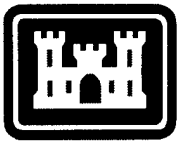

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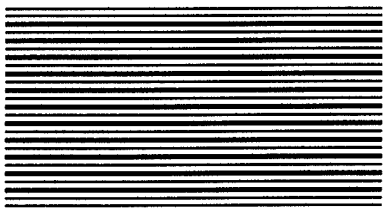
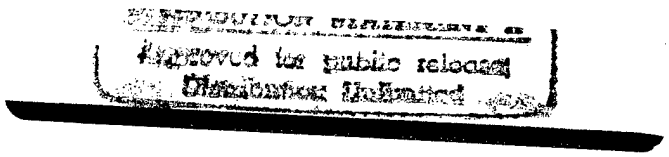


CONFLICT RESOLUTION, COLLABORATION AND MANAGEMENT IN INTERNATIONAL WATER RESOURCE ISSUES



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The Corps Commitment to
Alternative Dispute Resolution (ADR)

This working paper is one in a series of pamphlets describing techniques for Alternative Dispute Resolution (ADR). This series is part of a Corps program to encourage its managers to develop and utilize new ways of resolving disputes. ADR techniques may be used to prevent disputes, resolve them at earlier stages, or settle them prior to formal litigation. ADR is a new field, and additional techniques are being developed all the time. These working papers are a means of providing Corps managers with up-to-date information on the latest techniques. The information in this working paper is designed to provide a starting point for innovation by Corps managers in the use of ADR techniques. Other ADR case studies and pamphlets are available to assist managers.

The ADR Program is carried out under the proponency of the U.S. Army Corps of Engineers, Office of Chief Counsel, Lester Edelman, Chief Counsel, and with the guidance of the U.S. Army Corps of Engineers' Institute for Water Resources (IWR), Alexandria VA. Frank Carr serves as ADR Program Manager. Jerome Delli Priscoli, Ph.D., Senior Policy Analyst of IWR currently serves as Technical Monitor, assisted by Donna Ayres, ADR Program Coordinator.

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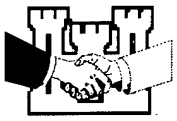

CONFLICT RESOLUTION, COLLABORATION AND MANAGEMENT IN INTERNATIONAL AND REGIONAL WATER RESOURCES ISSUES

Alternative Dispute Resolution Series

Working Paper #6

Delivered at the VIIIth Congress of the
International Water Resources Association (IWRA)
Cairo, Egypt
November 1994

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Institute for Water Resources
U.S. Army Corps of Engineers

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CHAPTER I. INTRODUCTION

My objectives for this paper are to link water resources institution building to theory and process of conflict resolution and collaboration: To do this, I will use concepts from three fields; water resources management; Alternative Dispute Resolution (ADR), and; international relations.

Social scientists say that institutions are routinized patterns of behavior creating stable expectations over time. These patterns are driven by values which over time are often latent and unexamined. Water resources institutions are being transformed by a profound changes in values. Bringing new values and their attendant claims to bear on water institutions means a long term shift in patterns of behavior of water resources managers. However, by focusing on the nation state, rich experience of building water institutions is often missed because much of it has fallen within and not among nation states. Actually, what were once regional intrastate issues can become international. We have only to look at Central Asia. Therefor I choose to use the word interjurisdictional to cast a broad net to capture such water resources institution building experiences.

The ADR field has brought new insights to negotiation and bargaining. The field has added much to the theory and practice of assisted negotiations, facilitation and mediation. It has added practical tools to diagnose the causes of conflict and relating diagnosis to ADR techniques.[1] The ADR field has created a new language of interest based bargaining. And much of these insights have arisen from environmental and natural resources cases. But while the field speaks of anticipating and avoiding conflict, it has much less to say about long term institution building and structural change based on fundamental value change driving the behavior of water resources managers. The point is that much can be gained by mixing the lessons from these fields.

The International Law Commission, the Helsinki rules, various UN deliberations and the twenty year process of the International Law Associations deliberations have produced some sound principles for Non-Navigational uses of International waters. In summary they call for:

Equitable and reasonable use

Obligations not to cause appreciable harm

General obligation to cooperate

Regular exchange of data and information

Look at relations between users

These are good principles. We need to use them. However, they present operational problems. For examples; Which prevails when equitable use conflicts with the obligation not to cause appreciable harm? What is appreciable harm? What are the standards of responsibility for a breach of principles? What should we do when there is no internationally recognized legislation and no compulsory enforcement jurisdiction?

Water resources management requires collaboration across jurisdictions and sectors, whether within or among states. Much of the history of water institutions is about the conflict between geographic dictates of the resource versus the realities of political jurisdictions. Water resource institutions go to the heart of our changing notions of subsidiarity. Subsidiarity is "the principle that none of the polity's tasks should be assigned to a body larger than the smallest that can satisfactorily perform it."

Building water resources institutions for collaboration depends on how we see the principle of subsidiarity at work in water resources management. Building water resources institutions is also directly related to capacity building and governance. The most important factors in building cross jurisdictional and sectoral institutions are creating the will and incentives to cooperate.

In looking at how water resources institution building and dispute resolution mix, I will address the following three questions:

1) Why cooperate: Some trends pushing toward cooperation.

2) How to cooperate: Perspectives on processes and institutions.

3) What to do: Some suggestions to the water resources community.

I want to acknowledge first that not all dispute management is Western. We, in the West, can learn and have learned from many traditions. For example the Western US still has the aesquia system which arrived from the Arab world via Spain. That system teaches us much about the subsidiarity principle of dealing with conflicts and of cooperating for planning and operations at the lowest possible levels.

Second, the water resources field is rich with experiences and illustrations of collaboration approaches. Indeed the water resources field is at the nexus of one of the oldest and most contemporary of public policy questions: How should specialized knowledge relate to power in a society? We can learn much from our water resources experience that can inform our current search for answers to this question in the water resources and other related areas.

CHAPTER II.
WHY COOPERATE: SOME TRENDS PUSHING TOWARD COOPERATION

Like all trends whether they are positive or negative is the eyes of the beholder. I choose to be optimistic about what follows.

1. Technical information has and continues to play a crucial role in water resources decision making. While often dividing us the need to gather and use it bonds water professionals across jurisdictions.

2. There is growing realization that the price for having some control over agreements is sharing ownership and cooperating in both the process and outcome of those agreements.

3. As constraints on the resource grow, especially in an era of fiscal austerity, the opportunity costs for not cooperating are becoming clearer. Indeed, negotiations can be seen as a social learning process. And the need for cooperation is one of its lessons.

4. The movement for environmental justice will bring new environmental value claims directly to social claims and link them to per/capita measurements,

5. Influential new actors representing new claims on water resources who cross jurisdictional are emerging.

6. The politics of water is moving from that of distributing benefits of an expanding pie to the perception of redistributing a decreasing pie now and in the future.

7. The transaction costs in time, dollars, resources, lost revenues and even violence, are escalating beyond traditional management methods capacity to keep up.

8. Available money relative to identified needs is contracting, therefore more must be done with less. A qualitative multiplier is needed for our management procedures. Cooperation built on a new ethic of informed consent rather than an old ethic of partneralism can provide such a multiplier especially in terms of increased program effectiveness and enhanced implementation.

9. There is a growing moral imperative for more accountability , responsiveness and intergenerational equity in water resources decisions.

10. There is a shift from deterministic prediction of the future to the notion of jointly creating the future.

11. Everywhere traditional legal systems are seen unable to cope with change. The reliance on precedent is insufficient if the problem is that current legal obligations are locked into allocation formula that diverge dangerously from current demographic realities.

12. International lenders and donors are beginning to perceive their role as a facilitator to rather then expert dictator of agreements. These actors have resources which can be incentives for cooperation even in a world with weak legal system and sanctions.

13. New treaties and agreements which are multi purpose are growing. Old single purpose treaties and agreements are under pressure to expand.

14. There is a renewed interest in functional diplomacy and what is now called second track diplomacy.

15. Technologies which are accessible to ordinary people, which help rather than hinder dialogue, alternative generation and sensitivity testing are rapidly emerging.

16. There is a growing and changing public awareness of water resources.

17. There is evidence from divergent fields of science that cooperation is and has been the key to growth and evolution.

Such evidence can be found in computer science and game theory, evolutionary biology, social psychology and hard and soft technology. Lewis Thomas notes, "The driving force in nature, on this kind of planet with this sort of biosphere is cooperation...one thing we know for sure about our bacterial ancestors is that they learned, very early on, to live in communities...." Speaking about trench warfare in WWI, anthropologist Ashworth notes ..."how kill or be killed strategy turned into something like live and let live." Computer scientist Axelrod finds the "Roots of Cooperation" in playing millions of prisoner dilemma games. The result is that a tit for tat strategy works best. That is a strategy which starts with cooperation and repeats whatever move the other player makes.[2]

CHAPTER III.
HOW TO COOPERATE: A CONCEPTUAL MODEL FOR BUILDING WATER RESOURCES INSTITUTIONS WHICH FACILITATE COLLABORATION AND MANAGE DISPUTES

We need to find institutions and organizations that help us to anticipate and manage conflicts and to collaborate across jurisdictions and sectors. We need to build institutions which are arenas for bargaining and which help create alternatives. Just looking at specific cases of water negotiations is not enough. We need to connect theories of negotiations and disputes management to institution building for water resources management.

