under the Water Management Act 2000 s 117. Board greater than 3 less than 10.	Elected to fulfil the operating licence.	S122 operating licence for Irrigation Corporation to carry on business of supply water provided to it by Ministerial Corporation and ensure users have adequate access and comply with a management plan.
SunWater Queensland Urban, rural and industrial bulk water supplier	S548 elected or nominated no number given, depend on the operational licence.	No detail on expertise	542 Operational licences, efficiency in carrying out water activities by the application of commercial principles; (b) appropriate governance arrangements and accountability(c) community involvement in making and implementing arrangements for using, conserving and sustainably managing water.

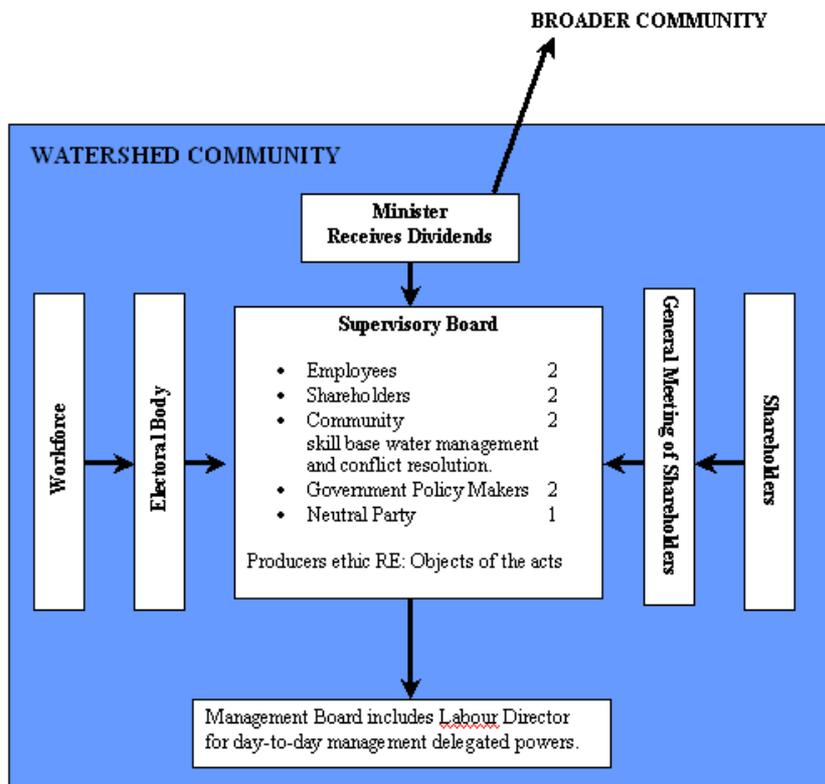
Australia – a Solution

The discussion above has pointed out many flaws in the approaches used to corporatise the Australian water industry. The studies indicate that the time for tinkering with the corporate regulation of the water industry is over. (McKay 2003b). It is best to look at new models to address corporate governance of the supply of and treatment of a very special resource-water.

Lots of factors need to be considered and on many of these there is still not a community consensus. The figure is a chart showing a template body to manage water in Australia.

Figure 1. Organisation of a Template Body to Manage Water in Australia

Water Government Business Enterprises As Green Enterprises



Adapted from "Australia Reconstructed" 1987, Janicke & Weidner, Political Systems Capacity for Environmental Policy 1997.

Special Acknowledgement to Tony Short.

For Australia, it is time to recoil from the complexity of 7 different laws and draft a national template laws built on the foundations of State ownership of rainfall with procedures and funding to gain adequate knowledge of the economic, environmental and social impact of regulatory models. The template laws would rely on State power over water but be drafted to be identical to each other on definitions of issues like, governance structures (see Fig.1), community participation, environmental and economic assessments and have protocols to establish benchmarks for performance management on a broad range of criteria.

There is a need to ensure that a method is found via new institutional arrangements to disentangle the complexity of water supply and wastewater treatment into manageable parts and hence move forward in achievement of sustainable water management, which embraces environment, economic activity and communities.

