LESSONS LEARNED FROM TRANSBOUNDARY MANAGEMENT EFFORTS IN THE APALACHICOLA–CHATTAHOOCHEE–FLINT BASIN, USA

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Abstract: This paper serves as an example of transboundary water negotiations – what worked and what failed – in the three state conflict in the southeastern United States. The states of Alabama, Florida, and Georgia have been involved in water negotiations since about the early 1970s leading to some successes and some failures. This paper summarizes these experiences with the intention of providing generic "lessons learned" on multi-jurisdictional negotiation.

Keywords: southeastern United States, lessons learned, policy/political/ technical aspects of negotiation

1. Introduction

The Apalachicola–Chattahoochee–Flint (ACF) drainage basin is a 50,000 km^2 basin located in the southeastern United States (Fig. 1). Average flow at the mouth of the watershed is about 700 m^3/s. Figure 2 shows the variation of average monthly flow over the course of the year. The waters of the ACF basin are used and managed for multiple purposes including water supply, waste water dilution, hydropower production, commercial navigation, recreation, flood control, and sustaining and harvesting natural resources.

Only the Chattahoochee River has the capacity to regulate flow through storage reservoirs, although there is a reservoir with very limited storage at confluence of the Flint and Chattahoochee rivers. Although some of the reservoirs in the basin are operated by private

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interests such as the Southern Company, virtually all of the reservoir storage capacity is at federally operated reservoirs. Because of the limited storage capacity relative to flow in the basin and the fact that about 2/3 of the storage capacity of the river is located in the upper Chattahoochee Basin above metropolitan Atlanta, the ability to store flood waters and augment flows during periods of drought and low flows is relatively limited in comparison with many other watersheds in the United States. Weighted average rainfall in the basin is about 135cm/year and rainfall tends to be greatest in the winter and summer, and least in the fall.

Figure 1. The ACF basin

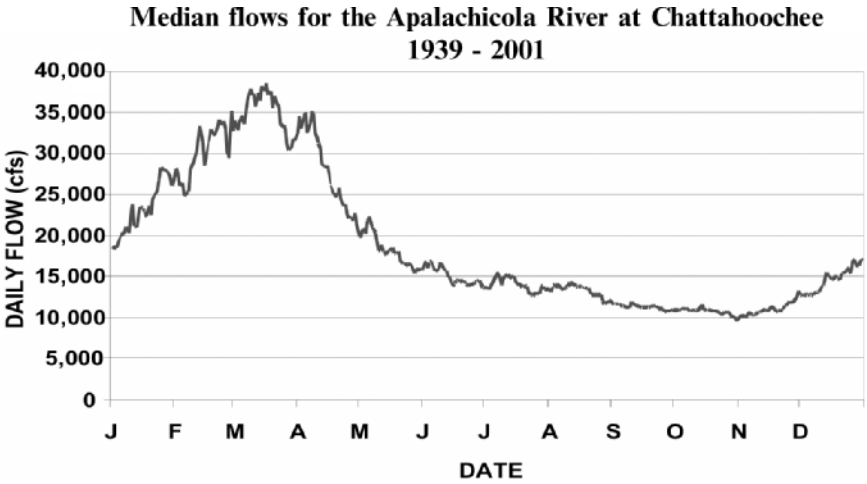

Figure 2. Median flows on the Apalachicola River

The major political entities in this watershed are the states of Alabama, Florida, and Georgia, the federal government and the Atlanta metropolitan area. About 75% of the basin lies in Georgia, 1/8 in Florida and 1/8 in Alabama, so consequently the flow in the downstream portion of the basin (Florida) is defined by rainfall patterns, usage and upstream management in the upstream portion of the basin.

The management goals of the major political entities vary in a predictable manner. As an upstream state, Georgia's management interests are based on maximizing withdrawals for users within the state and keeping storage reservoirs full to support withdrawals in periods of drought and provide for water-based recreation at other times. Georgia is also interested in hydropower production and commercial navigation (which is dependent upon channel depths in the Florida portion of the river).

