

The Downfall of Riparianism: A Comparison of the Tennessee and Kentucky Water Pumping Permit Systems

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Two bordering states, somewhat similarly situated in terms of water abundance, have remarkably different systems by which they allow water to be pumped. Both are considered riparian doctrine states, at least as compared to prior appropriation doctrine states.¹ Kentucky, however, is a modified riparian state, with what resembles adaptive governance controlling how water is allocated in most situations. Tennessee is pure riparian, at least at the state level, and leaves the governance of water pumping to the cities. Both face some present drought or emergency conditions. The future clearly implies more strain on either water allocation system due to steady increases in population.

Questions must arise regarding which system is better. This is a problematic inquiry, since “better” is a term that is impossible to define in any singular way in regard to water use regulation. With development of land being linked to economic expansion,² and water

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¹ Riparian doctrine states evaluate water rights based on owning land next to water bodies. Prior appropriation doctrine states instead evaluate such rights based on who diverted water from the water body first. See DAVID H. GETCHES, *WATER LAW IN A NUTSHELL*, 4-6 (West Publishing Co. 1997).

² See Oliver A. Pollard, *Smart Growth: The Promise, Politics, and Potential Pitfalls of Emerging Growth Management Strategies*, 19 VA. ENVTL. L.J. 247, 248 (2000).

being crucial for that development to continue, sustainable uses should be considered the most important of the goals to be facilitated by these systems, although no infrastructure will be able to force the people using it to value water in a sustainable fashion. Any governance structure will, without a comprehensive plan to change how the society around it views water, fail to be sustainable against future increased demand and emergency situations.³

The first section of this paper will describe the two systems in some detail, including the information Kentucky requires on its pumping permit forms and Tennessee's reliance on the localities. Kentucky's intricate Division of Water and Watershed Management Branch governance will be described, along with the overarching Watershed Management Framework.

The second section is an overview of the various competing interests in a given permitting system. This overview will facilitate a discussion of how defining "better" in analyzing the effectiveness of a system is perspective dependant. Both systems serve some objectives better than others.

The third section will describe the present distress of both systems. One county in Kentucky⁴ and a much larger section of

³ Christopher Elmendorf, *Ideas, Incentives, Gifts, and Governance: Toward Conservation Stewardship of Private Land, in Cultural and Psychological Perspective*, U. ILL. L. REV. 423, 423 (2003).

⁴ <http://www.drought.unl.edu/> (follow "drought monitor" hyperlink; then follow the hyperlink within Kentucky on the map).

Tennessee⁵ were in severe drought conditions in 2007. Magoffin County, Kentucky has been declared to be in a State of Emergency by the Governor.⁶ Each state's reaction to the situation at hand will be analyzed with the understanding that no evidence exists as to the outcome of either drought. The present conditions and their responses should be a fair index of the state's response to emergency.

The fourth section will analyze both systems, identifying strengths and weaknesses. Both have some weaknesses that could be altered to effectuate the ends of more than one perspective. Beyond nonpartisan fixes, a focus on renewability and response to emergency situations will be advocated. Such a focus should not, and indeed could not realistically, preclude further development. Finally, water governance policy makers must be aware of any water governance system's own limitations, insofar as enforcement is not always practicable or, in some cases, possible.

The fifth and final section will be a suggestion for the future of the two systems. Both are functioning at present and perhaps could do so for some time. If the present population expansion rates continue, however, and the demand continues upward, neither system will be able to stay the way it is and continue to provide all of the stakeholders with the water they want. Eventually it is likely there will be a shortage of the water the stakeholders need. It will then become necessary to

⁵ <http://drought.unl.edu/> (follow "drought monitor" hyperlink, then follow the hyperlink within Tennessee on the map).

⁶ Kentucky Energy and Environment Cabinet, *Governor declares state of emergency for Magoffin County*, <http://www.eec.ky.gov/press/press2008/october/10-10emergency.htm> (last visited Oct. 10, 2009).

view water pumping permit systems as mediation systems in much the same way as land use systems have been viewed.⁷

By viewing water regulatory systems as mediation systems, it is obvious that more infrastructure and permit requirements will not suffice. It is necessary to involve the stakeholders in water, and to make the general public aware that water is a finite resource surrounding them. These mediation systems, as Professor Arnold points out, can only serve the society that uses them.⁸ Because strict limits on permission to withdraw water alone will not stop pumping nor cure supply, water quality, or land development problems, this Note will suggest a system that attempts to educate the public, and use nearby water landmarks to connect the public to water. If the public can be persuaded into identifying itself with a nearby water landmark, then a permitting system can be effective in regulation, since it is mediating between a water-conscious public that will still need to develop land and make efficient use of the water system.

I. THE TWO PUMPING PERMIT SYSTEMS

Until the 1950's, many states east of the Mississippi River had their water rights governance defined by riparian rules.⁹ After that, Hawaii and most states east of the Mississippi River began to regulate water usage in ways that overrode the previous riparian governance.

⁷ Craig Anthony Arnold, *The Structure of the Land Use Regulatory System in the United States*, 22 J. LAND USE & ENVTL. L., 441, 482 (2007).

⁸ *Id.* at 461.

⁹ See Joseph W. Dellapenna, *Special Challenges to Water Markets in Riparian States*, 21 GA. ST. U.L. REV. 305, 314-36 (providing an overview of regulated riparianism and the history behind it).

Over time, these regulations have overtaken the riparian system, leaving rules that do not resemble the traditional view of riparian rights. Kentucky is a state in which regulation has become so pervasive that there are few remnants of riparianism still in place. Tennessee, however, has enacted less regulation, and thereby has water governance that still strongly represents a riparian governance system.

A. KENTUCKY

The Kentucky Division of Water (DoW) approves permits for many different water related activities, including pumping.¹⁰ The DoW requires permit applications for any pumping “from any surface, spring or groundwater source,”¹¹ subject to certain limitations. Domestic pumping, which is defined as pumping for the needs of a single household, is not required to get a permit. Further, pumping for agricultural uses, such as irrigation does not require a permit. Finally, steam powered electrical generation plants are not required to get a permit, so long as they are regulated by the Kentucky Public Service Commission (KPSC), presumably because that entity either would be advised by the DoW or would regulate such endeavors itself keeping in mind hydrological concerns.¹² The steam powered electrical generation plants can obtain an exception if they are required by the Kentucky

¹⁰ Division of Water, *Permitting and Approvals*, <http://www.water.ky.gov/permitting/> (last visited Oct. 10, 2009).

¹¹ Division of Water, *Water Withdrawal Permitting*, <http://www.water.ky.gov/permitting/withdrawal/> (last visited Oct. 10, 2009).

¹² *Id.*

Public Service Commission to get a certificate of environmental compatibility.¹³

The KPSC also regulates water utilities. The commission requires that the utility show that it will provide enough water to its customers, except in “emergency situations,” which are not defined.¹⁴ Water utilities are also required to keep track of the interruptions that occur in the system, and what they did to remediate the possibility of recurrence.¹⁵ Further, KPSC requires that those utilities under its control measure the amount of water pumped out of the water body from which they are permitted to pump.¹⁶ Those measurements are then used to ensure that the rate adjustments used by the utility will include water wasted above fifteen percent of water used. The amount of water used by the utility is excluded from this equation.¹⁷

There are four different water pumping permits available from the DoW.¹⁸ There is no fee for applying for a pumping permit. Any use not excepted requires a permit. This applies when the source of water is public.¹⁹ Public waters are defined as “water occurring in any stream, lake, groundwater, subterranean water or other body of water in the Commonwealth which may be applied to any useful or beneficial purpose.”²⁰

¹³ *Id.*

¹⁴ 807 KY. ADMIN. REGS. 5:066 § 4(1) (2009).