India

Indian water sector is like a cart without wheels. Under the Indian Constitution (Entry 17 in the State and List, Entry 56 in the Union List and Article 262), water is a State subject except for the “regulation and development of inter-state rivers and river valleys to the extent to which such regulation and development under control of the Union is declared by parliament by law to be expedient in the public interest” (Richard and Singh, 1996). The entry 17 of list II includes broad objectives is like COAG. Further, Article 262 explicitly grants parliament the right to legislate over the matters in Entry 56 and also gives it primacy over the Supreme Court (Richard and Singh, 1996). According to Iyer (1994²) parliament has not made much use of Entry 56 although various River Authorities have been proposed. Instead river boards with only advisory powers have been created. This clearly indicates the state governments still govern the allocation of river waters.

History of India’s Federal Water Institutions

The history of institutional development dates back to pre-independence. Until the Government of India (GOI) Act of 1919, all irrigation works except those not exceeding Rs. 10 lakhs³ in cost were under the control of the central government, and subjected to the sanction of the secretary of state. The GOI Act 1919, made irrigation a provincial subject, while matters of inter-provincial concern or affecting the relations of a province with any other territory were subject to legislation by the central legislature. The GOI Act of 1935 drew attention to river disputes between one province and another or between a province in British India and a (federal) Indian state. The provincial legislative list (which became Entry 17 in the State List in the 1950 Constitution) included “water, (water supplies), irrigation and canal, drainage and embankments, water storage and water power.” Section 130 to 134 in the 1935 Act dealt with the problem of “interference with water supplies.”

The next stage of constitutional evolution was the draft constitution. In this stage, the original articles on the subject, viz. Articles 239 to 242 were worded the same sections 130 to 134 of the 1935 Act. Subsequently an amendment was made and Article 262 replaced them. Article 262 provides: (i) parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution control of waters of or in any inter state rivers or river valleys and (ii) Notwithstanding anything contained in this Constitution, Parliament may, by law, provide that neither the Supreme Court nor any other Court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1) of this Article (Richard and Singh, 1996).

Within the powers available under Entry 56 of the Union List and Article 262, Parliament enacted two laws, viz. (1) River Boards Act of 1956 and (2) Inter-State Water Disputes Act of 1956. The first act made provisions for setting up of river boards or advisory bodies by the central government at the request of the interested parties. These boards were to have two functions: (1) They would help to bring about proper and optimum utilization of the water resources of inter-state rivers, and (2) They would promote and operate schemes for irrigation, water supply, drainage, development of hydroelectric power and flood control. The second act is briefly described as “if a dispute arises from any legislation, or failure to implement the terms of any agreement on the part of another state, then the affected state can request the Central government to refer disputes relating to the use, distribution, or control of Inter-State river waters for adjudication by tribunal constituted under the Act.

In 1985 the Supreme Court passed a judgment ordering the Ministry of Environment and Forests to address groundwater overdraft problems. Accordingly, the Ministry of Environment and Forests issued a notification on January 14th 1997, creating Groundwater Authority and designating CGWB to have administrative responsibility of the GWA mandate for regulating and controlling groundwater extraction. At the same time complementary authorities have been created at the state level. The Chairman of the CGWB is head of the GWA and members are drawn from the CGWB, this authority was established provisionally for one year and entrusted to (i) issue directions and take measures pertaining to Sub-section 2 of Section 3 of the Environment (Protection) Act; (ii) to resort to the penal provisions contained in Section 15-21 of the Environment (Protection) Act; and (iii) to regulate

² Cited in Richard and Singh, 1996

³ A lakh is 100,000 rupees

indiscriminate boring and withdrawal of groundwater in the country and issue necessary regulations with a view to preserving and protecting groundwater. The Supreme Court ruling and creation of GWA have yet to emerge and furthermore, the regulation of well boring and groundwater extraction through CGWB and SGWOs are far from clear (World Bank, 1998). Though some states have tried regulation and passed legislation they have hardly been implemented.

