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The Water Excise Tax: Preserving a Necessary Resource

Thomas Lee*

I. INTRODUCTION: THE WATER SITUATION IN THE UNITED STATES AND THE WORLD

¶1 Though few may realize it, the United States and the majority of the developed countries in the world are quickly running out of one of the most essential resources for life as we know it: water.¹ The simple fact is that water is a limited resource and it is taken for granted in almost every sector in which it is used. In order to preserve the availability of drinking water to the general public, the federal government has an obligation to take aggressive steps to put in place regulatory incentives which will promote self-regulation in the water resources market.

¶2 We are already starting to see the effects of the depletion of our natural water sources.² Droughts are starting to cause serious problems in the Southwest where increased population growth has strained and even exceeded the resources available.³ California and its neighboring states continue to face serious threats of catastrophic fires as falling water tables⁴ create more dry fuel for each year's conflagration.⁵ Disputes between states over water rights are not new to American courts,⁶ but such disputes are gaining national news coverage for the first time.⁷ In 2007, Atlanta, Georgia's four million residents were only sixty-six days away from running out of drinking water.⁸ In short, the world and the United States are waking up to the very real possibility that in our lifetime, we will turn on the tap and nothing will come out.⁹

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¹ Press Release, WorldWatch Institute, Populations Outrunning Water Supply as World Hits 6 Billion, (Sept. 23, 1999), available at <http://www.worldwatch.org/node/1661> (last visited Mar. 22, 2009); Jon Gertner, *The Future is Drying Up*, N.Y. TIMES MAGAZINE, Oct. 21, 2007, at 68.

² See Gertner, *supra* note 1; William Falk, *You Must Remember This*, N.Y. TIMES, Dec. 27, 2007, at A29.

³ See Gertner, *supra* note 1.

⁴ A water table is the level of groundwater in a given area measured at its highest point of saturation, the highest level of the ground that the water has reached. If the water table goes down in a given location, less water is saturating the area. Gary A. Horton, "Water Table," Water Words Dictionary, Nevada Division of Water Resources, available at <http://water.nv.gov/WaterPlanning/dict-1/ww-index.cfm> (last visited Mar. 22, 2009).

⁵ See Jennifer Steinhauer, *Governor Declares Drought in California and Warns of Rationing*, N.Y. TIMES, June 5, 2008, at A18.

⁶ See, e.g., *Connecticut v. Massachusetts*, 282 U.S. 660 (1931) (Massachusetts prevailed against Connecticut's attempt to prevent the diversion of several waterways which flowed through Massachusetts to the Connecticut river); *Wyoming v. Colorado*, 259 U.S. 419 (1922) (Wyoming succeeded in enjoining Colorado and two Colorado corporations from withdrawing so much water that its downstream users' apportionment claims would not be met); *Kansas v. Colorado*, 206 U.S. 46 (1907) (Kansas sought to enjoin Colorado from depleting the Arkansas river before it reached Kansas).

⁷ See, e.g., Gertner, *supra* note 1.

⁸ Brenda Goodman, *U.S. Acts to Bolster Supply of Water for Atlanta*, N.Y. TIMES, Nov. 11, 2007, at A12.

⁹ See Press Release, WorldWatch Institute, *supra* note 1; see also Gertner, *supra* note 1.

¶3 There is a solution, however, that will at least delay, if not solve, this impending crisis: indirect regulation of water resources. Direct regulation of commercial consumption of water resources has not provided the desired results.¹⁰ For example, the Clean Water Act¹¹ and Safe Drinking Water Act¹² were important idealistic examples of federal legislation that sought to put direct statutory limitations on what commercial entities could and could not do with water. However, these environmental efforts at direct legislation were too rigid or piecemeal to continue to regulate their respective environmental concerns as time progressed.¹³ In addition, direct prohibitive regulation of water is only practical in large-scale applications; it cannot respond to every unique situation involving water resources.

¶4 Given the nature of water use and availability in this country, indirect regulation is best suited to avoid the very real possibility that we may run out of drinking water within our lifetimes.¹⁴ A large amount of the water consumed in this country is drawn from rivers fed by melting snow, particularly in western states.¹⁵ The problem is that this snowpack is dwindling and melting earlier each year.¹⁶ So the replenishing supply of water is decreasing and will continue to decrease as a result of climate change.¹⁷ At the same time, our total water withdrawals have been increasing gradually.¹⁸ Industry, agriculture, and energy production account for the vast majority of water use in this country.¹⁹ Therefore, the federal government should indirectly regulate commercial water use through market forces. Specifically, it should impose an excise tax on all commercial water withdrawals, forcing corporations and businesses to pay for the water that they use in their operations. This Comment suggests that if the federal government passes a statute like the one proposed, the resulting change in commercial water use would be unavoidable and organic, and would lead to a necessary decrease in corporate consumption of water.

¶5 This Comment will first examine the history and current state of laws regulating water use in the United States, and the commercial uses that are the target of the proposed Water Excise Tax. The next step will be to discuss the tax itself from several perspectives: First, its constitutionality, structure, and application in the framework of

¹⁰ See Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. L. REV. 21, 21–22 (2001).

¹¹ 33 U.S.C.A. § 1131 et seq. (2008).

¹² 42 U.S.C.A. § 300f et seq. (2008).

¹³ See Stewart, *supra* note 10.

¹⁴ See U.N. Env'tl. Programme [UNEP], Sub-Comm. on Intergovernmental Panel on Climate Change, *Climate Change 2001: Synthesis Report*, 272–76 (2001) (prepared by Robert T. Watson et al.) [hereinafter *Climate Change 2001: Synthesis Report*]; U.N. Env'tl. Programme [UNEP], Sub-Comm. on Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report*, 11, 52 (2007) (prepared by Lenny Bernstein et al.) [hereinafter *Climate Change 2007: Synthesis Report*]; Gertner, *supra* note 1; Press Release, WorldWatch Institute, *supra* note 1.

