

# **WATER RESOURCE AGREEMENTS AMONG STATES AND PROVINCES OF FEDERAL COUNTRIES – A COMPARATIVE REVIEW**

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**International Conference on Water Management in  
Federal Countries**

**(WATEREXPO, Zaragoza, 9-11 July 2008)**

# OUTLINE

- The role of inter-state agreements
- Comparative analysis of inter-state agreements
- Findings
- Conclusions

# THE ROLE OF INTER-STATE WATER AGREEMENTS

- Inter-state water agreements are instruments designed to solve potential conflicts.
- Are inter-state agreements adequate to resolve the water problems that federal countries face today?

# SCOPE AND METHODOLOGY OF ANALYSIS

- Number of countries analyzed: four ( Australia, Canada, Argentina, U.S.A.)
- Number of inter-state agreements analyzed: twenty seven
- Recurrent features inventoried for analytical purposes:
  - allocation mechanisms
  - water quality (pollution) control
  - groundwater
  - inter-state institutional arrangements
  - monitoring programmes
  - river basin/watershed management
  - dispute resolution mechanisms
  - funding and cooperation
  - duration
  - federal role
  - public participation

# SCOPE OF AGREEMENTS

- Water Allocation → twenty four (n. of agreements)
- Water Quality Protection (pollution control) → seventeen
  - Water Quality Standards → ten
  - No Specific Standards → seven
- Surface Water → twenty five
- Groundwater → thirteen
  - Specific Regulation → seven
  - General Regulation → six

with Australia, *Murray-Darling Basin Agreement 2006* between the Commonwealth, New South Wales, Victoria and South Australia being one of the few agreements spanning all items

# MECHANISMS TO ALLOCATE WATER

- **Different allocation mechanisms**
  - **Fixed amount**
    - *USA, Kansas-Nebraska-Colorado Republican River Compact, 1943*
      - The specific allocations in acre-feet hereinafter made to each State are derived from the computed average annual virgin water supply.
    - *Australia, Murray-Darling Basin Agreement, 2006.*
      - Part X Distribution of waters. Each month South Australia is deemed to receive the sum of the water flowing in that month in the River Murray.

# MECHANISMS TO ALLOCATE WATER

- **Percentage**

- *USA, Arkansas River Basin Compact, Arkansas-Oklahoma, 1970*

- Article 4 The State of Arkansas shall have the right to develop and use of the Spavinaw Creek (...) no more fifty percent (50%). The State of Oklahoma in the Arkansas River Subbasin no more than sixty percent (60%). The State of Arkansas in the Lee Creek Subbasin equal to Oklahoma.

# MECHANISMS TO ALLOCATE WATER

## – Principle of Equitable Apportionment

- *Australia, New South Wales-Queensland and Border Rivers Agreement 1946*
  - This agreement establishes a complex mathematical formula to allocate water among users.
- *Alabama-Coosa-Tallapoosa River Basin Compact 1997*
  - Sets: Article 9 “The “allocation formula” means the methodology, in whatever form, by which the Basin Commission determines an equitable apportionment of surface waters within the Basin among the two states, such formula may be represented by a table, chart , mathematical calculation or any other expression of the Commission’s apportionment of waters pursuant to this compact.”



# MECHANISMS TO ALLOCATE WATER

## – Water Marketing

- *Australia, Intergovernmental Agreement on a National Water Initiative*

-”The States and Territories agree that their water market and trading arrangements will: facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territory, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading.”

# WATER QUALITY (POLLUTION) CONTROL

- *Canada, Agreement between Quebec and New Brunswick on Transboundary Environmental Impact 2002*
  - No specific water quality standards. However, it provides for monitoring and reduction of pollution in rivers, lakes and waterways.
- *USA, New England Interstate Water Pollution Control Compact between Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.*
  - The main goal of this inter-state agreement: “establish reasonable physical, chemical and bacteriological standards of water quality satisfactory for various classifications of use.”

# GROUNDWATER

Groundwater can be the target of specific attention, or of attention as an adjunct to surface water

- Specific Regulation for Groundwater in Seven Inter-state agreements.
  - *Australia, Border Groundwater Agreement 1985*
    - This agreement concerns groundwater resources adjacent to the border between the State of South Australia and the State of Victoria and provides for the cooperative management and equitable sharing of those resources and for safeguarding against undue depletion or degradation.
  - *USA, Susquehanna River Basin Compact May 1972 between Pennsylvania, Maryland, and New York.*
    - Article 5 provides for groundwater investigations, tests and operations, and for compiling data relating thereto as may be required to formulate and administer the comprehensive plan.”