Much of the History of water resources management has been a struggle to build institutions that are interjurisdictional (without too much impact on sovereignty) and intersectoral (without too much shock to the real politics of specialized knowledge and interests). This struggle has produced a variety of organizations which have varying success in fostering collaboration and in allocating water but which are rich with lessons for both the water and negotiations fields. We need to start mining this experience for its process and institutional lessons.

Figure 1 is a conceptual map to help make sense of this search. The horizontal axis represents various jurisdictions. This includes primary jurisdictions and sub-jurisdictions. The vertical axis represents sectors such as agriculture, transportation, industry and others. Our water experience has sought to build institutions which fall across the matrix as they seek to: allocate and value water along with establishing and maintaining rights. These institutions are private as well as public and are testimony to great variance in our understanding of what subsidiary means in water resources.

Much of the professional water resources literature has really examined one sector within a jurisdiction or the vertical space across sectors but within principle and subsidiary jurisdictions. (Figures 2&3) This can be seen in the evolution of water management from single purpose to multi purpose procedures. California's water banking, the World Bank's call for cross-sectoral stakeholder participation in developing water strategies are two recent examples of efforts in this space. To varying degrees, this space is characterized by some laws, sanctions and compliance.

Looking horizontally across sectors we are often faced with weak laws and little enforcement. (Figure 4) Early interjurisdictional water institutions grew out of specific sectoral needs for example in transportation. Many such institutions have gradually expanded their authorities to other sectors. However, we have tended to fund both international and domestic water resources sectorally thus pitting sector (technically defined interests) against jurisdictional logic which manifests as arguments over what is political and technical.

In this search, water has been treated as an end and as a means. In truth it is both. When water appears plentiful it is easier to think of it as a means. In arid areas this is less likely and water is more