The metropolitan Atlanta area is the largest metropolitan area in the basin and it wields enough power in both the State of Georgia and the southeast to be considered as a major political entity in this dispute. It should be noted that Atlanta holds the distinction of being one of the few major metropolitan areas in the United States which is located in the headwaters of a basin. Essentially this puts Atlanta in the same water supply situation as major metropolitan areas located in much drier areas of the United States such as Los Angels, Phoenix or Las Vegas rather than other metropolitan areas in regions with similar rainfall. Atlanta's interests in the basin are to support its ever growing demands for water since the Chattahoochee River represents the cheapest source of water for "Metro Atlanta" and to maintain the elevations of Lake Lanier, the largest reservoir in the basin and a major recreational area for Atlanta residents.

Alabama's water management goals for the ACF basin are more focused at preserving future options for water withdrawals in order to attract economic growth from the ACF basin than in securing water for an existing use. Alabama also has a long history of favoring management of the federal reservoir system to support having a commercial navigation channel in the Apalachicola River. Alabama's management goals for the basin are complicated by the fact that management of the adjacent basin, the Alabama–Coosa–Tallapoosa (ACT) basin (Fig. 3), has been linked with management of the ACF basin through lawsuits and negotiated agreements. Since far more of

Alabama is in the ACT basin than in the ACF basin, their negotiating position was more aimed at trading their influence in the ACF for protection of the ACT, than in specifically advocating for actions in the ACF basin. State officials were also concerned with long-term water quality problems resulting from discharges in the Atlanta region.

Florida's management goals have been focused on protecting the instream flow of the Apalachicola and the flow entering into the Apalachicola estuary. Florida has a long-term record of advocating for the protection of the Apalachicola Basin and over the past 30 years the state has purchased over 50,000 ha of land for conservation purposes, imposed every protective designation available, resisted the construction of a dam and other structural improvements for the federal navigation channel and supported extensive research to protect this ecosystem. Apalachicola Bay produces approximately 15% of the nation's oysters as well as extensive yields in shrimp, blue crab and finfish, and it serves as an important nursery grounds for the Gulf of Mexico. In contrast to Georgia's and Alabama's water needs, Florida's needs are not well defined since the science behind providing adequate inflow to protect an ecosystem is not well developed.

The Federal government's management interests in the ACF basin pertain to legislated responsibilities that the federal government has for the management of the federal storage reservoirs for producing hydropower and supporting federally maintained navigation channels. The federal government also has natural resource oriented responsibilities, including protecting federally listed endangered species such as the gulf sturgeon and several species of mussels which live in the river. The federal government also has to manage the federal storage reservoirs to provide balance between adequate elevation in the reservoir to support reservoir-based recreation and making releases to support down steam flow needs. Lake Lanier (in the metro Atlanta area) has among the highest recreation visitation rates of the reservoirs in the United States.

2. Efforts to Manage the ACF Boundary from a System-Wide Perspective

After several failed efforts at initiating system-wide management of the water resources in the 1970s and 1980s, an attempt to initiate such a management approach was made in 1989. A contentious relationship

among competing water users in the ACF basin extends back to the 1970s as a result of the limited availability of the federal navigation channel. Upstream interests contended that the limited availability of the navigation channel hindered their economic development, whereas Florida refused to allow the construction of major structural alterations to the Apalachicola River to address navigation problems because of associated adverse environmental effects and because most of the benefits from the project were to be accrued by upstream interests not within Florida. Without these changes, the ports on the ACF river system, which are mostly in Alabama and Georgia, have limited access to the rest of inland navigation system in the United States.

At the time, the argument was seen as a conflict between environmental interests not allowing the complete structural modification of the basin and navigation interests desiring a more reliable channel. It was not until over 15 years later that government entities throughout the basin began to accept that the true conflict was over the amount of water available for all uses, not over the obstructionist tactics of environmental interests. The reason for this delay is probably the fact that the basin lies in a relatively humid region and a long prevailing attitude that scarcity of water was not seen as an issue in the region. Water managers tended to see the problem as a management problem, not a supply problem. It was convenient to blame another party rather than accept that they were pressing the system's limits during low water events.