# GROUNDWATER

- *Argentina, Federal Water Agreement, 2003*
  - Article 2: surface water and groundwater are connected and should be used and protected as one source
- *Australia, Intergovernmental Agreement on a National Water Initiative 1994*
  - Establishes specific regulation of groundwater resources connected with surface water.
- *USA, California – Nevada inter-state Compact 1990*
  - Wells drilled within 500 feet from perennial streams not sealed from the surface shall be deemed *prima facie* to draw directly from allocated surface water.

# INTER-STATE INSTITUTIONAL ARRANGEMENTS

Most of the inter-state agreements analyzed provide for an inter-state Commission.

Functions vary from agreement to agreement

– *Argentina, Federal Water Agreement, 2003:*

- Sole “Water Authority” → Hydrologic plan with different government levels.
- River Basin Organizations → Management water resources at the river basin level, coordination among users and conflict resolution
- The Federal State → Improve technology
- The Federal Water Council → Oversees the implementation of the basic hydrologic principles in Argentina.

# INTER-STATE INSTITUTIONAL ARRANGEMENTS

- *Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem 2007*
  - Management Committee:
    - Setting priorities
    - Evaluating annual assessments of the Agreement
    - Evaluations of the administration
    - Facilitating the free exchange of information
    - Addressing the implications of changes or adjustments to government policy
    - Overseeing the development and amendment of Annexes, as necessary
    - Overseeing the delivery of other communications
    - Cooperation with Great Lakes community,
    - Joint plans between Canada and the U.S.

# INTER-STATE INSTITUTIONAL ARRANGEMENTS

- *Delaware River Basin Compact, 1961 between Delaware, New Jersey, Pennsylvania, New York and U.S.*
  - Commission:
    - To develop and effectuate plans, policies and projects
    - To conduct and sponsor research on water resources
    - To conduct groundwater and surface water investigations
    - To negotiate loans
    - To allocate water
    - To enter into agreements with other river basin
    - To constitute advisory committees
    - To arbitrate

# INTER-STATE INSTITUTIONAL ARRANGEMENTS

- *Australia, New South Wales-Queensland Border Rivers Agreement, 1946*
  - The Dumaresq-Barwon Border Rivers Commission:
    - To determine the anticipated quantity of water available each year
    - To control the construction, operation and maintenance of works
    - To undertake investigations
    - To report and make recommendations
    - To investigate the practicability of constructing, maintaining and operating
    - To arrange for the construction of gauging stations
    - To arrange groundwater monitoring



# INTER-STATE INSTITUTIONAL ARRANGEMENTS

- *Australia, Murray-Darlin Basin Agreement between the Commonwealth, New South Wales, Victoria and South Australia, 2006*
  - Commission:
    - To advise the Ministerial Council in relation to management of water
    - To assist the Ministerial Council for the equitable efficient and sustainable use of water
    - To co-ordinate the implementation of measures
    - To give effect to any policy or decision of the Ministerial Council

# MONITORING PROGRAMMES

- **Periodical reporting**

- *Canada, Master Agreement on Apportionment, 1969 between the Governments of Canada, Alberta, Saskatchewan and Manitoba*
  - requires annually a written report from the Board to the parties where water quality mandate should be implemented.
- *Australia, Border Groundwater Agreement 1985 between the State of South Australia, and the State of Victoria*
  - the parties will provide periodical reports to the Commission

# MONITORING PROGRAMMES

- **Controlling water quality and quantity**
  - *The Idaho-Washington Interagency Agreement in the Matter of the Coordinated Management of the Pullman-Moscow Ground Water Aquifer, 1992 (focus on quantity)*
    - computer-simulated modelling studies to indicate the ground water level declines
  - *Border Groundwaters Agreement 1985 between the State of South Australia, and the State of Victoria (focus on quality and quantity)*
    - data about annual volume extraction,
    - level of salinity

# RIVER BASIN/WATERSHED MANAGEMENT

- *Argentina, the Matanza-Riachuelo Agreement (Federal Law 26168 of 2006)*
  - deals with the river basin as a whole
- *USA, Arkansas River Basin Compact, 1970 between Arkansas and Oklahoma,*
  - deals with the portion of the Arkansas River watershed located in the two states

# DISPUTE RESOLUTION

Some agreements set as a goal: “removing the causes of present and future controversies”. However, they do not include clear mechanisms to solve disputes.