¹⁵ *Id.*

¹⁶ 807 KY. ADMIN. REGS. 5:066 § 6 (2009).

¹⁷ *Id.*

¹⁸ The permit applications follow this note as Appendix I-IV.

¹⁹ KY. REV. STAT. ANN. § 151.150 (2008).

²⁰ KY. REV. STAT. ANN. § 151.120 (2008).

Permits can be required for pumping that averages less than ten thousand gallons per day under special circumstances. These circumstances include when the DoW determines that the amount being pumped is a significant portion of the amount of water at that source. It can also be ordered when the DoW determines it is necessary for such pumping to be monitored and reported.²¹

Each permit can be given with limits on the amount to be pumped.²² The permittee can be limited not only with regard to what its needs are, but further with regard to what the DoW believes the source is able to sustain while allowing for present users, plant and animal life in the stream, and future demand.²³ Any permit holder that is allowed to pump is required to keep accurate data of the actual amount of water pumped and must give that information to the DoW each month.²⁴ The DoW keeps this information and has water pumping information from as far back as 1966. The DoW can provide the information upon request and it can be compiled by use category, county or river basin.²⁵

Once the applicant has completed the appropriate form, it is sent to the Watershed Management Branch of the Kentucky DoW.²⁶ The permitting system is under the supervision of the Water Quantity

²¹ 401 KY. ADMIN. REGS. 4:010 (2009).

²² Kentucky Divisions of Water, *Water Management*, <http://www.water.ky.gov/wateruse/watermgt/> (last visited Oct. 10, 2009).

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

Management Section.²⁷ The Water Quantity Management (WQM) system exists to implement and govern “the sections of KRS 151 and KRS 224A and 401 KAR 4:220 pertaining to water withdrawal permitting, water supply planning and drought.”²⁸ The directive for WQM exists in KRS 151.110. It refers to the Environmental and Public Protection Cabinet of Kentucky, which was abolished in favor of the Energy and Environment Cabinet.²⁹ The Energy and Environment Cabinet oversees the Division of Water (DoW), which established the Watershed Management Branch (WMB).³⁰

In Kentucky, there are twelve basins divided into seven management units. Each unit has a dedicated “basin coordinator” and a basin coordination team.³¹ These coordinators are not all funded by the DoW, but are all generally overseen by the DoW. Some other partners of the DoW fund the basin management framework.³² The basin coordinators follow a “five-year basin management cycle,” and the basin management units “follow a schedule of activities that includes scoping and data gathering, assessment, prioritization and targeting, plan development and implementation.”³³ The various basins will be at different points of the schedule during a given five year

²⁷ *Id.*

²⁸ *Id.*

²⁹ Kentucky Energy and Environment Cabinet, *Homepage*, <http://www.eec.ky.gov/> (last visited Oct. 12, 2009).

³⁰ Kentucky Division of Water, *Homepage*, <http://water.ky.gov/> (last visited Oct. 12, 2009).

³¹ Ky. Div. of Water, *Watersheds*, <http://www.water.ky.gov/watersheds/> (last visited Oct. 12, 2009).

³² *Id.*

³³ *Id.*

period, and each is designated to begin the five year cycle with a different activity.³⁴ These basin coordinating teams are required to prepare a “basin status report” at the beginning of the five year cycle to inform stakeholders as to the present status of the basin.³⁵

The final program relevant to the relatively complex pumping permit system in Kentucky is the Watershed Management Framework (WMF).³⁶ This not a new agency, but rather is fashioned to allow the variety of other agencies in charge of water in Kentucky to communicate.³⁷ It is governed by a five chapter “Framework Document”, which describes the various goals and procedures of the WMF.³⁸ The WMF seeks to involve Kentucky water stakeholders in the various governance processes, increase the availability of information, and coordinate the various branches of the Energy and Environment Cabinet.³⁹

B. TENNESSEE

Tennessee has a simpler system of water pumping regulation. There is, in fact, no application or permit to be obtained for pumping

³⁴ Ky. Div. of Water, *What is the Watershed Management Framework*, http://www.watersheds.ky.gov/homepage_repository/What+is+t he+Watershed+Management+Framework.htm (last visited Oct. 12, 2009).

³⁵ *Id.*

³⁶ Ky. Div. of Water, *Framework and Coordination*, <http://www.watersheds.ky.gov/framework> (last visited Jan. 13, 2009).

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

water in many situations in Tennessee.⁴⁰ The Tennessee Department of Environment and Conservation (TDEC) does have a Division of Water Supply (DWS).⁴¹ If an excess of 50,000 gallons per day is withdrawn, DWS must be notified, although the ramifications of such notification are somewhat unclear.⁴²

While only notification is necessary for most pumping, there are some water use permits that the DWS does require.⁴³ The relevant ones are available online.⁴⁴ A thorough review of many of those permits would not be instructive due to their lack of application to extraction of water from a water body. They could be indicative of Tennessee's approach to governance of water in general, but they are either focused on pollution of water or diversion of water, both topics beyond the scope of this paper.

Forms are reviewed by the DWS for consistency with their design manual, "to determine whether the design standards have been met."⁴⁵ Once the form has been approved, the applicant can build according to its plan, but cannot transfer the permit, nor appeal any

⁴⁰ Tenn. Dep't of Env't & Conservation, *Environmental Permit Requirements Guide*, <http://www.tn.gov/environment/permits/whoami.shtml> (last visited Jul. 15, 2009).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Tenn. Dept. of Env't & Conservation, *Permits*, <http://www.state.tn.us/environment/permits/> (last visited Oct. 12, 2009).

⁴⁵ Tenn. Dept. of Env't & Conservation, *Environmental Permit Requirements Guide*, <http://www.tn.gov/environment/permits/whoami.shtml> (last visited Jul. 15, 2009).

denial.⁴⁶ The project engineer is required to continue to inspect the process as it is being built, and construction is required to begin within one year of the approval. The applicant is still subject to regulation by the Tennessee Regulations for Public Water Systems and Drinking Water Quality. The DWS is allowed to inspect the site if that is deemed necessary during construction as well.⁴⁷

TDEC lists a few examples of those that constitute “Public Water Systems.” Beyond those that desire to bottle and sell water, the list includes: “churches, schools, industries, restaurants, camps and subdivisions relying on a water well, spring, or surface source.”⁴⁸ There are exceptions, however. If a system meets four criteria, it is not regulated, and thereby does not need a permit from DWS. Those four criteria are: 1) Consisting only of distribution and storage facilities, without treatment or collection capabilities; 2) obtaining all of the system’s water from a public water system without being owned by that system; 3) not selling water to anyone; and 4) not a passenger carrier in interstate commerce.⁴⁹ Due to the specificity of these qualifications, it appears that few systems would be exempted.

Another of the permits required is the Wellhead Protection Program Approval.⁵⁰ Any Public Water System obtaining water from a

⁴⁶ Tenn. Dept. of Env’t & Conservation, *Permits*, <http://www.state.tn.us/environment/permits/pubh2o.shtml> (last visited Oct. 12, 2009).