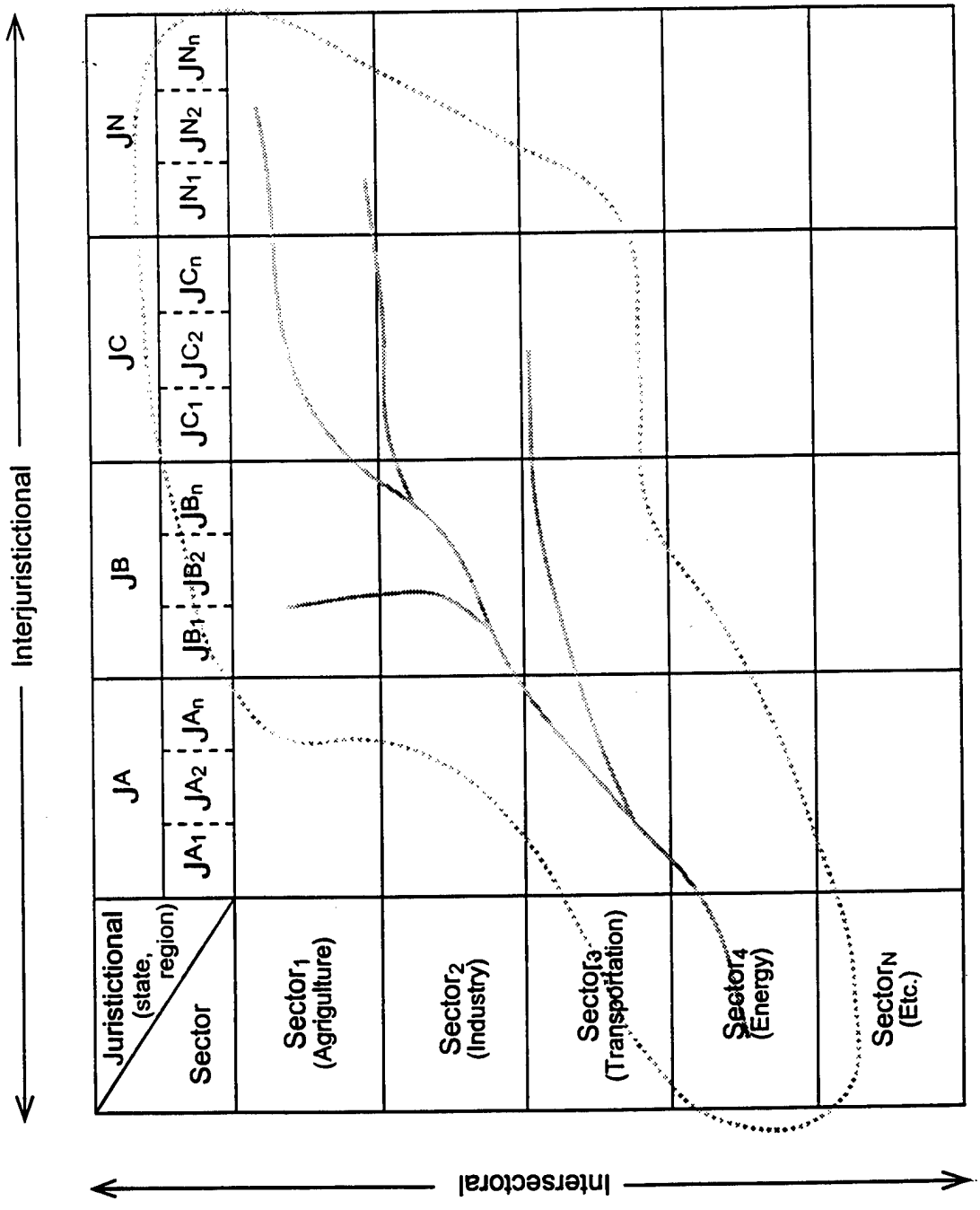


Figure 1. Conceptual Model

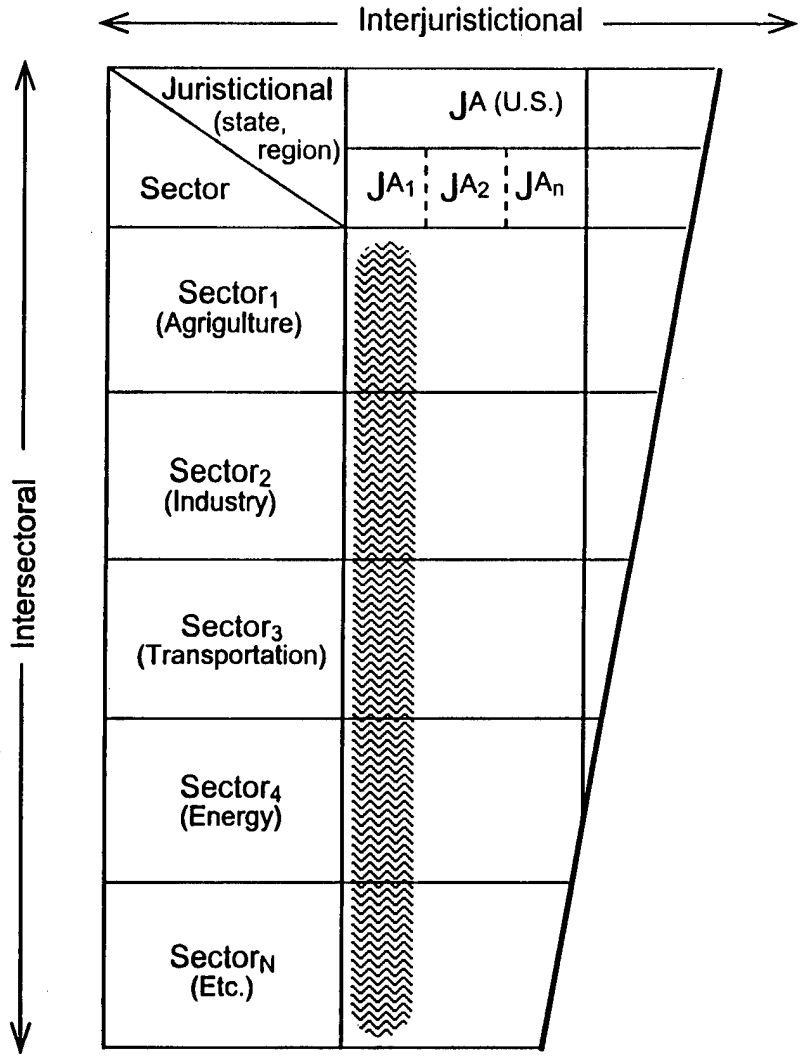


Figure 2. Cross Sectoral

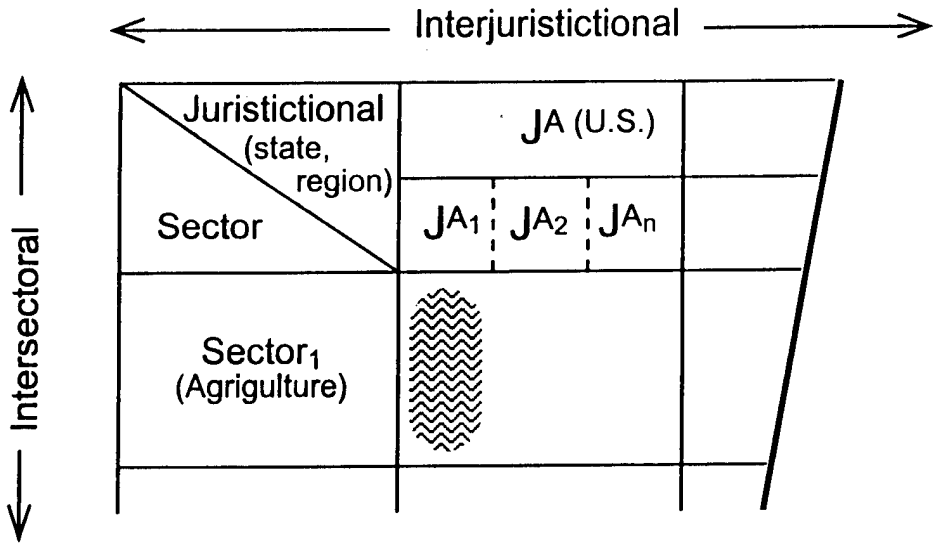


Figure 3. Single Sector /Jurisdiction

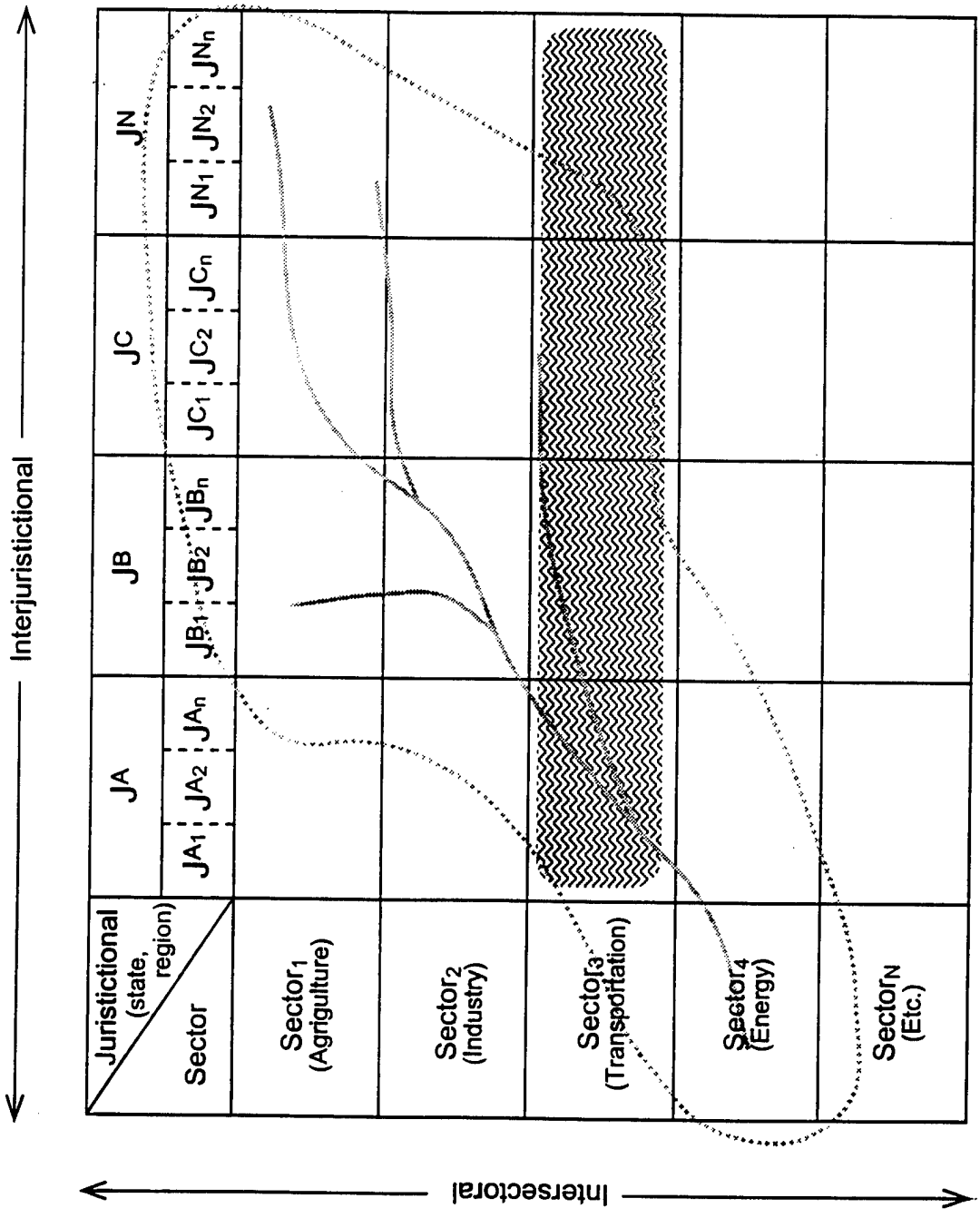


Figure 4. Cross Jurisdictional / Single Sector

likely to become an organizing principle for society. Indeed, there are those who argue that the rise and fall of many civilizations can be traced to their social organization and management of water.

If thought of as a means, it is easy to see water as a factor of production and in utilitarian terms. But as an end water often takes on a sanctity and value beyond utilitarian exchange. Indeed, the West's three main religions; Christianity, Judaism and Islam, were born in the arid middle east environment and water is central to the liturgy of each.

Clearly there is a balance. But this balance point will differ throughout the world. If left unexamined, value assumptions embedded in models of water institutions of humid areas can be disruptive for arid areas.

Techniques and institutions will vary for different sections of the matrix. For example water markets have long existed in subjurisdictions within one sector.(Figure 3) But they are modified as they move out to multi sector use. Our current search for water institutions is being done in the context of increased demands for water even in humid areas.

CHAPTER IV.
HOW TO COOPERATE: A CONTINUUM OF TECHNIQUES AND APPROACHES TO COLLABORATION, DISPUTES MANAGEMENT FOR WATER RESOURCES

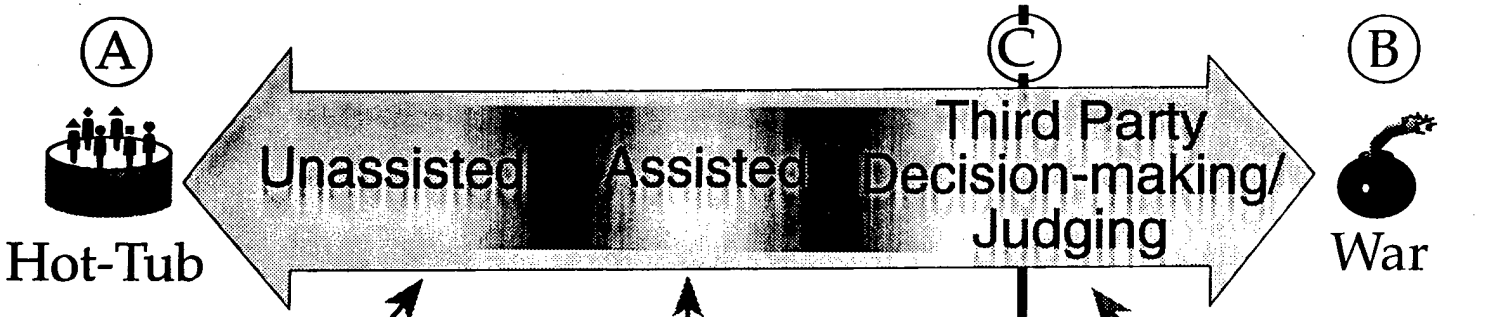
Procedures for collaboration and dispute management can be placed on a continuum of gradually more directive initiatives by the parties toward increased involvement and to interventions by third parties that provide various types of resolution assistance. In Figure 5, Point A represents what some affectionately call the "hot tub" approach. That is, we all jump into the hot tub and somehow agree.[3] Point B represents the opposite extreme; that is, we go to war or use a highly adversarial approach. There are numerous possibilities between these points. The left of the continuum covers unassisted procedures, the middle covers assisted procedures, and the right, third-party decision-making procedures. Most of the procedures have some elements of relationship building, procedural assistance, substantive assistance, or advice-giving as a means of facilitating resolution, but they differ significantly in degree and emphasis.

As we move from point A to point B, we gradually give over the power and authority to settle to outside parties. A dividing line, point C, roughly two-thirds from A to B, shows that point at which power to resolve disputes moves out of the hands of the disputants and into the hands of an outside party.

This is a critical distinction. Fundamentally different relationships and communication patterns are established by procedures to the right as compared with those the left of point C. These patterns are shown in Figure 6.

With third-party decision-making or judging, the primary communication pattern is between parties and the arbiter, panel, or judge. Each party presents a case to the arbiter judge or panel who decides. This pattern holds whether the procedure is binding or not. With assisted procedures, the facilitator and/or mediator seeks to encourage a primary and direct communication pattern between the parties. In this way, the parties can jointly diagnose problems, create alternatives, and own agreements.