In India, Model legislation prepared by the CGWB proposes a highly centralized approach to groundwater management as well as regulatory functions. The recent management approach does not involve water users (decentralized approach). The weaknesses of current version of model legislation as indicated by World Bank (1998) are (i) regulatory structure, whether the centralized regulatory approach likely to be effective and (ii) relates to the contents, i.e., the numerous groundwater management needs that the proposed structure may not address, like water logging, pollution, quality and conjunctive management. Hence no model legislation seems to be comprehensive and needs to be reoriented. Most often the decisions of the government institutions managing water resources heavily depend on data set and therefore the data set on water availability and use should be effectively tackled and disseminated. In India, the specific roles envisioned by Ministry of Water Resources for the CGWB include (i) compiling and analyzing groundwater and related area at the national level, including cross-checking; (ii) developing and refining analytical methods; (iii) undertaking basic scientific research and location specific field studies on water resource dynamics, quality, pollution and the natural environment with particular reference to groundwater aspects; (iv) undertaking social science research and policy studies on groundwater management with particular reference to groundwater aspects; (v) providing technical support to state governmental water organizations (SGWOs) and local organizations in areas where management initiatives are under way; and (vi) educating policy makers and the general public. The data processing is of more routine way than scientific one this done mainly to satisfy operational needs (World Bank, 1998).

The Cauvery Dispute

Lack of effective policy instruments to deal with disputes arising out of sharing resources is one of the most important water problems for India. For example, water tensions are looming over shared rivers and basins between two states Karnataka and Tamil Nadu over access to the Cauvery River. The origin of the dispute is traced back to 1982 (ICE, 2002)⁴. The repeated meetings of a tribunal have failed to resolve the prolonged dispute.

New Directions

The New National Water Policy has been widely criticized for lacking integrity and is a hotchpotch of contradictory perspectives (Shah, 2002). The Government of India announced the adoption of a new National Water Policy on April 2nd 2002. Though the new policy was drafted in 1998 the final document is a product of national consultative process.

The new water policy does not address issues relating to regulate the ground water extraction and use and not a major leap forward from 1987 National Water Policy in words. It does however insert ecology as a water allocation priority along with agro industries and non agricultural industries. There is no change in the management approach and regulation of extraction, exploration and use of both surface and groundwater resources. There are no well-defined property rights in India and the new water policy could have focused on this issue including entitlements to native Indians. Regarding groundwater development in clause (7) an attempt is made to at least mention the importance of managing groundwater resource by Central and State governments. Even this is opaque, as to how the over exploitation of groundwater resources could be regulated, is it through (i) spacing norms, (ii) allocation of water on volumetric basis, (iii) transfer of water from surplus areas to scarcity areas, (iv) charging for actual water extracted, (v) regulating electricity prices for extraction of groundwater, what are the ways and means of achieving it? In total except in clause (10), (11), (12), (13) and to

⁴ It was indicated that a series of meetings were held in mid 1950s and 1970s. Between 1968 and 1990, 26 meetings were held at the ministerial level but failed to reach consensus.

some extent clause (24) there are few changes to help manage the nation's scarce water resources in a sustainable way.

Regarding institutional mechanisms, the scope and powers of River Basin Organizations are left to be decided by the basin states themselves. This leads to legal indeterminacy as in Australia. The proposed guidelines seek equitable sharing and distribution of water among states, even for water short states outside of a river basin "guided by a national perspective". The guidelines also call for review of the Inter-State Water Disputes Act of 1956. The draft National Policy Guidelines for Water Allocation amongst State has been referred to the National Water Board of the National Water Resources Council (Parsai, 2002).

Notably, in the new National Water Policy in clause 21, which deals with water sharing distribution amongst the states is untouched. This could be due to political reasons. This indicates that the new directions and leaderships in developing water policies have failed to address the burgeoning water related issues. Unless some strenuous efforts are made to revisit the new and innovative water policies the problem of water scarcity will become more pervasive and will become a serious impediment to economic growth and development of the country. In order to achieve sustainable development, strong and innovative institutional and regulatory measures are required through new legislations, this demand legal and administrative backing from the concerned state and local governments.

The framing adopting new National Water Policy looks to be a new direction, however, it's not a comprehensive water policy. The new policy mainly lacks a blend of innovative institutional content in achieving the objective of sustainability.