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ Tenn. Dept. of Env’t & Conservation, *Environmental Permits: Wellhead Protection Plan Approval*, <http://www.tn.gov/environment/permits/wellhd.shtml> (last visited Jul. 15, 2009).

groundwater source must receive approval.⁵¹ If the Public Water System obtains all of its water from a regulated supplier, it needs no approval.⁵² The information required to obtain approval includes the Wellhead Area Delineation of the groundwater source unless the system is among the smallest.⁵³ Possible contamination sources, hazardous waste storage, and contingency responses to spills of wastes must be reported.⁵⁴ This information is submitted to the county governing body and the county regional planning commission. DWS then checks the plan for consistency with its manual and decides whether or not to issue a three year permit.⁵⁵

The structure in Tennessee for governance of water appears to exist primarily at the local level, through land use decisions by local governments. This is apparent from the lack of governance at a regional level. Either the water pumping in Tennessee remains unregulated, or the localities are wrestling with the task themselves. There is the aforementioned permitting system, though it appears to be less relevant to water supplies in the state than each locality's decisions, since the permitting system simply exempts most pumping. The TDEC oversees the DWS.⁵⁶ The DWS is responsible for an annual

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ Tenn. Dept. of Env't & Conservation,
<http://www.tn.gov/environment/about.shtml> (last visited Oct. 12, 2009).

report of the quality of water in Tennessee, though that obligation does not appear to cover the quantity of water.⁵⁷

C. COMPETING INTERESTS

Water pumping permit systems face two interests that are diametrically opposed. In the traditional view, land developers desire little to no control over their choices in development, whereas environmental concerns seek moratoriums on development.⁵⁸ Neither of these extremes can realistically function. Water is a finite resource,⁵⁹ but development is necessary for an economy that relies on constant expansion.⁶⁰ The tension between the two is what shapes water pumping permit systems. In Kentucky, it appears that the infrastructure is present for an emphasis on sustainability in regards to development. On the other hand, Tennessee maintains a fairly limited regional governance of water, making development easier. Because localities are making land use decisions by themselves in many

⁵⁷ Tenn. Dept. of Env't & Conservation, *Water Pollution Control*, <http://state.tn.us/environment/wpc> (last visited Jul. 15, 2009).

⁵⁸ See generally David A. Dana, *Natural Preservation and the Race to Develop*, 143 U. PA. L. REV. 655 (1995) (discussing the advantages to over-regulation and under-regulation in land development views).

⁵⁹ Pamela LeRoy, *Planet Earth 2025: 10 Billion Served? Troubled Waters: Population and Water Scarcity*, 6 COLO. J. INT'L ENVTL. L. & POL'Y, 299, 299 (1995).

⁶⁰ See generally Christopher S. Elmendorf, *Ideas, Incentives, Gifts, and Governance: Toward Conservation Stewardship of Private Land*, in *Cultural and Psychological Perspective*, 2003 U. ILL. L. REV. 423, 423 (discussing policy alternatives for private land development and conservation).

situations, development is, on average, more quickly and easily approved in Tennessee than in Kentucky.

It is the purpose of this Note to argue that both ends can, and should, be met. Development does not need to be stifled by an effective water pumping regulatory system. If anything is certain, it is that neither extreme can prevail; development cannot be completely halted, nor can it be permitted to expand without limits or oversight. Halting development completely would certainly have a negative impact on the economy. The expanding population needs somewhere to go. However, development without curtailment would cause many environmental problems.⁶¹ Ultimately, some system will have to regulate the rate at which, and where, this development occurs.

To evaluate the systems objectively, sustainability of water use can easily be advocated without going to extremes that stifle an already ailing economy. In reality, neither system is perfect, as evidenced by the troubles that both are facing presently, and responding to very differently. However, the responses of the two systems to duress can be evaluated objectively. That evaluation will aid in determining which system is closer to an acceptable compromise between development and nature.

D. SYSTEMS UNDER DISTRESS

It is because of the aforementioned tension that neither Tennessee's nor Kentucky's approach to water pumping governance

⁶¹ See Craig Anthony Arnold, *Eastern Water Law Symposium: Integrating Land Use Law and Water Law: The Obstacles and Opportunities*, *Clean-Water Land Use: Connecting Scale and Function*, 23 PACE ENVTL. L. REV. 291 (2006) (discussing land development damages to hydrological systems).

can be outright considered “better.” Without serious inefficiencies to objectively evaluate, claiming one system to be better than another necessarily involves a value judgment. An objective test to the system, without placing more or less weight on either ease of development or water conservation, is to view the two systems in emergency situations. This test gains relevance as populations increase and water supply situations that were once emergencies become the norm.

Solving emergencies, such as long term droughts, is beyond the scope of any water pumping permit system. Instead, a successful system will be able to ease the burden on any one party throughout a drought. It will be flexible enough to assign new maximums for gallons per day per stakeholder. The inability to make every stakeholder capable of continuing to pump at their fullest capacity during an emergency is not a sign of an inefficient system. Instead, it is a permit system’s previous failings that will be highlighted in the case of emergency, and if the system lacks flexibility, then change is in order. Tennessee faces the sort of water related emergency that stresses any system of water governance, pumping or otherwise. Kentucky faces distress as well, but its distress is of far less severity than Tennessee’s.

There are many different ways to measure drought. Two commonly used drought indices are the Standard Precipitation Index (SPI) and the Palmer Drought Severity Index (PDSI).⁶² The SPI is a system that utilizes the probability of precipitation on a few different

⁶² Michael J. Hayes, *Drought Indices*, <http://drought.unl.edu/whatis/indices.htm> (last visited Oct. 12, 2009).

time scales, and is valued because it is flexible.⁶³ Positive numbers on the scale indicate wet time periods, and negative numbers indicate dry time periods. The wettest periods will be at or above 2 on the SPI, and the driest periods will be at or below -2.⁶⁴ The PDSI is used by some government organizations to indicate when an area is in drought such as that it is eligible to receive aid. It is an algorithm based on soil moisture and is less useful as a region become less homogenous in its terrain. The wettest regions on the PDSI are at 4.0, and the driest at or below -4.0.⁶⁵

The National Drought Mitigation Center (NDMC) utilizes five different labels for drought conditions, each indicating a range of conditions present in the area.⁶⁶ These labels utilize both the SPI and the PDSI, giving a more accurate picture of drought than any one scale could on its own.⁶⁷ For that reason, I will utilize the NDMC's scale and labeling to indicate the severity of drought throughout Tennessee.

The first label is D0, indicating abnormally dry conditions in a region, or an area coming out of more severe drought conditions. Crops are expected to be undergoing short-term damage in these ranges. D0 indicates a range of -1.0 to -1.9 on the PDSI, and -0.5 to -0.7 on the SPI.⁶⁸ The third range is D1, which indicates moderate drought.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ U.S. Drought Monitor, <http://drought.unl.edu/dm/monitor.html> (last visited Oct. 12, 2009).

⁶⁷ *Id.*

⁶⁸ National Drought Mitigation Center, *Drought Monitor - Explanation*,

Within this range, the region will be experiencing lower levels of reservoirs and wells, noticeably increased risk of fire, and moderate damage to crops. D1 indicates a PDSI range of -2.0 to -2.9, and a SPI range of -0.8 to -1.2.⁶⁹ The fourth range is D2, which indicates severe drought. At this point, crops and pastures are likely to be lost, and water shortages are going to occur. The risk of fire is very high. D2 indicates a PDSI range of -3.0 to -3.9, and a SPI range of -1.3 to -1.5.⁷⁰ The fifth range is D3, which indicates extreme drought. At this range, widespread loss of crops and pastures will occur, and water shortages will become widespread, and the danger of fire becomes extreme. D3 indicates a PDSI range of -4.0 to -4.9, and an SPI of -1.6 to -1.9.⁷¹ The last and most extreme range is D4, which indicates exceptional drought. At this point, water emergencies begin to occur and losses of crops and pastures become exceptional and widespread. D4 indicates a PDSI of -5.0 or less, and a PSI of -2.0 or less.⁷²

1. TENNESSEE'S DROUGHT

Tennessee's drought has become less severe over time, eventually returning to normal conditions. In October of 2007, 70.5% of the state was in D4 drought conditions on the NDMC scale. At the same time, 99.0% of the state was in at least D3 drought conditions. The entirety of the state was in D2 conditions or worse.⁷³ By January of

<http://drought.unl.edu/dm/archive/99/classify.htm> (last visited Oct. 12, 2009).