Though individuals can do, unassisted, integrative bargaining, as the number of stakeholders in water resources grow, the issues become more complex, and resources dwindle, third- or neutral-party assistance is often needed. Few evaluations exist of interest based negotiations used in water resources. They show how shared interests, which seem obvious after agreement, are hard for parties to discover during negotiations without process assistance. For example, developers, oil companies, and environmentalists discovered that they shared interests of time and money in wetland use conflicts in the southern United States. Developers whose positions were to build unconstrained condos or to do offshore drilling saw that stabilizing building permits over five-year periods could mean assured profit; so too with exploratory oil drilling in the Gulf Coast. Uncertainty of project stoppage was reduced. Environmentalists, whose position was that not another inch of wetland would be used or another estuary endangered, saw that a stabilized permit situation would free their scarce resources, time and money, which could be thrown into



- Conciliation
- Information Exchange Meetings
- Cooperative/ Collaborative Problem-Solving
- Negotiations

Relationship Building Assistance	Procedural Assistance	Substantive Assistance
• Counseling/ Therapy	• Coaching/ Process Consultation	• Mini-Trial
• **Conciliation**	• Training	• **Technical Advisory Boards/ Dispute Panels**
• **Team Building**	• **Facilitation**	• Advisory Mediation
• Infromal Social Activities	• **Mediation**	• **Fact Finding**
		• Settlement Conference

Advisory Non Binding Assistance	Binding Assistance
• **Non Binding Arbitration**	• Binding Arbitration
• Summary Jury Trial	• Med-Arb
	• Mediation-then - Arbitration
	• Disputes Panels (binding)
	• Private Courts/ Judging

* From: More and Delli Priscoli, 1985

Figure 5. A Continuum of Alternative Dispute Resolution Techniques*

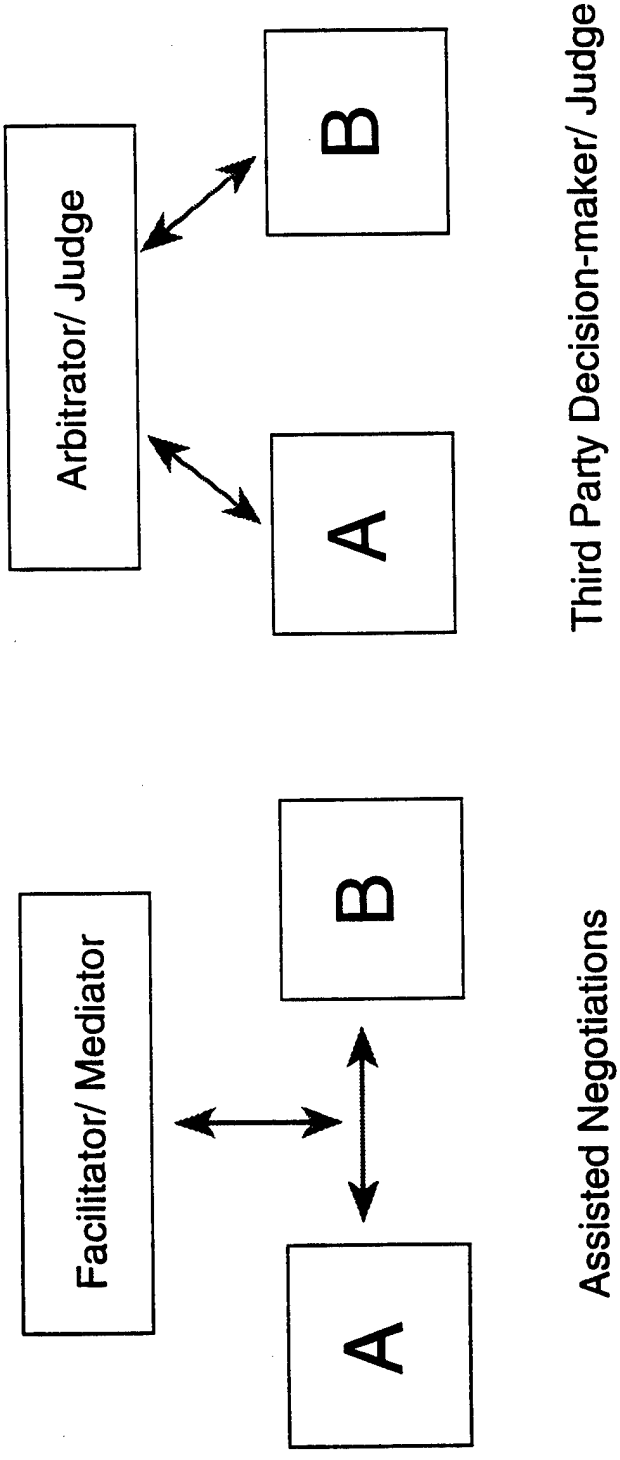


Figure 6. Contrast Betwen Types of Interventions

other priority fights. Though at first skeptical, parties used assisted integrative bargaining to jointly understand their shared interests and reach agreements that allowed them to preserve their values and integrity.[4]

The major premise of these procedures is that, by separating the process of dialogue and the content of dialogue, we can better manage the discussions and promote agreement. This separation of process and content is what leads to the use of third parties, sometimes called "interveners." These third-party facilitators or mediators become caretakers of the process of dialogue in the disputes. It should be noted that some authors have questioned such assumptions because they reflect an underlying Western bias.[5]

Much of the dispute management literature encourages the use of procedures to the left of point C. These procedures, whether done as planning or regulating, emphasize the anticipation and prevention of high-conflict situations. In the United States, the growing experience of litigation, threat of litigation, and processes to the right of point C, are themselves, becoming incentives to move to the techniques on the left. Reviews of hundreds of international mediations describe similar experience. Bercovitch finds that mediations of high-intensity international conflicts are more effective when they follow, rather than precede, tests of strength and that the best time to enter is at points of stalemate and/or exhaustion.[6] Indeed, the willingness to move to the left of Point C is an indicator of social learning spawned by experience of conflict management.

Procedures to the left ultimately allow parties more control over the outcome. These procedures enhance the probability that parties will be able to break through positions and negotiate around interests. The price for these possibilities, direct dialogue, is more frequently being assessed as less painful then the expected cost of highly adversarial battles.

Mediation developed from areas where the number of parties and issues are limited, such as in labor-management negotiations and some international disputes. Facilitation developed from multi-issue/multi-party situations such as resource controversies. However, with the growing practice of environmental mediation the terms and practice overlap.[7] Facilitators are caretakers to process. While they don't have to be outsiders, they must remain impartial to the substance discussed. They suggest ways to structure dialogue, help stakeholders listen to each other, and to encourage creative thinking.[8]

Mediators are generally outsiders to the stakeholders. Like a facilitator, a mediator primarily makes procedural suggestions but occasionally, through caucuses or other means, may suggest substantive options. Some mediators are more "orchestrators" and set the stage for bargaining. Others are more "deal-makers" and are more involved in forging the details of a settlement.[9] Studies of mediations in highly violent international conflicts find that the mediators' active participation in substance and procedure is useful.[10] Mediation can be used in more polarized situations than can facilitation to break impasse and to initiate dialogue. One study shows that from 1816 to 1960, mediations were attempted, on average, every 4.5 months in highly polarized international situations.[11] Indeed, recent reviews of hundreds of international mediations describe a high frequency and high effectiveness of the procedure. Interestingly, mediation has been more successful in security disputes than in primarily ideological and independence disputes.[12]

Once parties begin to prepare and posture as if they will go to point B, they begin an inertia that could create the reality--adversarial battle--they otherwise seek to avoid. Legal rules of evidence and disclosure separate rather than integrate information sharing. Substantive and technical experts, on all sides of the problem, move to the background and are further separated. Fortunes are spent on information gathering to get to a point--litigation--where lawyers spend their time keeping other lawyers from learning what they know!

Similar scenarios occur internationally. Analysts have documented a spiraling of conflict that occurs as parties posture and caricature. Often substantive experts are separated and move to the background behind the political and legal. In tracing the Del Plata Basin negotiations among Argentina, Brazil, Paraguay, Bolivia and Uruguay, Cano describes how negotiation based too much on politics can drive the technical to the background and reduce the chance for success.[13] In the end, most signed agreements were negotiated by the senior technical professionals. United Nations reviews of managing international water resources echo the same point and emphasize the collaboration of experts.[14]

It could be argued that failure of the recent Salmon Summit in the U.S. Pacific Northwest was due, in part, to being convened and driven too clearly by the political. Experts in environmental mediation were used for procedural assistance to bring together representation of a variety of interests. The operating agencies, especially the Corps, became of the focus of controversy. Had the operating agencies convened (with political participation) the sessions and offered the commitment to operate according to a negotiated agreement, if one emerged, the results may have been different. Such an approach was recently used successfully to mediate operations of the Truman Dam on the Missouri River.[15]

Procedures to the left of point C have evolved in multi-party and multi-issue situations. While procedures to the right work better for ripened and polarized disputes, they have limited capacity to deal with multi-party and multi-issue disputes and to encourage the generation of creative options. This is important to water field, where the need is clearly for multi-objective and multi-party agreements. For example, it is also important to policy of international organizations such as the World Bank which, through OD 7.50 tends to emphasize variations of procedures to the right of the continuum, such as expert boards.

Actually expert panels or commissions have been common in the water resources field. For example there are Technical Committees on the Nile, the Euphrates, the Indus and other rivers. Technical committees have been central to working of the International Joint Commission and the International Boundary Waters Commission and a variety of River Basin Commissions in the US and Canada.

Staying on the left of the continuum, Water banking as done in California and now in Texas can be seen as institutional mediation or facilitation combined with market approaches. A mediating state institution buys water from agriculture at a set price and sells it to other users who put a higher value on the water. As a mediating institution the Bank can anticipate and manage third party impacts and transaction cost while still relying on the market.

New software technologies are creating interesting combinations of technical fact finding and facilitation. Software which allows technical and non-technical personnel to jointly build models, in real

time, is now being used in the U.S. for drought contingency planning. These simulations are inexpensive and avoid the often unnecessary expenses of feeding huge models that only 1 or 2 people can manipulate and which often contribute only marginally to decision making. They create a sense of ownership in the algorithm which is used to generate and test sensitivity of alternatives.

Looking to the right of point C, the U.S. has experience beyond court and judicial decisions. For example, State Water masters and water engineers can exercise considerable power over allocating water in arid zones of the US.