In 1989, the Corps of Engineers proposed to reallocate water in the storage pool of Lake Lanier from hydropower to water supply for the metro Atlanta area and to formalize current reservoir operations in the form of a Water Control Plan (USACE 1989). Upstream interests reacted by contending that the federal reservoirs were being used too much to support downstream needs and downstream interests reacted by contending that too much water was being consumed and retained upstream. As a result of including reservoir operations with the reallocation proposal, attention expanded to the entire watershed instead of just the headwaters of the Chattahoochee Basin. There was a widespread fear that Atlanta's water use would dry up the river, a fear that persists to this day.

In response to this proposal, Alabama sued the Corps of Engineers for failing to meet the requirements of the National Environmental Policy Act in their preparation of the required Environmental Impact

Statement. With Florida poised to enter the suit on the side of Alabama and Georgia on the side of the Corps of Engineers, the three states and the federal government negotiated an agreement to stay the suit and conduct the ACF Comprehensive Water Resources Study. The Comprehensive Study provided technical information, developed tools to evaluate water resources from a system-wide basis and collected technical information on the management of river basins.

The Comprehensive Study, in turn, led to the establishment of the Apalachicola–Chattahoochee–Flint River Basin Compact in 1997. This Compact established the ACF River Basin Commission and required it to "establish and modify an allocation formula for apportioning the surface waters of the ACF basin." Establishment of this Compact and its sister Compact in the ACT basin was significant because it was the first such Compact ever in the southeastern United States and first in the nation since passage of major environmental legislation in the mid-1970s. It should also be recognized that in the United States the only means of addressing system-wide water management is either through establishing a Compact, federal legislation or through a decree by the US Supreme Court as a result of litigation (Leitman 2005; Dellapenna 2006).

The Compact did not include specific details of an Allocation Formula because the Comprehensive Study had demonstrated that other Allocation Formulas in the United States have needed to be changed over time and if the Formula had been included in the Compact, new legislation would have had to have been passed through the legislatures of the three states and the US Congress to make any changes. The legislative difficulty of changing other Compacts has resulted in litigation before the US Supreme Court (Kenney 1996). If the Allocation Formula was delegated to the control of ACF River Basin Commission, the formula could be amended without legislative approval.

The Allocation Formula was negotiated through the ACF Commission. This Commission consisted of the governors of the three states, although the actual negotiations were conducted by their appointed representatives, not by the governors themselves. If an agreement could be reached between the three states, the federal government had 245 days to either accept or reject the agreement. Ultimately after 14 extensions of the deadline for reaching an agreement on the Allocation Formula the negotiations were terminated

in the fall of 2003. The termination of the negotiations can be attributed to a breakdown in trust among the negotiating parties (Dellapenna and others 2006). In the final meeting of the ACF Commission, Alabama, and Georgia were in favor of extending the negotiations again, but Florida refused to extend them and this meant the termination of the ACF Compact. It also meant a change in the forum for addressing water management issues from the negotiation table to the courtroom and a change in approach from collaboration to competition. The demise of the Compact can be blamed on both the process used to negotiate an agreement and the breakdown in trust among the negotiating parties due to action both in the negotiations and outside of the negotiations (Leitman 2005).

Among the problems with the process of the ACF Allocation Formula were:

- Not including an outside mediator to facilitate negotiations.
- Not agreeing on specific criteria or performance standards that distinguished an acceptable agreement from and an unacceptable one.
- Having parties involved in the negotiations enter into a Settlement Agreement on litigation involving issues that were part of the Allocation Formula negotiations.
- Having the governors of the three states define the terms of an acceptable agreement through a Memorandum of Understanding (MOU) after negotiations had been ongoing for five years without the involvement of all key parties and stakeholders in the negotiations.
- And, setting up a forum for negotiation which was not conducive to negotiating.