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ Mark Svoboda, National Drought Mitigation Center, *October 16, 2007 Map of Tenn.*,

2008, the amount of D4 conditions had reduced to 19.9% of the state. Also, the amount of the state in D3 and worse conditions reduced to 46.8%, those in D2 and worse were only 53.8%, D1 and worse were at 60.8%, D0 and worse at 72.6%, and a full 27.4% of the state was no longer in any drought condition.⁷⁴ As of October 21, 2008, the conditions were still dire, though again improving. None of the state was in D4 conditions, 21.8% in D3 or worse conditions, 46.7% in D2 or worse conditions, 61.1% in D1 or worse conditions, 80.0% in D0 conditions, and 20% in no drought conditions at all.⁷⁵ Ultimately, this data shows that Tennessee has been in serious drought conditions in 2007 and 2008.

Tennessee is faced with major damages to its 20 billion dollar farming industry due to this drought.⁷⁶ Crops, bereft of enough water from rain or irrigation sources, have been smaller than usual, and are causing serious financial problems for local farmers.⁷⁷ Springs threaten

http://drought.unl.edu/dm/archive/20071016/pics/tn_dm_071016.png (last visited Oct. 12, 2009).

⁷⁴ Richard Helm, National Drought Mitigation Center, *January 1, 2008 Map of Tenn.*,

http://drought.unl.edu/dm/archive/20080101/pics/tn_dm_080101.png (last visited Oct. 12, 2009).

⁷⁵ Rich Tinker, National Drought Mitigation Center, October 14, 2008 *Map of Tenn.*,

http://drought.unl.edu/dm/archive/20081014/pics/tn_dm_081014.png (last visited Oct. 12, 2009).

⁷⁶ Blake Farmer, *Tennessee Drought Stunts Growth of Local Crops*, NPR U.S. AND WORLD NEWS HEADLINES, June 15, 2007, available at

<http://www.npr.org/templates/story/story.php?storyId=11095767> (last visited Oct. 12, 2009).

⁷⁷ *Id.*

to dry up, and force bottlers out of business, too.⁷⁸ In September of 2008, Governor Bredesen request federal aid from the USDA, due to crop losses of 35 to 70 percent in many counties.⁷⁹ The drought prompted localities to request voluntary reductions in water usage throughout the state.

2. KENTUCKY'S DROUGHT

Kentucky faces much less strenuous conditions than Tennessee. The conditions are nearly as pervasive as those in Tennessee, but with far less severity on the whole. In October of 2007, 1.7% of Kentucky was in D4 drought conditions. 15.4% of the state was in D3 or worse conditions, 33.1% of the state was in D2 or worse conditions, 41.8% of the state was in D1 or worse conditions, 56.4% of the state was in D0 conditions or worse, and 43.6% of the state faced no drought at all.⁸⁰ By January of 2008, conditions had improved, and 0.2% of the state was in D4 conditions, 4.9% in D3 conditions or worse, 9.7% in D2 conditions or worse, 16.1% in D1 conditions or worse, 27.3% in D0 conditions or worse, and 72.7% in no drought at all.⁸¹ Finally, in October of 2008, the

⁷⁸ Bob Swanson and Doyle Rice, *Whiskey Maker Battles Tennessee Drought*, USA TODAY, June 12, 2007, http://blogs.usatoday.com/weather/2007/06/whiskey_maker_b.html (last visited Oct. 12, 2009).

⁷⁹ Congressman John J. Duncan's homepage, http://www.house.gov/list/press/tn02_duncan/24092008.shtml (last visited Oct. 12, 2009).

⁸⁰ Douglas Le Comte, National Drought Mitigation Center, October 31, 2007 *Map of Ky.*, http://drought.unl.edu/dm/archive/20071030/pics/ky_dm_071030.png (last visited Oct. 12, 2009).

⁸¹ David Miskus, National Drought Mitigation Center, January 24, 2008 *Map of Ky.*, http://drought.unl.edu/dm/archive/20080122/pics/ky_dm_080122.png. (last visited Oct. 12, 2009).

drought conditions had spread, but gotten less severe: none of the state was in D4 conditions, 8.4% in D3 conditions, 50.5% in D2 or worse conditions, 73.9% in D1 or worse conditions, 89.2% in D0 or worse conditions, and only 10.8% of the state was without drought at all.⁸²

The Kentucky data indicates a different variety of strain than Tennessee faced on its water systems, and thereby a different test of its water pumping permit system. It is possible that the test of Kentucky's system is more revealing, however, insofar as it is much closer to the level of harm that a permitting system should be able to mitigate to a very noticeable degree. Tennessee may be slowly approaching or already at such conditions that a water pumping permit system would be able to mitigate the present damage being done.

3. THE STATES' RESPONSES

It is still appropriate to analyze the reactions of both systems and compare the two, regardless of the asymmetry of severity. Kentucky faced a surmountable obstacle, while Tennessee's permitting system did not. However, both faced adversity, and both systems showed what their responses would be to adversity of any severity. Comparing the two without keeping the difference in mind would be inappropriate, but the responses of both are telling of their merits.

Those merits can and should be compared along the path towards determining what permit system is more appropriate for the foreseeable future. By maintaining locality-based water governance

⁸² David Miskus, National Drought Mitigation Center, October 28, 2008 *Map of Ky.*, http://drought.unl.edu/dm/archive/20081028/pics/ky_dm_081028.png (last visited Oct. 12, 2009).

and not requiring any permits for most pumping, Tennessee has left itself with few options, most of which are based on general emergency situations, and none of which are specific to water.⁸³ Kentucky has developed a flexible system with regional and statewide programs, such that permitting is doing as much as could be expected of it to solve the present drought problems.⁸⁴

Both states have options in front of them that fail for three basic reasons. The first of these is that every one of the options relies on action after the emergency has already occurred. The second is that there tend to be inefficiencies when a state-wide movement is made, because different solutions could be optimal for different watersheds, and each state contains more than one watershed. The last reason is that no matter how well the states respond to drought, mitigating its impact and insuring systems are in place to handle it before it occurs will be more efficient, and effective, than these responses.

i. TENNESSEE'S RESPONSES AND OPTIONS

One of the options that Tennessee has is to declare a state disaster, drought being included in the definition of disaster,⁸⁵ and implement the State Disaster Relief Fund. After a declaration of a

⁸³ National Drought Policy Commission's Summary of Tennessee State Drought Programs, <http://govinfo.library.unt.edu/drought/finalreport/filec/Tennessee%20State%20Drought%20Programs.htm> (last visited Oct. 12, 2009).

⁸⁴ National Drought Policy Commission's Summary of Kentucky State Drought Programs, <http://govinfo.library.unt.edu/drought/finalreport/filec/KENTUCKY%20State%20Drought%20Programs.htm> (last visited Oct. 12, 2009).

⁸⁵ TENN. CODE ANN. § 58-2-101 (2000).

drought from TDEC's commissioner, affected parties could apply for funding from the state.⁸⁶ A similar option would be to enact Civil Defense Emergency Provisions,⁸⁷ which would allow grants to subdivisions for personnel and administrative costs for civil defense and preparedness,⁸⁸ though the application of that to droughts is perhaps tenuous. The governor could elect to ban burning during the drought season.⁸⁹ Enabling legislation exists for insurance policies from the state that would include drought as a possible claim,⁹⁰ and a state insurer guaranty in the case of disasters such as drought to pay if an insurer becomes insolvent.⁹¹ The state seems to have elected federal aid for the local farmers from the USDA in the recent drought,⁹² but the preceding options are available in droughts generally.