Since the 1970s, the U.N. and other international organizations have recognized the need for looking to the left of point C while the trend is to emphasize techniques to the right. The U.N. review of international institutions for managing international water resources called for use of conciliation, mediation, and procedures left of point C. However the same study's documentation reveals that many basin organizations and treaties have a variety of provisions for techniques to the right of point C, such as expert technical panels and forms of arbitration and little elaboration of those to the left.[16] A recent Norwegian analysis of international environment conflict resolution finds "most legal instruments relating to environment lack formal compulsory dispute resolution settlement mechanisms."[17]

However, this may be changing. Article 33 of the recent draft of the International Law Association (ILA), which deals with dispute resolution, encourages fact finding commissions composed of 1 member from each affected state and 1 member from outside affected states. This is similar to the successful model of disputes review boards used on construction projects throughout the U.S. It also suggests a process of disputes management: start with fact-finding then move to conciliation then mediation and finally to arbitration and Judicial settlement.

The search for cooperation over water in the Middle East has included approaches across the continuum. The current peace process includes traditional bilateral negotiations and multilateral negotiations on technical areas of which water is one. The purpose of the multilaterals is to help professionals explore ideas and to support the bilaterals.

Actually the early Johnston negotiations can be seen as a mediation effort by a third party with technical competence and resources. Throughout even acrimonious periods informal "picnic table" talks proceeded. The current multilaterals have used a variety of relationship building and procedural assistance measures. Study tours, joint information seminars and other research by a variety of donors and lenders has dramatically enhanced the dialogue. Both these tracks have been surrounded by numerous other second track dialogues and academic related fora. All of these are activities which fall to the left of point C on the continuum. They are providing an arena for expanded negotiation and even an outlet to keep the peace process moving.

But in the end, incentives become critical. In the Indus the possibility of war (point B on the continuum) in the subcontinent was real enough to motivate use of mediation. While some argue the Middle East is another case, not all cases are so dramatic. However, the awareness of development benefits forgone and damages sustained (such as environmental) due to lack of agreements may become an incentive. This is clearly reflected in growing attempts at multipurpose water agreements.[18]

As the Oslo report notes, development banks and financial institutions will play increasingly important roles in prevention of conflict.[19] Access to capital will require review by international financial organizations, which will generate critical information about transboundary environmental and operational effects of projects. This is particularly true regarding rivers and water resources. The early participation of stakeholders, both intra- and international, will become a necessity for presenting workable plans. Thus, the leverage of financial institutions can become incentive for parties to use procedures on the left of the continuum.

The current intersectoral dialogue and three-way agreement process in California is one of the more dramatic illustrations of seeking to participate, collaborate and prevent further highly adversarial battles over water allocation. Ultimately the stakes are the reapportionment of water use among environmental, agriculture, and urban interests.

Even with a sophisticated system of water rights, laws, technical expertise and articulate public interest groups, California water development has been at an impasse. Going to war, courts and all-out positional bargaining has not worked. The recent drought, coupled with the impasse, raised the stakes of no agreement.[20] The three-way dialogue was developed to look at alternative water futures and to develop a consensus-based framework for future development. It explicitly encourages interest-based negotiation leading to joint solutions.

Similar patterns are developing on the Missouri River and even in humid areas of the United States, such as between Georgia, Florida, and Alabama. Recently, formal mediation was used to reach agreement on the operations of Truman Dam on the Missouri. The Truman Dam had generated controversy since it went on-line in 1981. Hydropower interests sought increased power generation and were being thwarted by environmental interests seeking fish and wildlife protection, and by landowners seeking to reduce downstream effects of pool fluctuation. The Corps, authorized to operate the project, was challenged no matter what approach they took. Therefore, they convened a mediation process that involved representations of all the stakeholders, including senior political officials. Once again, part of the incentive was impasse. Another part was the possibility of designing an agreement. The mediator designed an interest-based negotiation, which produced an agreement that no one party had thought of before the process. It included new hydropower units and preservations of in-stream values.

Donors and lenders have adopted procedures both to the right and left of point C as the continuum of procedures. For example, the World Bank recently formed its first expert Board under OD 7.50 to examine the international aspect of a dam project involving Somalia and Ethiopia. Neither country expressed much procedural or psychological satisfaction with the process, which is often the case with procedures to the right of the continuum. However, on the Komati between Swaziland and RSA and on the Orange between Lesoto and RSA, the Bank adopted a more advisory role, similar to conciliation and team-building procedures on the left of continuum.[21] Using UNDP financing, the Bank assisted Swaziland in preparation of its plans. The process has resulted in two draft treaties now undergoing ratification. One would set up a technical advisory board, and the other, cost-sharing arrangements for two projects.[22] On the Lesotho Highlands Water Treaty, an agreement was reached between RSA and Lesotho to create two national authorities and a permanent Joint Technical Commission to build and operate a multipurpose water project. While they agreed on how to define benefits, the lack of hydrological data made it difficult to

agree on annual yields of the project. So a contingent agreement was used. The parties agreed on the data that would be collected, who would collect the data, how to resolve disputes about the data, and how the benefit of the project would be calculated.[23]

Substantive assistance and third-party judging techniques are probably closest to many donors and lenders traditional role and self-image. After all, as lenders they must evaluate according to some criteria. Also, institutions such as the Bank are centers of expertise. However, as the Orange and Komati basins show, more than these techniques are likely to be needed. Water Resources allocation are likely to demand the use of facilitation and mediation techniques, and the question will be how and who?

Do the substantive expert roles (and images) conflict with potential process roles for donors and lenders? The multi-party/multi-issue facilitating approach says that reaching agreement to a point becomes more important than the substantive terms of agreement. It is not necessary to abandon all notions of objectivity to play the role. However, in such roles in lenders and donors must become less deterministic. They will need to accept the process and the possibility of agreements that they would not choose by traditional methods as long as the agreement is within some broadly defined professional bounds. The question is, what rationality will determine what bounds? Typically, professional engineers, lawyers, and economists and others begin with narrow notions of bounds, but given the inherent uncertainties of water management, will ultimately admit that the bounds are usually far wider and less determined than originally thought. The water resources field has traditionally resisted placing bounds of probability on BCR ratios and on the projected accruing of those benefits.

The willingness to be flexible and accept agreements crafted by the parties can be enough to legitimize a procedural assistance role. It may even encourage subsequent substantive assistance in response to parties' needs.

Even if donors and lenders adopted the flexibility described above where situations called for it, do their development objectives (or interests) conflict with the capacity to either catalyze or perform facilitation and mediation? Process theory is not built on the idea of value-free objectivity, but rather on the social/psychological notion of role clarification and the process and content distinction.

The reason process assistance can work is that it liberates parties to engage in content without simultaneous procedural posturing. The process assistance has a value bias--trying to help the parties reach agreements. There is a value that agreement would be good to achieve. To the degree that donors and lenders are advocates for a particular substantive agreement or alternative project configurations, it could not effectively play a procedural assistance role.

To the degree that they feel agreements are needed but are open to a variety of alternative approaches, including the "without project" option, they can play an assistance role. Indeed, in the Indus, once the Bank moved away from its preferred option to facilitating joint options among the parties, its assistance role became more effective.

We usually think of moving from the left to the right of continuum. But the Indus experience can be seen as a movement from right to left. The first intervention for arbitration was rejected. Then the Bank

initially intervened and offered its preferred solution. This was both a procedural and a substantive role, but also had strong elements of a third party expert judging role--to the right of point C. After parties rejected this initial solution, the Bank adopted clearer procedural and substantive assistance roles--to the left of point C. India and Pakistan became more engaged in the creation of options. Once an agreed solution was produced, the Bank expanded its procedural assistance role and worked with other funding sources to facilitate the implementation of the agreement.[24]

The fact that the Bank had financial resources and the capacity to generate resources was crucial to the intervention. In studying violent international conflict, Zartman and others make the same point: effective mediation in international relations is greatly dependent on the ability to command resources.[25] Other international water resources cases confirm this experience. For example, UNEP funds were used as incentives to reluctant countries to participate in developing the Mediterranean Action Plan[26] and to help establish a working group of experts to develop the Zambezi Action Plan (ZACPLAN).[27] The Vatican used it resources of moral authority and confidentiality to promote agreement on the Beagle Channel.[28] The Italians, through ITALCONSULT, brought resources to study dangers of unconditional national projects (or BATNAS) for Riparians in the Niger Basin, which provided a common reference and substantive basis for subsequent agreements.[29] On the Nam Ngum project, United Nations and other donor financing provided a feasibility study and mobilized construction grants among adversarial riparians for mutually beneficial endeavors.[30]

CHAPTER V.
HOW TO COOPERATE: DISPUTE MANAGEMENT AND WATER RESOURCES INSTITUTION BUILDING

In talking of regional water cooperation and management, three important characteristics should be highlighted. First, water does not hold still for labeling, fencing or jurisdictional boundaries. This make it difficult for water resources to be subjected to property rights and only the somewhat limited usufructuary right is normally possible. Second, water is highly variable in time and space. Variability compounds the challenges of building cooperative regional management institutions since water flows are uncertain. Third, forming water institutions is almost always done in a broader social context and in light of previous allocation agreements.

The debate over building water organizations can be characterized as a dialectic between two philosophical norms; one, the rationale analytic model, often called the planning norm, and two, the utilitarian or free market model, often couched in terms of privatization. Each of these caricatured norms implies different visions of how water institutions should change.

The rational analytic view will begin with some explicit holistic notion of the resource and criteria for its use which should then guide subsequent action. This norm can be driven by grand MOP engineering design, holistic ecological systems theory, or other regional designs, many of which conflict. The norm usually leads to a high degree of explicit or conscious design. The market norm sees institutional arrangements emerging from spontaneous interaction of self-interested parties that reasonably conform in some way to Pareto optimality. This norm usually leads to less-conscious design and a more hands-off approach. The rationale analytic emphasizes concepts of water scarcity and public participation in technical decision-making processes. The market will emphasize individual freedom and public participation through buying and selling in markets.