# DISPUTE RESOLUTION

- *Argentina, the Federal Water Agreement, 2003 in its Articles 23 and 25 provides for conflict resolution through*
  - River Basin Organizations having an → arbitral function
- *Australia, 2006 Murray-Darling Basin Agreement between the Commonwealth, New South Wales, Victoria and South Australia*
  - Establishes guidelines to deal with conflicts arising in specific situations:
    - Transferring water entitlements and allocations → “If a dispute arises, the parties must seek, in good faith, to resolve the dispute expeditiously by negotiations between them.”
      - If the Commission is a party → it must be referred to the Ministerial Council
      - Dispute between states → arbitrator

# DISPUTE RESOLUTION

- *Alabama-Coosa-Tallapoosa River Basin Compact 1997*
  - Article 13 establishes specific procedures for dispute resolution
    - Claims relating to compliance with the allocation formula:
      - Notice of claim should be filed with the commission.
      - Within 20 days of the commission's receipt of a written statement of a claim, the parties may prepare a brief narrative of the matters
      - No later than 20 days from receipt of any response to the claim, the commission shall determine if a resolution of the dispute is possible.
      - A resolution of a dispute shall be binding upon the state parties.
      - If the commission is unable to resolve the dispute within 10 days. the commission shall select, by unanimous decision, an independent mediator to conduct a non-binding mediation of the dispute.
      - In the event of a proceeding seeking enforcement of the allocation formula, this compact creates a cause of action solely for equitable relief.

# FUNDING AND COOPERATION

- *Australia, Agreement for the Paroo River between New South Wales and Queensland 2003*
  - One of the few agreements specifically regulating funding and accountability arrangements
  - Article 10.1 “The States will make available the necessary financial and other resources for the operation of this agreement under the Border Catchments Ministerial Forum and associated institutional arrangements subject to the normal budgetary requirements within each of the States.”



# FUNDING AND COOPERATION

- *Australia, the Murray-Darling Basin Agreement, 2006 establishes in part VII Finance provisions among the parties sharing costs such as:*
  - The cost of constructing, operating and maintaining works
  - Studies, programmes, surveys and investigations
  - Establishing maintain and operate an effective and uniform system for making and recording continuous measurements of the flow and the volume of stored water of the River Murray, and tributaries of the River within the boundaries of each State
  - Payments made by the Commission in respect of the construction of works.

# DURATION

A term of duration is not included in most agreements. However

- *USA, Susquehanna River Basin Compact, 1972 between Pennsylvania, Maryland, and New York.*
  - Article 1.5 “The duration of this compact shall be for an initial period of 100 years from its effective date, and it shall be continued for additional periods of 100 years...”

# FEDERAL ROLE

Most agreements provide for collaboration between the states/provinces and the Federal Government

- *Canada, Master Agreement on Apportionment, 1969 between Canada, Alberta, Saskatchewan, and Manitoba.*
  - Article 7 “...compilation and publication of water quality and quantity data required for the implementation and maintenance of the provisions of this agreement shall be conducted by Canada...”

# PUBLIC PARTICIPATION

- *USA, Alabama-Coosa-Tallapoosa River Basin Compact 1997*
  - Article 6: “All meetings of the Commission shall be open to the public.”
- *Australia, the Lake Eyre Basin Intergovernmental Agreement 2000 between the Commonwealth, and the states of Queensland and South Australia*
  - the Ministerial Forum will ensure that it has satisfactory access to community advice in relation to matters relevant to the Agreement.
  - there will be appropriate representation of different social and economic groups, notably Aboriginal, pastoral, agricultural, mining and petroleum, conservation, and tourism groups.

# FINDINGS

- Only three agreements include in their purpose water allocation, pollution control and water quality standards, surface water, and groundwater-specific regulation.
- Mechanisms to allocate water are provided for in seventeen agreements
- Monitoring programs are included in twenty three agreements. However, the joint use of monitoring programmes for quality and quantity control purposes is provided for in a few agreements
- Sixteen agreements have river basin or watershed scope

# FINDINGS

- Only nine agreements establish clear and specific mechanisms for dispute resolution
- Nineteen agreements provide for funding and cooperation programmes. However, only few inter-state agreements establish precise obligations in the matter.
- Twelve agreements include provisions about duration.
- Twenty agreements provide for collaboration between the states/provinces and the Federal Government
- Public participation is only included in ten agreements.

# CONCLUSIONS

- The analysis shows that inter-state water agreements are a useful tool to prevent and to solve conflicts. However, flexible mechanisms need to be developed and adapted to changing circumstances due notably to population growth and climate change
- Agreements should provide for specific mechanisms to address disputes. Nowadays, inter-state water allocation has the highest potential for conflict, and for eventual litigation before the highest Courts of the land. The Alabama-Coosa-Tallapoosa River Basin Compact (USA) has developed specific procedures to solve disputes.
- The results show that only three agreements canvass water allocation, pollution control including water quality standards, surface water and groundwater. This points to IWRM as a desirable approach to minimize the opportunity for conflict.

# CONCLUSIONS

- The lack of specific funding arrangements casts a shadow of doubt on the sustainability of treaty undertakings. This issue is not clearly addressed in most of the agreements.
- Opportunities for public participation are provided for in a number of agreements, however more widespread recourse to consensus-building mechanisms is desirable.
- Further studies would gather a larger sample of inter-state agreements and allow for rigorous scientific analysis. Flood control should be canvassed in future studies.



# THANK YOU

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