The TVA also aids Tennessee during drought seasons by operating dams and reservoirs.⁹³ Further, there are regional controls in place to assist localities through TVA, and TVA attempts to aid both the state Legislature and the federal Legislature to come up with effective water policies.⁹⁴ However, TVA is also a multi-state entity,⁹⁵ and

⁸⁶ *Id.*

⁸⁷ TENN. CODE ANN. § 58-2-101 *et seq* (2006).

⁸⁸ *Id.*

⁸⁹ TENN. CODE ANN. § 8-1-108 (1989).

⁹⁰ TENN. CODE ANN. § 56-2-201 (2008).

⁹¹ TENN. CODE ANN. § 4-31-801 *et seq* (1995).

⁹² Phil Bredesen Governor, State of Tennessee, <http://www.tennesseeanytime.org/governor/viewArticleContent.do?id=1285>.

⁹³ *Tennessee Valley Authority's Involvement in Water Supply for the Tennessee Valley*, <http://www.tva.gov/river/watersupply/responsibilities.htm>

⁹⁴ *Id.*

certainly appears to have the majority of its resources in the energy field. The regional approach that TVA has with respect to water policy⁹⁶ is insufficient to carry out the goals that a well designed water pumping permit system would be able to carry out.

The options in front of Tennessee exemplify the three basic reasons why both states have policies that are inefficient to deal with drought, especially as compared to a redesigned water governance system as a whole, and a water pumping permit system specifically. The insurance policy options are by definition *ex post facto* solutions. Other options rely on a state of emergency being declared, which could not happen until after a drought has already begun.

Due to the amount of time that a drought can last, as exemplified by 2007 being labeled “one of the driest years in history,”⁹⁷ relying on action after the fact is problematic.⁹⁸ By the time ambient conditions have become dry enough to be labeled a drought, the damage to local crops and water bodies has either already been done, or is at a point at which it cannot be easily reversed. The second

⁹⁵ *Tennessee Valley Authority FAQ*,
<http://www.tva.com/abouttva/keyfacts.htm> (last visited Oct. 12, 2009).

⁹⁶ *TVA, River Neighbors - Regional approach helps deal with drought*,
<http://www.tva.gov/river/neighbors/may07/regional.htm>
(last visited Oct. 12, 2009)

⁹⁷ *Blake Farmer, Tennessee Drought Stunts Growth of Local Crops*, NPR (2007),
<http://www.npr.org/templates/story/story.php?storyId=11095767> (last visited Oct. 12, 2009).

⁹⁸ *Thomas Lundmark, Systemizing Environmental Law on a German Model*, 7 DICK. J. ENVTL. L. & POL'Y 1, 13 (1998) (advantages of proactive environmental solutions generally).

problem, that of inefficiencies due to mismatched sizes between the program being implemented and watersheds, is present as well. Even if acting exclusively after the drought has been identified, implementing solutions on the wrong scale can be as detrimental as inaction.⁹⁹ The appropriate solution for damage to one watershed may not be the answer for another, and all of the above solutions are both remedial and statewide. Finally, none of these options are as efficient as a well designed water pumping permit system could be, at least in part because these options have water as an afterthought. It is almost coincidence that each statute includes drought as an emergency, since none are designed to deal with the problems that drought causes.

ii. KENTUCKY'S RESPONSES AND OPTIONS

Kentucky's available responses are much different than Tennessee's. It has the Kentucky River Authority (KRA), which generates a model Water Resources Plan as part of its responsibilities.¹⁰⁰ The Water Resources Plan is required to evaluate and analyze any drought related insufficiencies.¹⁰¹ This program exists to aid localities and regional governance bodies in Kentucky.¹⁰² Also, the governor can declare a state of emergency, as was done for Magoffin County in October of 2008.¹⁰³ This declaration allowed the

⁹⁹ Craig Anthony Arnold, *Clean-Water Land Use: Connecting Scale and Function*, 23 PACE ENVTL. L. REV. 291, 292 (2006)

¹⁰⁰ KY. REV. STAT. ANN. §151.720 (2008).

¹⁰¹ KY. REV. STAT. ANN. §151.110 (1992).

¹⁰² *Id.*

¹⁰³ Kentucky's Energy and Environment Cabinet, Press Releases, <http://www.eec.ky.gov/press/press2008/october/10-10emergency.htm> (last visited Oct. 10, 2009).

Energy and Environment Cabinet to take “extraordinary measures to protect Magoffin County’s water supply during the emergency.”¹⁰⁴ The EEC can either suggest or force local officials to begin enacting their water shortage plans (or move to a particular stage in those plans, should that be more appropriate), modify permits for some existing water pumping permits, and restrict some water pumping that would usually be excepted.¹⁰⁵

The Kentucky responses do not necessarily fall into all of the three problems that the Tennessee responses do. The latter responses do fall into the first category, being *ex post facto*. A state of emergency is not declared until after a drought has already occurred. The Water Resources Plan, however, if properly executed, could prove to be a mitigation system not reliant on damage being done before it is utilized. The second category, the scale problem, is at least addressed by the programs available. The EEC works with local officials when it advises them, and the shortage plans have been developed locally. Further, the permit modification option shows a flexibility that is simply not present in Tennessee’s system. Mitigation or prevention would be better than the state of emergency solution, but the EEC’s flexible powers may be an adequate replacement when mitigation and prevention are impossible.

Finally, Kentucky’s water basin coordinator system promotes watershed based planning, as compared to Tennessee’s lack of any regional governance at all. The basin coordinator system may not be utilized to its fullest presently, but the option is readily available.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

II. BETTER SYSTEMS

Kentucky has a framework for water pumping permits that is a workable foundation for future improvements. The current system is not perfect, of course, but immediately accessible changes that would result in sustainable water usage are less substantial than Tennessee's system would require to attain sustainability, and are focused primarily on details of the existing water governance framework. Tennessee is presently governing water pumping without a framework. Such a lack of framework is difficult at best to implement efficiently, and a more suitable replacement is a system that is similar to Kentucky's. Both of the competing ends of the spectrum of water regulation will be better served by a more regional system that recognizes that no one process will be appropriate for all the watersheds in the state.

Kentucky's system does need to be refined. Its structure is preferable to Tennessee's, but there are some alterations to be suggested. First, the utilities that are not covered could remain that way, since the KPSC is regulating the water pumping by those utilities.¹⁰⁶ However, KPSC should be informed by, and bound to, the water specific governance that is available. If they are not, KPSC's regulation of the pumping could be as inefficient as excepting the plants entirely. The Watershed Management Branch and the Watershed Management Framework are tools that should be able to provide the KPSC with the information that it needs without subjecting power plants to another level of bureaucracy.

¹⁰⁶ Ky. Div. of Water, *Water Withdrawal Permitting*, <http://www.water.ky.gov/permitting/withdrawal/> (last visited Oct. 12, 2009).

Second, the complete exception for all agricultural use from obtaining a permit is a mistake that could prove costly in the near future. The United States Geological Survey (USGS) indicates that in 2000, 137 billion gallons of water was used per day for irrigation. This amounts to 65% of water withdrawals not including thermoelectric power withdrawals.¹⁰⁷ Therefore, agriculture amounts to a large percentage of the strain on water supply systems in the United States, and Kentucky is no exception. If agriculture is to be promoted, there must be other methods than a wholesale exception for their water pumping permits. The permits could start by having an assumption of valid use for agricultural uses, which would still promote farming in Kentucky without allowing irrigation to go on unfettered, regardless of need or efficiency.

The third exception, which allows any domestic uses to go on without permits, should be removed as well. Households, generally speaking, are served by water utilities that are regulated. This exception presently applies to more rural areas in which there is no water utility, and a household is obtaining their water from a single well. It will be important, as the state becomes more arid, for regional governance to be aware of every single source that is pumping water.