South Africa

One of the main pillars of the new South African National Water Act(No 36 of 1998) and Policy is that "everyone has the right to have access to sufficient water". It addresses equity in access to water resources, and aims also to promote productive use of water, protection of environment and economic growth. Now water can no longer be owned and used by one dominant group in South Africa. Water was mostly used by a dominant group, which had privileged access to land and economic power (White Paper on Water Policy, 1997). The present legal status of the water in South Africa is based on two ideas; (i) a link between the right to use water and the ownership of land adjacent to that water (the riparian principle), and (ii) a separation between private and public water.

The main purpose of the White Paper is to set out the policy of the Government for the management of both quality and quantity of water resources. The Goals of the White Paper include, (i) providing some historical background regarding access to and the management of water in South Africa, (ii) explaining the current development context in which South Africa finds itself, (iii) explaining the environmental and climatic conditions which affect the availability of water in South Africa, (iv) putting forward certain policy positions, based on the Fundamental Principles adopted by the Cabinet in November 1996, (v) outlining the proposed institutional framework for water management functions, and (vi) outlining the steps which will follow the publication of this White Paper in order to translate policy into law and action.

National Protocols to Achieve Goals

The innovative approach tried in South Africa is to incorporate the buzzword of the millennium "sustainability". As the main focus of this act is to (a) meet the basic human needs of present and future generations to satisfy the "principle of sustainability", (b) promote equitable access to water, (c) redress the results of past racial and gender discrimination, this is a new step where in the native entitlements to water are ensured, (d) promote the efficient, sustainable and beneficial use of water in the public interest, (e) facilitate social and economic development, (f) provide for growing demand for water use, and manage demand, (g) protect aquatic and associated ecosystem and their biological diversity, (h) reduce and prevent pollution and degradation of water resources, (i) meet international obligations, (j) promote dam safety, and (k) managing floods and droughts. Unlike other nations water management strategy, South Africa gives special powers to Ministry to ensure water allocated equitably and used beneficially in the public interest. Further, the National Government

through Minister has the power to regulate the use, flow and control of all water resources in the country. One of the main features also includes defining entitlements to water use. The purpose for which water can be used is clearly defined and water users need seek license to use water resources under the Act with National consonance. The act has made provisions to replace any right to use water that a person might otherwise have been able to enjoy or enforce under any other law⁵. The national water resource strategy subject to subsection (4), minister must by notice establish a national water resource strategy⁶. Regarding giving effect to national water resource strategy, the minister, the Director General, an organ state and a water management institution must give effect to the national water resource strategy when exercising any power or performing any duty in terms of this Act. There is a special provision for reserve that is the basin human needs and the ecological needs, the minister is required to determine reserve and the reserve will be given effect in same way as water resource strategy. Since the National Government has overall responsibility for and authority over water resources use of water is subject to permission under the Act. The Schedule I lists the lawful use of water resources. The minister may limit the amount of water, which a responsible authority may allocate. There are some provisions made for non-licensees to use water provided the water use is permissible under Schedule I of the Act. In case any person⁷ is denied or granted for lesser water use than the existing lawful water use resulting in prejudice to the economic viability of an undertaking in respect of which the water was beneficially used, may, subject to subsections (7) and (8), can claim compensation for any financial loss suffered. The Water Tribunal has the jurisdiction to determine the liability for compensation and the amount of compensation payable. A license may be granted too use underground water on land not owned by the applicant if the owner of the land consents or if there is good reason to do so⁸. A person can transfer water use provided a water management institutions permit. Regulations on water use, subject to subsection (4) the minister may make regulations limiting or restricting the purpose, manner or extent of water user, monitoring, measuring and recording water user, registering water use with responsible authority, regulating design, construction, installation, operation and maintenance of any water work and so on⁹. The South African National Water Policy appears to be comprehensive and innovative in realm of innovative water policies. This provides lessons to developing world in putting strategies to ensure equity in access to all members of society and sustainable use water resources.