The MOU between the three governors in July 2003 led directly to the termination of the Compact. The MOU was negotiated between the governor's offices of the three states to provide the basis for negotiating an Allocation Formula agreement. The principal ACF negotiator for Florida, however, was not involved in developing this MOU and did not even see it until it was presented at the Commission meeting at which it was adopted. The MOU was essentially an endorsement of Georgia's negotiating position that Florida had rejected numerous times because it violated several of Florida's main negotiating positions.

After the agreement was signed, attempts were made to add stipulations to the Agreement to reaffirm some of the basic tenets of the Florida negotiating position. When Georgia's negotiators sent the MOU to their stakeholders, they did not include Florida's stipulations and contended that they never received them. Georgia then provided an Allocation Formula proposal to Florida that was consistent with the MOU, but unacceptable to Florida negotiators and stakeholders. In response, Florida provided an alternative proposal to Georgia one week before negotiations were to terminate that was consistent with their stipulations, but not consistent with the MOU. Florida negotiators told Georgia negotiators that if they did not accept the terms of their alternative proposal, Florida would not agree to extend the negotiations and the Compact would be terminated. At the final meeting, Alabama and Georgia expressed a desire to extend the negotiations and a disappointment that Florida was not following the terms of the MOU.

Although the termination of the ACF Compact suggests that this effort was a failure, there were several major gains to the citizens of the basin as a result of the Comprehensive Study and Allocation Formula negotiation process (Leitman 2005). Some of the gains from this effort included:

1. The paradigm for managing the basin for many stakeholders has expanded from a parochial or local perspective to a watershed perspective.
2. A significant amount of information, data and management tools were developed and are now available to address water management issues in the present and into the future.
3. There were multiple institutional changes in the three states and among nongovernmental organizations as a result of the negotiations.
4. A number of new management paradigms have become part of the "management vision" for the watershed including adaptive management, protection of flow regime versus sustaining minimum flows and the shared vision planning.

At the present time, the parties are maneuvering toward a Supreme Court challenge and the chances of rebuilding the trust "seem remote at best". In August of 2006 the parties were in dispute over the

operations of the federal reservoirs and protection of the gulf sturgeon and several species of mussels that are protected species under The Endangered Species Act. The basin was experiencing a major drought event and the dispute was over whether water should be released from the federal reservoirs to protect the listed species at the present time or whether the water should be held in storage in case the drought event should persist. The reservoir augmentation needed to protect the listed species was to offset consumptive losses of water from municipal water users, agricultural water users and evaporation losses at reservoirs.

For the balance of this paper the focus will be on "lessons learned" from this attempt at system-wide water management and at the potential applicability of these lessons in Central Asia.

3. Lessons Learned from the ACF Compact Experience

LESSON 1: IN DEALING WITH TRANSBOUNDARY WATER ISSUES, PATIENCE IS A VIRTUE BECAUSE IT CAN TAKE A LONG TIME TO EFFECTIVELY ADDRESS A COMPLEX PROBLEM

Because of the complexity of the process of negotiating a trans-boundary water dispute and the fact that it normally takes many years to create many of the problems that lead to the dispute, it should be expected to take some time to successfully address the problem. History has shown that it is not uncommon for it to take 5 to 10 years or even longer to work out such problems (Wolf, 2001).

At the present time it is difficult to understand whether these efforts were successful or a failure. If an Allocation Formula had been agreed to which did not resolve the issues at hand had been agreed to, is this a success? For instance, an agreement was reached in the Colorado River, but this agreement resulted in an over-allocation of the waters of the basin. In the case of the ACF negotiations and litigation, although there was no agreement on a water allocation formula, the data and tools developed in the ACF Comprehensive Study/Allocation Formula negotiations have proven to be important in developing interim reservoir operations to protect endangered species. If an Allocation Formula had been agreed to that did not resolve the issue, would this really be a success?