The second detail that Kentucky would be well advised to alter is the length of its permits. Monthly reporting of actual pumping is

¹⁰⁷ Susan S. Hutson, Nancy L. Barber, Joan F. Kenny, Kristin S. Linsey, Deborah S. Lumia, and Molly A. Maupin, *Estimated Use of Water in the United States in 2000*, UNITED STATES GEOLOGICAL SERVICE, March 2004, available at <http://pubs.usgs.gov/circ/2004/circ1268> (last visited Oct. 12, 2009).

required,¹⁰⁸ but applicants do not have to apply again once a permit has been granted. The ability of the EEC to alter permits once an emergency has been declared¹⁰⁹ is helpful, but relies on an existing emergency to be effective. As a supplemental measure, Kentucky should mandate that permits expire after five years, with opportunities to renew at the end of each five year period. This achieves two different ends. First, it allows for more flexibility for the DoW to regulate before problems occur, and the second is that it forces reevaluation of water sources. Water bodies change over time, as do local climate conditions, as does the impact of land development in the area. Ignoring those facts by imposing long term permits should be avoided.

Given all of the problems that it faces, and the present reliance on the USDA to save its farmers, Tennessee should completely reevaluate its water governance. It may be possible to revamp the present reliance on localities by forcing them to generate water pumping permits for more uses than is present required, but such an effort would be at least as difficult, and probably more difficult, than using an entirely new system.

An overhaul may not be possible due to the realities of state politics and the legal system. Because these limitations may exist, defining the next best option for Tennessee is instructive. Merely reforming a system that is unlikely to continue working in the future

¹⁰⁸ 401 KY. ADMIN. REGS. 4:010 (2005)

¹⁰⁹ Kentucky's Energy and Environment Cabinet, Press Releases, <http://www.eec.ky.gov/press/press2008/october/10-10emergency.htm>.

may seem like an exercise in futility, but it should instead be viewed as the first step towards more efficient, and sustainable, water pumping governance.

Presently, Tennessee only requires notification in the case of water pumping in excess of 50,000 gallons per day.¹¹⁰ That number should be lowered by a significant amount. Lowering the number would require more reporting by those pumping water in Tennessee, and would provide the DWS with more information about who is pumping water and where. Further, that notification should become, at the very least, a form to be filled out that closely resembles Kentucky's "Standard Withdraw Application."¹¹¹ The completeness of the information in that form would allow the TVA to better function in its hydrological decisions, and would allow the DWS to make more informed decisions about the permit applications it receives for public water systems.¹¹² While an application would be better, this extra level of information is a solid beginning.

The next improvement that Tennessee could make relatively easily is to require estimates of amounts of water to be pumped daily into its "Plans Review and Approval for Public Water Systems" application form. Presently, that application only asks for the various

¹¹⁰Department of Environment and Conservation of Tennessee, <http://www.state.tn.us/environment/> (then follow the "Do I need a permit?" hyperlink under the "Permitting" tab).

¹¹¹ Attached as Appendix II.

¹¹² Such as those for public water systems. See section (I)(B) above; Tenn. Dept. of Env't. & Conservation, *Plans Review and Approval for Public Water Systems*, <http://www.state.tn.us/environment/permits/pubh2o.shtml> (last visited Oct. 12, 2009).

plans regarding the building of the public water system, not for how much water that system expects to take in.¹¹³ Not only does this serve the purpose of giving the DWS more information from which to make permit decisions, but it would also give guidelines for the DWS to limit permits to maximum gallons per day. Such a limitation could be enforced within the present system if DWS is allowed to extend its ability to inspect sites during construction¹¹⁴ to any time that the site is pumping water, and not only during construction.

The final of the small scale improvements that Tennessee could make is to its Wellhead Protection Program Approval. Presently, the smallest varieties of Wellheads do not have to obtain multiphase approval from DWS.¹¹⁵ Removing that exception would succeed in presenting the DWS with a more accurate picture of how the groundwater in the state is being pumped. If there is concern regarding overregulation of domestic uses, then the smallest wells could be given an automatic approval of their wells, which they are already receiving, but still be required to present the information to DWS. Finally, the Wellhead applications should require estimated daily gallons per day being pumped out of the groundwater source. This information would be helpful to DWS in maintaining groundwater sources, since it could

¹¹³ Tenn. Dept. of Env't & Conservation, *Environmental Permit Requirements Guide*, <http://www.tn.gov/environment/permits/whoami.shtml> (last visited Oct. 12, 2009).

¹¹⁴ *Id.*

¹¹⁵ Tenn. Dept. of Env't & Conservation, *Wellhead Protection Program Approval*, <http://www.state.tn.us/environment/permits/wellhd.shtml> (last visited Oct. 12, 2009).

deny applications for new wells based on a groundwater system that is being over-pumped, or will be over-pumped by the applicant.

Both states have some evident flaws in their water pumping permitting system. The solutions to the immediate problems in Kentucky are not as clear as those for Tennessee. In Kentucky, any change necessarily implicates some degree of value judgment—even if that degree is very small—between sustainability and the ease with which development can continue. The changes recommended above are likely to only serve the ends of sustainability, and will not make development easier in the state. They will not, however, place a substantial strain on development, and will provide some progress in the effort to reach sustainability. In reality, development could be eased by developers being aware, and able to work within, clear rules for obtaining water for developments.

The suggestions for Tennessee do not contain the same sort of value judgment. They are instead better for both the ease of development and the sustainability that environmental concerns seek. They seek to take steps towards stronger regulation of pumping. This would usually not favor development, but when there is little to no regulation in the present, it tends to do as much for future development as it does for sustainability. Unchecked growth, combined with unchecked water pumping that is necessarily implicated by that growth, will run out of water quickly if a plan is not implemented to keep water bodies healthy. If the available water has all already been claimed under an unfettered riparian system, then development cannot continue, since all development will require at least some water.

III. A DIFFERENT SOLUTION

The troubles that face Kentucky and Tennessee are not going to abate with the receding drought. From 2000 to 2008 Tennessee's population has increased by 9.2%, or by roughly 525,000 people.¹¹⁶ In the same period, Kentucky's population increased about 5.6%, or by roughly 225,000 people.¹¹⁷ This population increase will continue to occur. These two states will continue to be susceptible to an economy that is reliant on constant expansion, with that expansion generally coming in the form of more development. This trend indicates more demand for water.

With more demand for water, there is not a parallel increase in water supply. As the TVA attempts to serve the public while not permanently damaging water supplies,¹¹⁸ and Kentucky's DoW monitors individual watersheds for signs of problems, among other duties,¹¹⁹ the demand and stress on the relevant water bodies will only increase. Faced with this ever increasing demand, neither system can

¹¹⁶ U.S. Census Bureau, *Tennessee QuickFacts from the US Census Bureau*, (2009), <http://quickfacts.census.gov/qfd/states/47000.html> (last visited Oct. 13, 2009).

¹¹⁷ U.S. Census Bureau, *Kentucky QuickFacts from the US Census Bureau*, (2009) <http://quickfacts.census.gov/qfd/states/21000.html> (last visited Oct. 13, 2009).

¹¹⁸ See Tenn. Valley Auth., *TVA's Involvement in Water Supply for the Tennessee Valley*, <http://www.tva.gov/river/watersupply/responsibilities.htm> (last visited July 14, 2009).

¹¹⁹ See Ky. Div. of Water, *Water Management*, <http://www.water.ky.gov/wateruse/watermgt/> (last visited Oct. 13, 2009).

survive without a change in the way that water pumping permit systems are viewed (or even water governance as a whole).