Brazil

Water Resources National Policy in Brazil

The National Water Resources Policy emphasizes (i) public property nature of water resources, (ii) economic value, (iii) priority given to human consumption and watering of animals, (iv) multiple use of water, (v) river basin as the territorial unit for implementation of National Water Resources Policy, and (vi) decentralization (users participation)¹⁰. The main focus of the national water policy is on “sustainability” [Article (2)]. One of the general guidelines for action is management of resources with regard to both quantity and quality of the resource. Importance is also given to the integration of water resources management with environmental management. Further water resources planning (for

⁵ For details of this please refer, National Water Act, (Act No. 36 Of 1998), Chapter 1 Interpretation and Fundamental Principles, Republic of South Africa.

⁶ For details of this please refer, National Water Act, (Act No. 36 Of 1998), Chapter 2 Water Management Strategies, Republic of South Africa

⁷ Any person can apply for license under section 43 in respect of an existing lawful water use as contemplated in section 32.

⁸ This is unlike in other countries for example, India, wherein only landowners are entitled to use groundwater on their land and others restricted from using it. This will be a useful policy implication for India.

⁹ For details refer Regulations on use of water, National Water Act, 1998.

¹⁰ The National Water Policy, Article (1) of the National Water Resources Policy Law No. 9,433 of January 8, 1997.

user sectors) have three-tier structure (regional, state and national levels)¹¹. The new policy has addressed issues relating to (i) award of water use rights, and (ii) water tariffs

Protocols implementing National Water Resources Policy

In order to implement the National Water Policy, the National government is responsible for (i) taking the steps necessary for the implementation and operation of the National Water Resources Management System, (ii) award rights to the use of water resources, and regulate and monitor such use within its sphere of competence, (iii) institute and manage the water resources information system at the national level and (iv) promote the integration of water resources management with environmental management¹². The policy suggests that executive branches of Federal District and the municipalities should promote the integration of the local policies on basic sanitation, land use and occupancy, soil conservation, and environmental protection with the Federal and State policies on water resources [Article (31)].

The Federal Water Law No.9, 433/97 (Article 32) also recommends national water resources management system with a view to (i) coordinate integrated water management, (ii) arbitrate at the administrative level any conflicts related to water resources, (iii) to implement the National Water Resources Policy, (iv) plan, regulate and supervise the use, conservation and recovery of water resources and (v) encourage the charging of fees for use of water resources. The composition of national water resources management system is listed in Article (33)¹³. The role of States and municipalities has been clearly defined.

Summary

The four federations have all moved to incorporate the triple bottom line requirements into water management. All are impeded by their Parliamentary powers at the Federal level and by being in front of some very vocal elements of their societies in attempting to achieve fairness and environmental sustainability in water allocation and use. In all four societies this is a transition phase and to overcome the above requires community participation in the water allocation problems and in devising structures for water governance that are not too different between regions. The two problems at the moment are region biophysical differences and legal indeterminacy caused by multiple different governance structures. The first one is the essence of water management the second one is the servant of the first and understandable simple governance structures are needed.

References

- Anderson J Hon 2002 Deputy Prime Minister Media Release, 19 December 2002' Anderson announces property rights study to develop details of a secure water property rights regime. *Australian Financial Review 2002 special report in on infrastructure, 8 August 2002, p 14*
- Australia Reconstructed, 1987 Australian Labor Party, ACTU, Canberra.
- Cauvery Water Dispute, ICE Case Studies, No.53 downloaded from
- Damme Hans, *Overcoming Water Scarcity and Quality Constraints* Focus 9 Brief 3 of 14 October 2001. in Meinzen- Dick and Rosegrant International Food Policy Research Institute Washington US.

¹¹ For other guidelines refer Article (3) of the National Water Resources Policy Law No. 9,433 of January 8, 1997.

¹² These four important functions of the Federal Executive Board are listed in Article 29 of the Section VI of the Law No.9,433 of January 8, 1997. The responsibilities of federal district and municipalities in implementing National Water Resources Policy are listed in Article 30.

¹³ They include, (i) The National Council on Water Resources, (ii) The State and Federal District Councils on Water Resources, (iii) The River Basin Committees, (iv) The organs at the Federal, State and Municipal levels whose respective areas of competence are related to the management of water resources, and (v) The Water Agencies.