Forming water institutions is almost always done in a broader social context and in light of previous allocation agreements. Processes used to solve redistributive issues rarely fit with rational analytic and rational choice models. Water planning is as much flexibility and managing uncertainty as discerning deterministic trends. Therefore, our experience lies between these extremes.

In the United States, numerous presidential commissions have tried unsuccessfully to establish national water policy. During the 1970s an elaborate institutional and analytical procedure evolved, only to be abandoned as its implementation was beginning. To a great degree, this structure was based on river basins and was fueled by rational analytical notions. It encouraged high-level intersectoral planning and autonomous operating levels. A mini-analytical rapprochement among engineers, social scientists, and ecologists was achieved in the form of two planning objectives and four accounts.

In the 1980s the United States approach moved toward the market norm. National economic development was effectively established again as the prime objective, with environment as a constraint, usually articulated through regulatory policy. New private-public partnerships, called cost sharing, emerged. Attempts were made to use more realistic pricing--closer to marginal costs--for water through

a variety of water market mechanisms. In light of the movement away from planning, recent surrogate rationale analytic planning is emerging through the environmental regulatory structure.

In Europe, the British moved from a public river basin planning model to far more privatization. While the river basins were smaller and were operated for fewer purposes, the system also has national regulatory oversight. Since the 1970s the French have operated a river basin system that falls somewhere closer to the center of these extremes. The major basins have committees that include representation by industry, environment organizations, and the general public. These committees, which formally represent users and are financed through pollution charges, set priorities for users over a period of 20 to 25 years.[31]

As in the United States, the EC has begun to move from single to multipurpose orientation of its river basin organization, such as the Danube and Rhine. However, the focus is far more on planning and coordination and then on allocative authorities.

Figure 7 describes a variety of institutional mechanisms and a continuum of options ranging from low allocative power/authority to high allocative power/authority. To the left of the continuum is represented allocative action based solely on individual national autonomy. To the right, the continuum represents regional, comprehensive authority for decisions in the water resources field. Moving from individual autonomy towards regional authority, a variety of approaches are noted: individual studies, regional study centers, treaties, conventions, and river basin authorities up to comprehensive regional authority. As water professionals have begun to understand water flows in light of increasing economic development, interdependence, sustainability, and population growth, the realities of the water resource push us from the left to the right of this continuum. On the other hand, legitimate and important political realities generally resist such regional notions driven by natural resource conditions.

Few comprehensive regional authorities have come into existence. The Tennessee Valley Authority is one outstanding example. On the other hand, a variety of river basin authorities have existed and do exist, along with treaties and numerous regional centers. The allocative power/authorities of water resource agencies can also be thought of as moving from low levels of planning to higher levels of allocation operation and revenue generation. Regional and comprehensive water basin authorities, while they exist, tend to be primarily concerned with planning. Those empowered with higher levels of allocative power/authority tend to focus on single purposes such as navigation. Few comprehensive authorities that cross jurisdictional boundaries exist for allocation and operating.

Nevertheless, our knowledge of water resources is pushing toward a vision of developing ways and means for comprehensive analysis and operation so we can better integrate uses. It is also calling us to integrate resources management across jurisdictions. As we begin to reach the limits of use, the flexibility of our organizations to respond to water flow fluctuations becomes crucial. This flexibility is most needed to provide new forums for dealing with political tradeoffs which cross both time and space. Nitze also notes that flexibility has been central to negotiating international environmental regimes.[32]

To many water professional the realities of water flows in light of increasing economic development, interdependence, sustainability and population growth, seem to push us from the left to the right of this

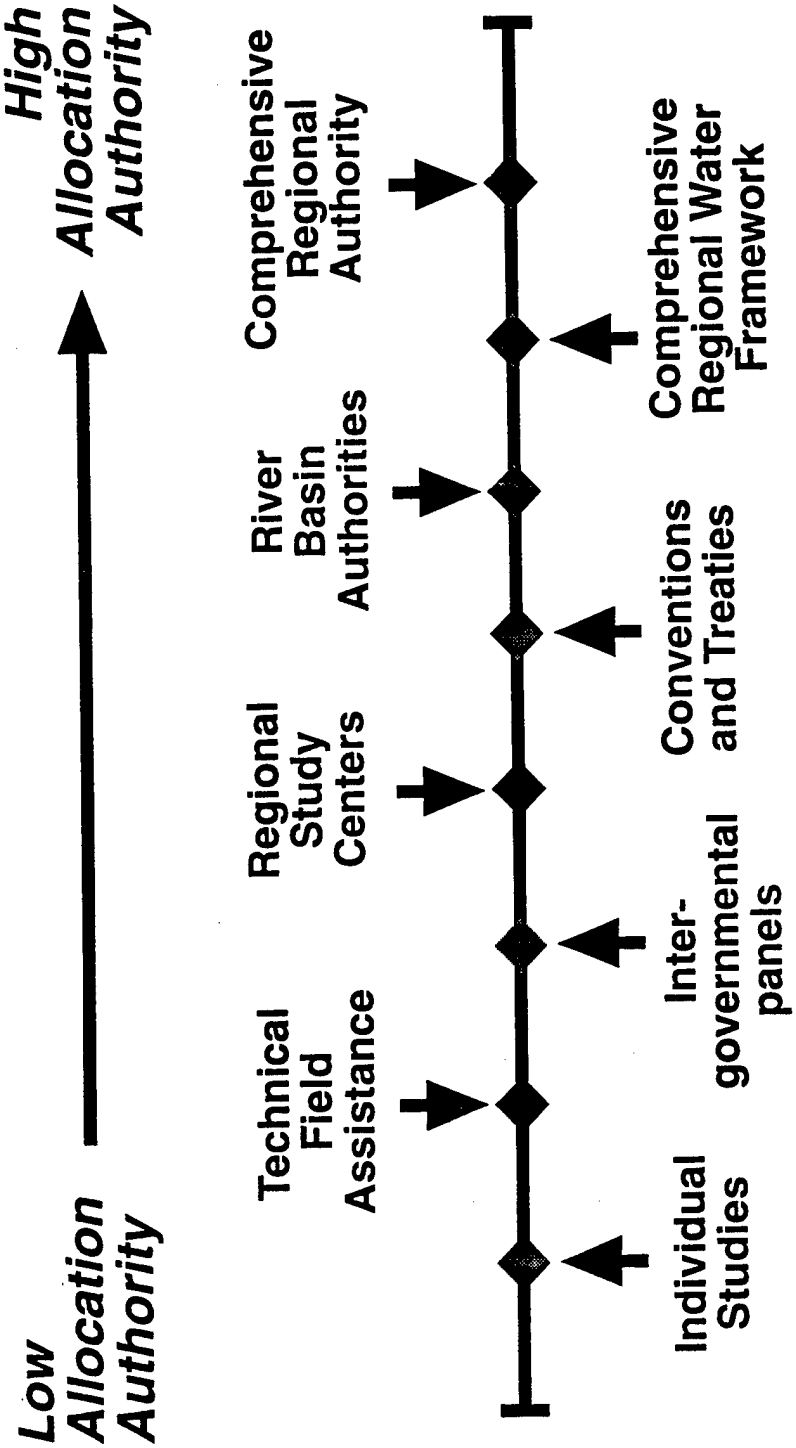


Figure 7. Options for Water Management

continuum. On the other hand, legitimate and important political realities generally resist such regional water management notions.

As we begin to reach the limits of use, the flexibility of our organizations to respond to water flow fluctuation and to accommodate future uses becomes crucial. Indeed, flexibility has been central to recent successful negotiations of international environmental regimes.

The allocative power/authority of water resources agencies can also be thought of as moving from low levels of planning to higher levels of allocation, operations and revenue generation. Regional and comprehensive water basin authorities, while they exist, tend to be for planning, rather than for operations, construction or legal oversight. Those empowered with higher levels of allocative power/authority tend to focus on single purposes such as navigation. Few comprehensive authorities that cross jurisdictional boundaries exist for allocating and operating.

1. Some North American Experiences

The United States has, in some degree, employed approaches across the continuum. In the United States, we operate under two major systems of water rights: riparian rights in the East and prior-appropriation in the West. The quantifying of Native American tribal rights and their integration into these systems is becoming more important. The asequea system found in the Southwest is one of a few hybrids which might interest this group. It was inherited from the Spanish, who brought it from the Arab world.

In the U.S., water comes under state sovereignty. However, there are major Federal interests affecting water distribution and use. In fact, one of the U.S.'s earliest court decisions confirming the power of the Federal Government to regulate commerce involved water navigation. Beyond interstate commerce, the Federal control over water has been established in a variety of areas, such as for emergencies, flood control, irrigation, public health, environmental, fish and wildlife, and others. Many of these interests have been institutionalized in numerous Federal agencies, which presents a formidable coordination task.

Complex formulas for the mix of Federal and state money in water resources development have evolved for different project purposes and water uses such as flood control, navigation, recreation, water supply for irrigation and M&I, hydroelectric power, etc. Indeed, the debate around these formulae constitute one of the principle bargaining arenas for water cooperation. During the 1980s, the movement has been to reduce the Federal role and to enhance the state and private sector roles in water resources development. There has been a reduction in Water development and a greater emphasis on management of existing facilities and projects. The Federal regulatory role, especially for environmental purposes, has in many ways become the focal point for regional cooperative planning. However, many observers are now looking again at the need for coordinated water development.