Deciding what variety of system would be optimal is the first step to an overhaul of water pumping permit governance. The ways to label a legal system are: constitutive, distributive, protective, and mediating.¹²⁰ A constitutive system does more than a water pumping permit system, or any system of water governance could do. Such a system forms the society around it.¹²¹ This is beyond the scope of pumping permits by definition.

Permit systems could be distributive systems, however, as they only distribute a resource to those that demand it.¹²² If the environment could be considered among the demanding parties, it is possible for a pumping permit system to be labeled distributive. The problem is that all of the present needs are not known, since the water body demands varying amounts of water with the conditions around it, and over time. Secondly, the water bodies will not fare well if treated as other users are, insofar as they cannot reduce their demand through technology, conservation, and recycling.

Water pumping permit systems could be labeled protective systems, since protective systems in this context simply protect a

¹²⁰ Craig Anthony Arnold, *The Structure of the Land Use Regulatory System in the United States*, 22 J. LAND USE & ENVTL. L. 441, 460-61 (2007) (providing an overview of the four system labels, and applying them to land use regulation).

¹²¹ Holly Doremus, *Constitutive Law and Environmental Policy*, 22 STAN. ENVTL. L.J., 295 *passim* (2003).

¹²² Arnold, *supra* note 120, at 461.

resource.¹²³ Unfortunately, this sort of labeling polarizes the conflict between development and sustainability. It places land development demands on one side of the permitting system, and sustainability concerns on the other, guarding the water that land development seeks to obtain. This is likely how pumping permit systems are being viewed now, with the DoW or DWS on the sustainability side, keeping developers from the water they want—with varying degrees of success. Such a tension only exacerbates the problem, incentivizes developers to circumvent the system, and makes mutual understanding and collaboration nearly impossible. A protective water pumping permit system may result in less water used in the short term, but it may render itself ineffective if it engenders anger, rather than support, from stakeholders.

Instead, these systems should be viewed as mediation systems. A mediation system acts as a third party, mediating between the resource and the demand for that resource.¹²⁴ Pumping permit systems should act as mediators between the developers that want to build and pump water to those new structures, and the water supply itself. This model allows for regulation without polarization, since the DWS and the DoW would be in a position of a disinterested third party, rather than a guardian to be defeated.

¹²³ *Id.*

¹²⁴ See Christine Baxter, *Canals Where Rivers Used to Flow: The Role of Mediating Structures and Partnerships in Community Lending*, 10 ECON. DEV. Q. 44 (1996) (defining mediation systems from an economic perspective).

A mediation system will only be effective at enforcing what the society around it wants. Water pumping permit systems would be acting as mediators between a public that demands constant expansion—and consistently increasing amounts of water to be pumped for that expansion—and a finite supply of water. Of the three parties involved, the water bodies cannot change, and the mediation system can only reflect what the society wants. Given these limitations, the only solution remaining is to attempt to alter society. The best way to achieve these ends is to change the way that the public thinks about water.

The framework of the water pumping permit system is crucial in how people will view that system, and the water they seek to pump. Kentucky's system could already easily be viewed as a mediator. The only permanent permit, the Standard Water Withdraw Permit, is demanding in the breadth and depth of information that the society, through its regulatory framework seeks, but the process is also flexible. There are four different permits, three of which (the Temporary Authorization, Emergency Authorization, and Interim Authorization) require far less information than the Standard permit.¹²⁵ From the correct perspective, this variety of permits for more immediate demand situations, and for other temporary situations, indicates a mediation system that works with development and sustainability interests to achieve an acceptable compromise.

¹²⁵ See *supra* Part I (describing all the relevant permits for both systems).

Tennessee's framework does not achieve these ends.¹²⁶ Lacking any sort of basic permit requirements, the flexibility of Kentucky's system simply is not present. Notice for pumping of over 50,000 gallons per day, and a permit requirement only for specific situations ignores water quantity issues that will soon be prevalent. By implementing a *laissez faire* attitude towards water pumping, Tennessee has effectively created a distributive system. Neither side is really represented in any kind of mediation, but instead the water resources currently available are doled out to, or simply taken by, any stakeholders ready and willing.

By adopting a framework that resembles Kentucky's, Tennessee would be able to achieve a few different ends. First, more information would be available to decision makers regarding the condition of water bodies in the state and which ones have the potential to be over-pumped. Secondly, water users would be better aware of what their rights are in an environment of increasing demand and more constraints on supply. Presently, water users may begin pumping, suddenly find that a state of emergency has been declared, and then have their rights significantly reduced.¹²⁷ Even if it requires having less water on average to use, any development would be better served by having a constant supply of water that developers, investors, and consumers know they can count on outside of the most extreme droughts.

Adopting an adaptive governance framework such as Kentucky's would be insufficient, however, since neither state is in a position to

¹²⁶ *Id.*

¹²⁷ TENN. CODE ANN. § 58-2-101 (2000).

deal with ever increasing demand. The only way to deal with this problem is to learn from what the arid west has done. Kentucky and Tennessee have both usually been wet enough; in middle Tennessee, the problem is usually that there is too much rainfall for farmers.¹²⁸ As populations continue to increase, however, the same strain that is presently on those water systems in the west will be on Kentucky and Tennessee's water bodies. With no limit on demand, Kentucky will eventually face the same supply over demand ratio that locations such as Phoenix, Los Angeles, and Las Vegas face.

The Mono Lake story is one to take cues from for those seeking to alter present water use governance towards sustainability. The situation at Mono Lake was one of environmental harm and degradation due to water withdrawals from ecologically valuable feeder streams to supply water to a growing population with sprawling development. In the Mono Lake story, that city was Los Angeles.¹²⁹ In the near future, in Kentucky and Tennessee, those cities could easily be Louisville, Lexington, Memphis or Nashville pumping too much water from any of the local sources.

The Mono Lake Committee is among the biggest success stories for these kinds of tensions—that is, between development and

¹²⁸ Blake Farmer, *Tennessee Drought Stunts Growth of Local Crops*, MORNING EDITION, June 15, 2007, available at <http://www.npr.org/templates/story/story.php?storyId=11095767>.

¹²⁹ Craig Anthony Arnold, *Working Out an Environmental Ethic, Anniversary Lessons From Mono Lake*, 4 WYO. L. REV. 1, 13-14 (2004).

sustainable water pumping.¹³⁰ It is not possible to apply one geographical area's (Mono Lake's, for example) solution to a different geographical area's problems. The two situations are in many ways comparable, so lessons should be taken from them, but should then be applied to the specifics of Tennessee and Kentucky's problems. Both states have a water body in them that could be used to garner the same sort of awareness that was generated by the Mono Lake Committee. Kentucky has the Ohio River; Tennessee has the Mississippi River. Both have major metropolitan areas located on those rivers—Louisville in Kentucky and Memphis in Tennessee—that would be ready places to begin this sort of campaign.

The successes at Mono Lake that are most applicable to Kentucky and Tennessee are those that were the least confrontational. The slew of lawsuits filed by the Mono Lake Committee would be inadvisable in the instant situation.¹³¹ Beyond the legal issues, such as standing, that may bar such suits, they would be costly and ineffective in the present situation. The better solutions are those that did not label any particular entity as the enemy, which lawsuits have a tendency to do. There is no singular enemy here, nor should anyone be labeled as such. Instead, the other lessons, such as the Committee speaking to various environmental groups in the area,¹³² clothing and bumper stickers that have some kind of water conservation slogans on

¹³⁰ See *id.* (reviewing completely the Mono Lake story, and the Mono Lake Committee).

¹³¹ *Cf. id.* at 15-18.

¹³² *Id.* at 14.

them,¹³³ tours, outdoor programs, and educational programs for local youth¹³⁴ should be employed. These programs simultaneously avoid labeling anyone in particular as an enemy and spread awareness of the upcoming issues through the community.