- Garrido, Raymundo, Water Resources National Policy in Brazil, Contributing paper on River Basin-institutional frameworks and management options for World Commission on Dams, Ministry of Environment, Brazil, down loaded from <http://www.dams.org> on 1st May 2003.
- Janicke M and H Weidner(eds) National Environmental policy: a comparative study of capacity building, Springer- Verlag, New York.
- Jones,G ,Whittington,J, McKay, J.M,Arthington,A, Lawrence,I Cartwright ,S and P,Cullen *Independent Assessment of the Environmental Achievements of the COAG Water reforms 2001*. Cooperative Research Centre for Freshwater Ecology, University of Canberra.
- Lane PH 1986 Commentary on the Australian Constitution, Law Book Company, North Ryde. P 853
- McKay JM and Moeller A 2000 Is there power in the Australian Constitution to make Federal laws for Water Quality? Environment and PLANNING LAW journal , Vol 17, p294-307.
- McKay JM 2002a, 'Legal Issues in Water Resources Planning Regimes – Lessons from Australia', in Brennan D ED *Water Policy Reform-Lessons from Asia and Australia* , Australian Centre for International Agricultural Research Publication , no 106.
- McKay JM 2002 b Encountering the South Australian landscape; Early European Misconceptions and our present water problems, Hawke Institute Working paper 21 online at www.hawkecentre.unisa.edu.au/institute/ issn 1443-9298
- McKay JM 2003 A proposal for a International virtual Water Trading Council: Building Institutional frameworks at an international level to reduce poverty, in eds Uncay Gupta and Ki..... eds *Water Development and Poverty Reduction*, Kluwer Academic publishers
- McKay JM 2003b Overcoming legal obstacles associated with property rights and registration to implement successful water resources planning regimes, Australian water Summit paper, March 2003.
- Ministry of Water Resources, Government of India, National Water Policy, 1987, Central Groundwater Board, Jam Nagar House, Mansingh Road, New Delhi, India.
- Ministry of Water Resources, Government of India, National Water Policy, 2002, Central Groundwater Board, New Delhi
- National Water Resources Council, 5th Meeting held on 1st April 2002, National Water Policy (2002), modifications made during the meeting, downloaded on 23rd April 2003 <http://www.indiatogether.org/environment/water/modifications.doc>
- North DC 1990, Institutions, Institutional Change And Economic Performance. Cambridge University Press
- National Water Act, 1998 (Act No. 30 of 1998), Assented to 20 August 1998, Republic of South Africa.
- National Water Resources Policy, Law No. 9,433 of January 8, 1997, Republic of Brazil, downloaded from <http://www.iwrn.net/lei-agua.htm> on 5th May 2003.
- Perkins P 2002 Public and Private options in Australian Water Management, Rosenberg International water policy symposium proceedings Canberra
- Parsai, Gargi, 2002, Draft Water Policy Skirts Sensitive Issues, The Hindu News Paper dated 31st March 2002.
- Parsai, Gargi, 2002, Water Policy Silent on Inter-State Sharing, The Hindu News Paper dated 2nd April 2002.
- Richards, Alan and Singh, Nirvikar, 1996, Water and Federalism: India's Institutions Governing Inter-State River Waters, Department of Economics, University of California, Santa Cruz, June, 1996.
- Shadwick M 2002 *A viable and Sustainable water industry*, National Competition Council, staff discussion paper, AusInfo, Canberra
- Shah, Mihir, 2002, Water Policy Blues, The Hindu News Paper dated 7th June 2002.
- Rosegrant W. Mark, The Politics and Economics of Water: Pricing in Developing Countries, *Water Resources Impact*, January 2002, Volume 4 Number 1, pp.6-8.
- Senate 1970 Senate Select Committee on water pollution in Australia, AGPS

Senate 2002 Australia's urban water management, Senate Environmental, Communications and Information Technology Department, AGPS
White Paper on Water Policy, (Approved by Cabinet on 30th April 1997), Government of South Africa.
World Bank, India-Water Resources Management, Groundwater Regulation and Management Report, 1998, Rural Development Unit South Asia Region, World Bank in collaboration with the Central Groundwater Board, Ministry of Water Resources, Government of India.