During the 20th century, 7 types of arrangements have been tried: interstate compacts; Federal-interstate compacts; Interagency committees; ad-hoc coordinating committees; River Basin Commissions; Intrastate special districts; and the TVA comprehensive authority. The early 20th century was dominated by two approaches; interstate compacts (which can be seen as a parallel to treaties among states), and

adversarial court cases. These agreements suffered from the illusion that allocation could and should be permanent. However, as population has shifted, native American tribal demands have grown, new (especially instream) uses have appeared, allocations under compacts have proven too inflexible for management. They are not conducive to taking advantage of the variability in the hydrologic system. Generally the challenges to the compacts have been the impact of upstream developments (and future dreams for such development) on the apportionment to downstream states.[33]

In the 1980s, the United States approach moved more toward market norms. National economic development was effectively established again as the prime objective, with environment quality as a constraint, usually articulated through regulatory policy. New private-public partnerships and cost sharing formulas emerged. Attempts were made to use more realistic pricing -- closer to marginal costs -- for water through a variety of water market mechanisms. But at the same time, the importance of environmental restoration and wetland management also grew.

As we enter the 1990s, the need for new modes of interstate cooperation, in both humid and arid areas grows. Reliance on court judgments has proven too expensive, inflexible, time consuming, and "locked" into precedent to realistically meet new needs. Indeed, even the U.S. Supreme Court has noted the importance of doing planning for future water uses and information sharing as a prerequisite to adjudication. It seems that the U.S. is entering a new era of innovation in ways to get old institutions to adjust to new realities.

Various basins and regions such as the "Georgia-Alabama-Florida water wars" are turning to new assisted negotiation techniques such as facilitation and mediation. In response to drought, riparian states on the Missouri River are seeking new forms of coordination and some are calling for a return to a river basin commission. Other areas such as the Southwest and California are turning to Water Banking, marketing and new forms of pricing. We will hear about some of these in a moment.

(A) Three US Cases

As in the past, crises, such as drought, precipitate action in both humid and arid regions. Let's look at regional cooperative responses in three basins and their institutional arrangements; the Potomac, Delaware and Colorado Rivers.[34]

In the early 1920s, drought in the Delaware Basin produced allocation conflicts. States initially tried to solve these through judicial remedies. However, judicial formula were too inflexible and technically inadequate. States began to recognize that enhanced technical capacity such as information generation and sharing and analysis was necessary in the hydrological system, if they were to move to a "positive-sum" negotiating environment.

Droughts in the 1940s resulted in more judicial rulings which established equity principles but still were inadequate for management during droughts. This led to forming the Delaware River Basin Commission (DRBC), in the 1960's, which provided a decentralized institution within which to negotiate. It also enabled the states to draw upon its newly instituted technical staff. In subsequent droughts, the experience of negotiating within the DRBC framework and equity principles has increased the legitimacy

of this technical staff. As a result, the quality of contingency plans has increased and a good faith agreement among states has been signed in the early 1980's.

Like the Delaware River Basin, the seven states around the Colorado River Basin also attempted to use the interstate compacts process. Starting in the 1920s with a basic apportionment, subsequent Federal and State statutes, inter-state compacts, court decisions and decrees, international treaties, operating criteria and administrative decisions have come to be called the "law of the river." From the 1920s to the early 1980s, the Federal Government has acted as a catalyst to agreements around the Colorado. It has made development funds conditional on apportionment agreements.

Since the 1970s, a new era which de-emphasizes structural solutions and emphasizes wise use and conservation has emerged. The absence of some institutional forum like the DRBC has led to a new emphasis on interstate marketing. However, it, too, is fraught with problems; not the least of which is that upstream states are concerned that agreement to use of their allocated water could eventually lead to arguments that they do not need their allocation. Also the basin lacks an equivalent to fulfilling the information provider role such as the DRBC staff.

The Interstate Commission for the Potomac River Basin (ICPRB) was also formed, in large part, because of needs for drought contingency planning. For a long period numerous dams were proposed. However, only one major new dam has been built. The remainder of supply is provided through negotiated agreements among the states and Federal district.

The ICPRB demonstrates the influence of data and technical analysis in facilitating cooperation. It has no power other than to gather data and to convene discussions among basin states. Through the use of professional staff and interactive computer approaches such as STELLA, ICPRB has built its technical credibility. Now it manages a "real-time" river monitoring process which provides hourly flow projection data and a structure for the riparian states to discuss their responses to that data. Once a year it facilitates a series of drought contingency simulations for the river. In generating information and analyzing data in this way it has become the key agent facilitating flexible agreements among the states. And it does this with little mandate other than to help gather and disseminate information.

(B) Canadian experiences

The Canadian Prairie Water Board (PWB) is another example of institutional collaboration falling to the right of the center of the continuum.[35] It monitors flows, provides oversight on water quality, advises on Dispute, uses fact finding and technical committees. It is build on a master agreement among the Canadian Prairie provinces of Alberta, Saskatchewan and Manitoba. Within the context of this master allocation agreement, bilateral agreements have been reached by provinces. Each jurisdiction manages their own water in inside their jurisdiction. The PWB monitors flow at the borders.

PWB offers some important lessons. It operates by consensus. It maintains strong technically credible support. It is flexible and its rules can be redefined as it grows. Requirements are defined at the borders of jurisdictions. It starts with a master agreement on apportionment and then moves to bilateral agreements. Dispute resolution mechanisms are defined. It facilitates information exchange. Many of

these lessons are echoed in the DRB, ICPRB, IJC and IBWC. Indeed, a similar process is underway on the Mackenzie river.

(C) U.S.-Canada: U.S.-Mexico

The two North American border commissions, IJC and IBWC, can be thought of as being just about at point C on the continuum.[36] Both emphasize their technical objectivity in their attempts to facilitate dispute resolution. Both started with narrow technical focus, IBWC more than IJC, but have been under steady pressure to expand their scope. Much of the pressure now comes from trans-jurisdictional groups advocating new environmental claims on the waters. The IJC is more of an appellate, review and regulatory board because it is mandated to resolve differences. It also has more of a public access orientation than IBWC. IBWC is made up of two national sections each headed by a national commissioner who must be a licensed engineer. Each have an executive staff. It has adopted a low key mediating approach and nurtures a reputation for neutrality and expertise. It is now under pressure to become more activist and to increase its attention to urban and environmental issues and to broaden public access.

2. Other International Cases

There are many other international examples of regional institutions which cross the continuum. In Asia, between the center and point C of the continuum, the Indus river and its permanent commission has already been mentioned. After 1977 a Joint River Committee was established for the Ganges.[37] Among other mandates it seeks to resolve disputes. Its main emphasis is to use Joint Expert Committees. These committees have equal numbers of Indians and Bangladeshis. Unlike other expert commissions, such as now suggested in the current ILA draft, these committees do not include a neutral party from outside the region.

Also in Asia, the Mekong commission, roughly at the same point on the continuum as the Indus Commission, has continued deliberations even during periods of conflict.[38] Like many other river basin organizations, it started with a permanent advisory board of professional engineers. About 25% of its expenditures ($44 million seed and $800 million attracted investment) are for data gathering and feasibility studies. Among its achievements are twelve tributary projects providing 210 megawatts of power and supplementary irrigation for 200,000 hectares, flood protection, pump irrigation, agricultural research and extension, fisheries and river navigation. However, as Kirmani notes the Commission suffers from weak sense of ownership among the parties of the region. It has been too dependent on external staff and support.[39]

In South America a Coordinating Intergovernmental Committee (CIC) was established for the La Plata Basin which helped prepare the treaty of La Plata Basin.[40] This arrangement can be seen as near the center of the continuum. The CIC responds under a conference of Foreign Ministries. Numerous binational entities and technical commissions have been established for the survey, design, construction and operation of various water works in the Basin. In practice, the institutional machinery has not worked well.

CHAPTER VI.
WHAT TO DO: CONCLUSIONS ON INSTITUTION BUILDING FOR COOPERATION AND DISPUTE MANAGEMENT IN WATER RESOURCES

So what does this experience tell us? Water resources institution building for collaboration and dispute management is forcing us to reexamine our notions of interdependencies, independence and security. One traditional way to look at interdependence is that it would increase vulnerability of jurisdictions to one another.

An alternative way is to look at interdependencies as networks which will increase our flexibility and capacity to respond to exigencies of nature thereby reducing our vulnerability to events such as drought and floods and thereby increasing security.

This alternative view may strike at deeper primordial instincts than we might imagine. It goes to the root incentive of humans to become tool makers and engineers to build predictability and safety into what was often experienced as a harsh environment. It also plays into fundamental beliefs found in most major religions. Namely that in sharing our vulnerabilities we find strength.

I think we should be able to discern patterns in water resources negotiations and cooperation. For example look at a short term reactive pattern: There is a precipitating event (drought or flood); study; data gathering; general agreement on allocations or principles by treaty or court; specific agreements by jurisdictions; implementations by subjurisdictional entities. Or look at gradual or long term growth pattern. Functional necessity creates limited purpose organizations such as for transportation gradually being pressured to expand across sectors and to include new actors representing new interests.

We have learned that water institutions must include multiple purposes for water, include participation of impacted groups and users, improve realistic pricing of water, encourage integrative (win-win) as opposed to distributive (win-lose) bargaining, be flexible to react to short-term events but provide a stable mechanism for long-term visions, encourage meaningful allocation across sector interests, but also efficient use at operating or retail levels, be driven also by nonmarket (instream) ecological values, and stay within reasonable bounds of distributive equity.