A connection between the water body and the community is among the factors that caused the Mono Lake Committee to succeed.¹³⁵ This connection with the water body, and awareness of the potential dangers facing the water body, allowed for more water recycling programs to be put into place, and for the city of Los Angeles to increase their water rates by twenty percent in the summer months.¹³⁶ It is this level of conservation, and these sorts of recycling programs that would succeed in Louisville and Memphis, first, and then in Kentucky and Tennessee once the education programs and awareness were spread to the rest of the two states.

Louisville, as a city, already has a degree of private and commercial identification with the Ohio River. So far as public systems go, there is the bus system named the Transit Authority of the River City,¹³⁷ the parking system called the Parking Authority of the River City,¹³⁸ a not for profit housing organization named River City

¹³³ *Id.* at 14-15, 18-19.

¹³⁴ *Id.* at 19.

¹³⁵ *See id.* at 24-25.

¹³⁶ *Id.*

¹³⁷ Transit Authority of River City, *TARC homepage*, <http://www.ridetarc.org/> (last visited July 16, 2009).

¹³⁸ Parking Authority of the River City, *Homepage - PARC - LouisvilleKy.gov*, www.louisvilleky.gov/PARC (last visited July 16, 2009).

Housing,¹³⁹ and a church named the River City Worship Center.¹⁴⁰ There is at least awareness that some citizens of Louisville identify the city, and themselves, with the river. Even more pervasive is the commercial value of the name “The River City.” There are many examples of commercial use of the name “River City” to attempt to associate the commercial entity with a pride that exists regarding not just the city itself, but also the river in it. A few examples are The River City Bank,¹⁴¹ RiverCity Flooring,¹⁴² and River City Wrestling, a youth wrestling program.¹⁴³

Memphis, Tennessee has at least as much connection to the Mississippi River as Louisville has to the Ohio River. There are multiple public entities, such as the River City High School.¹⁴⁴ More impressively, there is a Mississippi River Museum,¹⁴⁵ which is part of the “unique historical, cultural and recreational attraction” known as Mud Island River Park.¹⁴⁶ Memphis similarly has a multitude of commercial

¹³⁹ River City Housing homepage, www.rivercityhousing.org (last visited, July 16, 2009).

¹⁴⁰ River City Worship Center homepage, www.rivercitywc.com (last visited Oct. 12, 2009).

¹⁴¹ River City Bank homepage, www.rivercitybankky.com, (last visited July 16, 2009).

¹⁴² RiverCity Flooring homepage, www.rivercityflooring.com, (last visited July 16, 2009).

¹⁴³ River City Wrestling homepage, www.rivercitywrestling.org (last visited July 16, 2009).

¹⁴⁴ Great Schools, *River City High School of Leadership Service*, http://www.greatschools.net/modperl/browse_school/tn/2507/ (last visited July 16, 2009).

¹⁴⁵ Mud Island River Park homepage, www.mudisland.com (July 16, 2009).

¹⁴⁶ *Id.*

activities attempting to associate themselves with the river by invoking the River City name.¹⁴⁷

Given the commercial viability that is being tapped into for association with the “River City” in both of these major metropolitan areas, the next step for water governance in general, and for pumping permit systems specifically, is to use this sentiment to their advantage. Many factors contributed to the changes that occurred at Mono Lake, some of which are simply not replicable in either Kentucky or Tennessee, such as the litigation. Educational programs centered on the landmarks already located in both cities are a ready possibility. There is not an immediate conflict to point to, so the program would not have any polarization and would not have to label any single party as an enemy, but the commercial market has indicated that there is some sentiment present in both cities that could be used. There is a pride regarding the large rivers in both towns, and both act as monuments and attractions.

It is that undercurrent of feeling that should be emphasized. If it is appropriately harvested for the right purposes, and combined with a water pumping permit framework, it is possible that both cities will be able to face the upcoming challenges by the time that they present themselves. The population increase is not such as that it will be necessary to have the entire public thinking about water, and water pumping, differently tomorrow. It will probably unnecessary over the

¹⁴⁷ See e.g., River City Limo Services, www.rivercitylimo.com; River City Gymnastics Inc, www.rivercitygymnastics.com; River City Karaoke, www.rivercitykaraoke.com; and River City Communications, www.rccom.net.

next few years. These sorts of programs do not act in short time frames, either. Because it is not an immediate effect sought, and because an immediate effect would not be possible, these education programs should be begun now; in fact, the change that education programs create is not visible until those children are making water use decisions.

The force of an organization such as River Fields Inc.,¹⁴⁸ an existing conservation group in the Ohio Valley area that has its headquarters in Louisville, would be perfect to spearhead this sort of campaign. River Fields is a good candidate for such a task, since it already seeks to protect the Ohio River Valley area specifically.¹⁴⁹ This sort of program is outside of their normal scope of conservation easements and environmental protection but, with the appropriate government assistance, the task should be well within their bounds, since they already have the environmental expertise requisite to produce the material, and a staff of people dedicated to protecting environmental concerns. The Tennessee Wildlife Federation,¹⁵⁰ while not located in Memphis and not specifically associated with the Mississippi River, should still have this sort of educational campaign within its scope, as it also has the expertise and staff qualifications.

If these programs can be initiated and successfully educate people on the impacts of their water use and the impacts of development on the rivers that are important to their cities, then water

¹⁴⁸ River Fields, Inc. homepage, www.riverfields.org, (last visited July 16, 2009).

¹⁴⁹ *Id.*

¹⁵⁰ Tennessee Wildlife Federation homepage, <http://www.tnwf.org/tnwf/> (last visited July 16, 2009).

pumping permit systems can be effective. Once the society around the system has been altered, the system itself can effectively mediate between a more conscious demand for water, and the finite water available. Perhaps adults already entrenched in land development expansion, and the idea that water is an infinite resource to be used as frequently and in as much quantity as possible, would be difficult or impossible to convince to change their water use habits. Children that have been educated regarding the dangers to the valuable water bodies around them are more likely to be responsive and receptive to recycling programs and other conservation measures.

IV. CONCLUSION

After reviewing both Tennessee's and Kentucky's water pumping permit system, several conclusions have become evident. Kentucky employs a complex framework that resembles an adaptive governance approach to water in general, while Tennessee has allocated pumping to smaller localities to deal with by and large. To decide which system is better may not, ultimately, require much of a value judgment regarding development versus sustainability. The two interests are almost always at competing ends, and developers would likely favor the Tennessee *laissez faire* approach, but it is possible that a more structured approach is better for everyone. Filling out extra forms before developing is likely worth what it achieves, which is a definite knowledge of what your rights are, rather than having no definite rights that may or may not be reduced.

The two systems face problems the likes of which may not be solvable by pumping permit systems. The drought in Tennessee was of such proportion that eliminating all of the problems drought could

cause is simply beyond the scope of a state water governance system. Kentucky has shown that it has more flexibility available to it in case of emergency. Kentucky also faces much less severe immediate difficulties than Tennessee, so the flexibility is perhaps exaggerated by the disparity in distress. Still, the future brings the specter of unstoppable growth, and thereby increased demand for water for which neither state is really prepared. Thus, water shortage will eventually be a regular condition rather than a short-term situation.

Because of that certain increase in demand in the future, the two systems both have room for improvement. Some of that improvement relies on a perspective that values sustainability slightly above ease of development, but development-minded values are still present. The less revolutionary proposals are smaller details, such as who receives absolute exceptions and when, in Kentucky, and entire structural problems in Tennessee. Because water pumping permit systems are mediation systems that are limited in how much they can do, environmental conservation groups in the area should utilize local rivers—landmarks that commerce is already utilizing—to connect people to the water that they use, thereby changing their desires, and possibly making future water recycling and stricter regulation of water use possible.