LESSON 2: PROCESS IS AS IMPORTANT AS PRODUCT. PARTIES NEED TO BELIEVE THE PROCESS IS IMPARTIAL AND KEY PARTIES NEED TO BE PART OF THE SOLUTION

A major focus of alternative dispute resolution practices is to develop a process which is conducive to the parties reaching an agreement. In negotiating a long-term water agreement it is important that all parties and key stakeholders believe in both the agreement and the process under which it was developed if the terms of this agreement are to be sustainable. In the ACF negotiations an attempt was made to reach an "agreement" by having the governors of the three states develop an MOU to define an acceptable agreement without involving neither key personnel in the negotiations nor key stakeholder groups in an attempt to resolve the dispute. This tactic, however, did not resolve the problem but perhaps was the final nail in the coffin that led to the demise of the Compact agreement.

Another lesson from the ACF negotiations with regard to process is that negotiation is not always the best process to resolve such disputes. Negotiation only works when all parties are serious about negotiating and willing to focus on interest-based negotiations. All parties must have more to gain from a negotiated agreement than they are willing to give up or else they will not be negotiating in earnest. Negotiation then becomes a tactic to get what a party wanted all along, not a means to address each party's legitimate interests. In such cases it may be necessary to proceed to litigation until all parties are serious about negotiating, which may never occur.

LESSON 3: THE FOCUS NEEDS TO BE ON GETTING IT RIGHT, NOT ON BEING RIGHT. SUSTAINABLE ANSWERS MUST BE FLEXIBLE AND ALLOW FOR LEARNING AND REVISIONS OVER TIME. FIXED ANSWERS WILL BECOME STALE OVER TIME

The focus of negotiations needs to be on generating the necessary information and tools to addressing the complex problems at hand, not finding a politically expedient manner to pass the problems on to future generations. A process needs to be agreed to and implemented that will allow the parties to address contentious and difficult issues in an objective manner. For this reason, I believe it is necessary to have outside technical parties who have no stake in the results and a mediation team which will keep the process on task and objective. In the ACF negotiations there was no outside mediation team and this

ultimately led to an avoidance of dealing with difficult technical issues by putting them off and then extending deadlines over and over again. The process also needs to account for the fact that the technical community probably cannot answer all questions at the present time. This leaves the parties with several choices: pretend they know the answer to all difficult questions, ignore questions they cannot address or set up an adaptive process which allows for learning while the agreement is being implemented and modifying the agreement to include what is learned. A problem with modifying agreements which needs to be accounted for *a priori* is that modifications will inevitably favor one party over another and if implementation is left to a consensual process, the party that is not being favored can be expected to oppose such a modification.

LESSON 4: IT IS IMPORTANT TO HAVE JOINT TOOLS TO APPROACH THE PROBLEM. MODELS ARE ALWAYS PART OF MAKING COMPLEX DECISIONS, THE ONLY QUESTION IS WHETHER MODELS ARE COVERTLY IN SOMEONE'S HEAD OR OVERTLY DOWN ON PAPER OR IN A COMPUTER

It is not uncommon for technical teams to get caught up in arguments over whose modeling tool is better or whose data are more accurate. One way to avoid these arguments is to initiate the negotiation process by having the parties jointly gather data and develop shared tools to analyze the data such as is done through the shared vision process (Palmer and others 1999, Stephenson 2001). The process of gathering data and developing tools to accurate represent the watershed allow the parties to develop trust in working together before having to tackle the more difficult and contentious problems which will inevitably result from defining an acceptable course for sharing the waters of the basin. One cautionary note in developing modeling tools is that it is just as important and challenging to develop tools to analyze model output as it is to develop a model to represent the basin. If adequate data do not exist, which is probably inevitable, the process of developing a system model can help in identifying what data are necessary to address the problems at hand.