We have also learned that building institutions for cooperation over water takes time, frequently it starts with information exchange, agreements continue to evolve after initial institutional frameworks, the availability of credible technical assistance can be critical to facilitating cooperation, and the more flexible and simple the better chance for cooperation.

Interjurisdictional and cross-sectoral issues will become more critical to development generally, and to water investment specifically, especially on complex MOP projects. Experience indicates that the key to successful MOP projects will be the early generation of creative alternatives and facilitating a sense of ownership among stakeholders in both the alternatives and the process by which the alternatives are

generated. Waiting to react to a few detailed and narrow alternatives or until a dispute ripens means acting too late. The alternatives become hardened positions. At this point, the process options--usually on the right of continuum--have limited ability to go beyond splitting differences and offer little hope for generating creative options. It will be in a donor's or lender's interests for early and meaningful collaboration and participation to occur in projects they will be asked to finance. The probability of implementation will increase, transaction costs will go down, the opportunities for future cooperation will go up, and the security of investments will be improved.

Building institutions for regional and interjurisdictional water resources cooperation takes time. It can start at any point on the continuum and need not end at the far right to achieve coordination which brings significant water resources benefits. Frequently, the path to cooperation starts with information exchange. However, agreements on allocation and sharing are not absolute they continue to evolve after establishment of initial cooperative institutions. The institutions provide a secure context for negotiations. Experience shows how credible technical assistance can be critical to facilitating cooperation. They show that the more flexible and simple the better chance for cooperation.

Our knowledge of water resources is pushing toward a vision of developing ways and means for comprehensive analysis and operation so we can better integrate uses. It is also moving us to integrate resources management across jurisdictions. As we begin to reach the limits of use, the flexibility of our organizations to respond to water flow fluctuations becomes crucial. This flexibility is most needed to provide new forums for dealing with political tradeoffs which cross both time and space. Indeed, flexibility has been central to recent successful negotiating of international environmental treaties.

Comprehensive planning can provide a "cloak of professionalism and objectivity and potential information useful in identifying the stakes of those not well represented and in the design of more equitable plans." However, the essence of river basin management becomes the process and management of facilitated bargaining among stakeholders.

One major participant in the ebb and flow of water institution in the United States offers a useful perspective.[41] He notes that, to a great degree, the river basin management concept has been driven by a rational analytical model as seen in the use of words such as "coordinated" and "comprehensive." While this model might provide an ideal, no matter what shape it takes, it does not fit reality. The reality of river basin management goes beyond notions of unified administration and rational analytic models to one of facilitated dialogue and negotiation among stakeholders in the basin. It leads to cooperation and integration, not just coordination. Rogers notes, "Approaches based on game theory . . . ranging from pure conflict to pure cooperation do not directly yield norms for decisions regarding conflicts found in international river basins . . . consequently the field has relied increasingly on process oriented approaches."[42]

After examining cases of international environmental negotiations, Oran Young, a prominent theorist in international organizations notes that building international regimes for natural resources management requires conscious design efforts beyond spontaneous intervention. He notes that "institutional design emerges as a process of steering complex bargaining toward coherent and socially desirable outcomes."[43] Among the more important lessons for success are to seize windows of opportunity that are often

exogenous to the bargaining process, to go beyond traditional distributive (positional) bargaining to integrative bargaining, to mobilize leadership, and to simplify implementation. This analysis and prescription of practical experience reflected above are the main messages of assisted negotiation and the ADR field.

We have learned that the role of technical information is critical to eventual legitimacy and acceptability. Technology is clearly a transforming agent. For example as satellite data gathering makes us less dependent on ground truthing, the amount of water data treated as secret is likely to reduce. New information software now can facilitate dialogue among technical and non-technical personnel and allow real time joint model building.

As water issues become more prominent, the gray area between technical and political will expand. However, the fact that water professionals share a common technical language across jurisdictions will contribute to more than water negotiations. It will help more general relationship building.

New interjurisdictional actors who represent new claims on water use are emerging to add to growing claims of traditional uses.

CHAPTER VII.
WHAT TO DO: SUGGESTIONS

In our international system, which lacks a strong compliance structure and needs incentives, International lenders such as the World Bank, have comparative advantage in many of the areas experts have identified as critical to forging international and interjurisdictional cooperation.

While lenders and donors certainly cannot solve all the world's problems, they can assume a leadership role in encouraging and facilitating early collaborative and participatory efforts among parties that would otherwise conflict. If the experience of the industrial world is any indication, this facilitating role could be the key leadership role for the Bank in water resources. Not to assume such a role risks contributing to fragmentation among water users through a project-specific and single-purpose lending framework. It also risks making the Bank look like an unequitable bestower of political benefits. But more important, as happened in the Ganges, opportunities for broader basin wide arrangements could be lost--and that would be a great cost. The following suggestions are offered.

1. In situations of potential or ripened intersectoral and/or transboundary conflict, the lenders and donors could ask for assessments of the costs to interested parties of no water management agreements.

2. Lenders and donors could encourage and support discussions of alternative water futures among interested parties in the early stages of project development and/or intersectoral policy development.

3. Lenders and donors could support early participation of major stakeholders, NGOs (beyond only environmental NGOs), those impacted and others, at the intersectoral levels of water assessment. Indeed the World Bank's new water policy paper has called for such intersectoral dialogue. This means going beyond public information programs to active engagement of interests in the formulation of options.

4. Lenders and donors could go beyond the emphasis on expert panels and actively encourage the early use of facilitation and mediation in the formative stages of water projects and water assessments.

5. Lenders and donors could support the development of technology for the use of public access data bases in those countries seeking significant water resources loans. As many experts suggest, the Bank should also encourage and support the use of interactive software as means to describe water futures, trade-offs, and BATNA.[44]

6. Donors and lenders could do a quantified vulnerability analysis of present and expected water-related investments performance where intersectoral and transboundary conflict and potential water scarcity are involved. One way to accomplish this could be through river basin study groups, as Rodgers suggests.[45]

7. Much useful research needs to be done in this area. Lenders and donors could support and/or participate in research such as the following:

A. Studies of international water resource agreements which analyze how agreements develop and what the internal and external conditions are for their success.

B. Studies of the actual operations of disputes clauses and assisted negotiations under current water resources agreements and RBOs.

C. Studies of the reasons for past successes and failures of international water resources dispute management; especially the operations of disputes clauses and joint technical committees.

D. Research that relates methods of managing conflicts to the types of water resources decisions we are likely to take. For examples, how do regulatory versus planning versus free market versus assisted negotiation approaches affect water resources decisions such as design, implementation, construction, operations, and maintenance? Who is involved at what levels in these decisions? How successful have we been in looking at the social utility functions of each? What does each approach tell us about equity, efficiency, and fairness? How does each approach generate options and trade-offs?

E. Studies that integrate theories from a variety of disciplines, such as community-building, international negotiations, alternative dispute resolution, and multiple objective planning in water resource management.

F. Studies that examine the role of current international lender and donor institutions. To what degree may they become more facilitators of agreement as opposed to evaluators and/or designers of solutions? In what ways can those institutions that deal with water improve their behavior so as to help prevent conflicts?

G. Research studies that discerns how our water resources experiences--namely, whether we live in humid or arid areas--in turn affects our perceptions and how such perceptions, in turn, affect both our own policies and those policies we may recommend for others.

H. Research studies to assess and to describe where and how intra- and international-state water issues could threaten political and social security.

8. Donors and lenders should start thinking about funding the development of regional and transnational organizations for activities which do not threaten jurisdictional authority.

9. Similar to what was suggested in the 1967 Water for Peace program, countries could think of building a pool of international water resources civil servants.

10. Find and build on indigenous and grass roots traditions of collaboration and dispute management in water resources.

ENDNOTES

1. See Delli Priscoli and Moore 1988
2. See Axelrod, Roots of Cooperation, 1988.
3. Moore and Delli Priscoli 1988
4. Delli Priscoli 1988
5. P. Salem, "A Critique of Western Conflict Resolution from a Non-Western Perspective," Negotiations Journal, October 1993, pp. 361-369.
6. Bercovitch 1986
7. Bingham 1986
8. Moore and Delli Priscoli 1988
9. Moore and Delli Priscoli 1988
10. In Bercovitch 1986
11. In Berkovitch 1986, p. 157
12. In Berkovitch 1986, p. 162
13. Cano in Vlachos and others 1986
14. United Nations 1975
15. Moore 1991
16. United Nations 1975
17. Trolldalen 1992, p. 7
18. Vlachos 1991
19. Trolldalen 1992, p. 7
20. Peabody and others 1991
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31. Oliver 1992

32. Nitze 1991

33. Ideas from private correspondence with Jay Stein

34. The Colorado and Delaware discussions rely on W. Lord, 1992.

35. This discussion uses D.A. Davis 1993.

36. Mumme, 1993.

37. USAID, 1994

38. The discussion draws on K.A. Edwards, 1993.

39. Kirmani, 1990.

40. K.A.Edwards, 1993.

41. Allee 1989

42. Rogers 1992

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13. ABSTRACT *(Maximum 200 words)*

My objectives for this paper are to link water resources institution building to theory and process of conflict resolution and collaboration. To do this, I will use concepts from three fields: water resources management, Alternative Dispute Resolution (ADR), and; international relations.

In looking at how water resources institution building and dispute resolution mix, I will address the following three questions:

(1) Why cooperate: Some trends pushing toward cooperation
(2) How to cooperate: Perspectives on processes and institutions
(3) What to do: Some suggestions to the water resources community.

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