LESSON 5: AN IMPORTANT EARLY STEP IS TO QUALITATIVELY DEFINE THE BOUNDARIES OF AN ACCEPTABLE AGREEMENT. THERE ARE MANY TYPES OF "BOUNDARIES" TO CONSIDER INCLUDING: TECHNICAL BOUNDARIES, POLITICAL BOUNDARIES, LEGAL BOUNDARIES, TRUST BOUNDARIES AND EFFICIENCY BOUNDARIES. ONCE POLICY DECISION-MAKERS HAVE QUALITATIVELY DEFINED THE BOUNDARIES OF AN ACCEPTABLE AGREEMENT, TECHNICAL STAFF CAN DEVELOP A RANGE OF RESPONSES THAT LIE WITHIN THESE BOUNDARIES

As the previous lesson pointed out, it is important to develop tools and collect data to allow technical staff to examine the water resource problems of a basin. However, just as important is to define what would be an acceptable agreement. Although the need to define an acceptable agreement seems obvious, no agreement was ever reached on what would constitute an acceptable agreement, despite over 10 years of study, data collection, tool development, and negotiating over the Allocation Formula the three states and the federal government never reached agreement on what would constitute and acceptable agreement (Leitman, 2005).

There are multiple types of boundaries between acceptable and unacceptable which need to be considered including technical boundaries, political boundaries, legal boundaries, trust boundaries, and efficiency boundaries. Technical boundaries simply refer to what actions are technically possible or feasible. This would consider issues such as the level of augmentation possible from a reservoir system for water supply or waste water dilution purposes. Political boundaries refer to what is acceptable in a political context. It is possible for a response to be acceptable in a technical context, but not acceptable in a political context. Legal boundaries simply refer to what actions can be done within the current legal framework of the negotiating parties.

Trust boundaries refer to what actions can be taken, whether legal or not legal, that would build trust among the negotiating parties. In the case of the ACF negotiations, the development of an MOU by the three governors was clearly legal, but in taking this action it broke down the trust among key stakeholders and ultimately contributed to the end of the negotiations. Efficiency refers to the timing and cost of reaching an agreement. There are limits to both and these must be accounted for when working out an acceptable agreement.

Defining the boundaries of an acceptable agreement is the responsibility of policymakers involved in the decision-making process.

Once these boundaries are defined, developing the suite of acceptable responses based on these boundaries is the responsibility of technical staff. It is important to avoid a situation where either a policymaker is making technical decisions or technical staff is making a policy decision. Either situation will most likely result in decisions that either do not work or cannot be implemented. In the ACF negotiations the failure of the decision-makers to define the boundaries of an acceptable decision forced technical staff into the dilemma of having to evaluate alternative scenarios without any guidance of what was acceptable.

4. Conclusions

All of the conclusions presented are not intended to be specific either to the ACF basin or the United States. They are general broad perceptions that may help in such disputes in Central Asia. However, ultimately the decisions of how to approach transboundary needs to be made in the basin and supported by the political power structure in the basin. Perhaps one of the major lessons to be gleaned from the ACF experience for regions such as Central Asia is that the process of negotiating and implementing a transboundary water management infrastructure is difficult and not to be taken for granted. There is one interesting parallel between the ACF basin and Central Asian region that should be considered: the relative inexperience of both regions with utilizing such structures.

The ACF Compact was the first ever in that region of the United States and the first in the nation since passage of the major environmental laws in the early 1970s. Consequently, none of the staff working on the issue had real-world experience working on such issues and consequently the effort was a "prototype" effort, instead of an experienced team working on a difficult issue. In the end the combination of inexperience and complexity led to a failure to reach an agreement on how to address the problems at hand.

In Central Asia many of the individuals who may work on such issues are probably similarly inexperienced both as to their level of expertise with negotiations and in their experience in dealing with transboundary water problems. It is therefore recommended that those who will participate in future Central Asian forums be provided the opportunity to receive intensive training both in negotiation fundamentals

and in skills necessary to manage transboundary waters before they have to use these skill sets for real at the negotiation table. Efforts spent to enhance both of these skills before entering into serious negotiations will increase the chances of developing an approach to address these problems in this region.

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