¹⁵ See Gertner, *supra* note 1; see also UNITED STATES GEOLOGICAL SURVEY, CHANGES IN STREAMFLOW TIMING IN THE WESTERN UNITED STATES IN RECENT DECADES, 1 (2005), available at <http://pubs.usgs.gov/fs/2005/3018#pdf>.

¹⁶ Gertner, *supra* note 1, at 70; see also *Climate Change 2001: Synthesis Report*, *supra* note 14, at 72.

¹⁷ *Climate Change 2001: Synthesis Report*, *supra* note 14, at Table SPM-2, 15; *Climate Change 2007: Synthesis Report*, *supra* note 14, at 48–50, 52.

¹⁸ SUSAN S. HUTSON, NANCY L. BARBER, JOAN F. KENNEY, KRISTIN S. LINSEY, DEBROAH S. LUMIA & MOLLY A. MAUPIN, U.S. GEOLOGICAL SURVEY, ESTIMATED USE OF WATER IN THE UNITED STATES IN 2000, 41, 46 (2004) [hereinafter USGS REPORT].

¹⁹ See *id.* at 5.

existing water law; second, its advantages and disadvantages based on its regulatory nature and scope; and finally, the normative benefits of indirect regulation. The theses underlying all of these sections are that public drinking water will become scarce in the very near future, that indirect regulation through the Water Excise Tax will help solve the problem of water availability, and that such regulations will provide the government with funds to ensure that the public supply of drinking water does not dry up in our lifetimes.

II. BACKGROUND: THE HISTORY OF WATER LAWS IN THE UNITED STATES

A. *Riparian Rights in the Eastern United States*

¶16 Water law in the eastern United States was originally based on the common law doctrine of riparian rights.²⁰ Riparian rights grant the owner of the land adjacent to a stream or waterway the right to make any reasonable use of the waterway.²¹ In addition, the owner of the contingent, or downstream, land was guaranteed that the quality and quantity of the stream or waterway would remain the same, except for the reasonable uses of other upstream land owners.²²

¶17 The riparian system is interesting because it envisions a reasonable and cooperative approach to the use of water resources. In this system, water rights are contingent on ownership of the property adjacent to the waterway.²³ Upstream users are allowed “reasonable” uses of the water that do not unreasonably diminish the volume or quality of the downstream users’ water.²⁴ However, the riparian system is limited in its scope of application. The riparian system cannot be manageably applied to river systems in other parts of the country, which extend thousands of miles over countless state and international boundaries. The riparian system is also ill-suited to deal with the situation in the West, where vast expanses of land are not adjacent to waterways, and where large diversions of water are required for land development.²⁵ For this reason, as the United States expanded westward, its courts and state legislatures abandoned the common law doctrine of riparian rights in favor of the “prior apportionment” doctrine.²⁶

B. *Prior Apportionment Doctrine in the Western United States*

¶18 In the West, most states adopted the prior apportionment doctrine,²⁷ which can be described as a first-in-time, first-in-right system.²⁸ Essentially, those who establish a claim to a waterway or portion of a waterway first get priority over all those who

²⁰ Colorado v. New Mexico, 459 U.S. 176, 179 n.4 (1982).

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ Reed D. Benson, *Deflating the Deference Myth: National Interests vs. State Authority Under Federal Laws Affecting Water Use*, 2006 UTAH L. REV. 241, 250–51 (2006).

²⁶ *Id.* at 251.

²⁷ *Id.*; see also Atchison v. Peterson, 87 U.S. 507 (1874) (adopting a prior apportionment system arising out of a dispute in water-resource management in Montana).

²⁸ Bartley v. Sone, 527 S.W.2d 754, 759 nn.3–5 (Tex. App. 1974) (citing WELLS A. HUTCHINS, THE TEXAS LAW OF WATER RIGHTS 228 (1961)).

subsequently seek to use a part of that water.²⁹ That appropriation must also be for a beneficial use, a category which is broad and includes industrial and agricultural needs.³⁰

¶9 The prior apportionment doctrine can be distinguished from riparian rights by examining to what the water right actually attaches. Prior apportionment establishes a right to use a certain amount of water based on a claim that it will be used for beneficial purposes rather than the mere attachment of water rights to property ownership. This was the feature of the prior apportionment doctrine that made it so attractive in the West, where huge arid expanses could only be irrigated by water diverted from sources far away, adjacent to property owned by others.³¹

¶10 However, the prior apportionment doctrine poses several problems in the modern water use context. First, apportionment is an inflexible or static system that assigns annual amounts that a user can divert from a water source. There is no built-in system for adjusting the amount of water apportioned to each user of a water source as the availability of water decreases. In fact, the prior apportionment system specifically says that as availability decreases, claims made later in time will no longer be honored unless earlier claims are first satisfied.³² As water tables drop, snowmelt decreases, and demand increases, the prior apportionment system will simply fulfill a smaller number of apportionments, and it will do so indiscriminately because in most states there is no hierarchy among the approved beneficial uses. The only determinant for who gets the water is who claimed that water first. The one exception to this harsh first-in-time rule is for water used for domestic purposes; in some states, there are statutes conferring a preference for domestic use claims above other uses, regardless of when the domestic claims were made.³³

C. Federal Involvement in Water Rights

¶11 The attitude of the federal government has historically been one of deference to state regulation of water resources.³⁴ However, the federal government does have the power to regulate certain aspects of water through the Commerce Clause and the Property Clause of the Constitution.³⁵ Both of these constitutional provisions grant the federal government the power to regulate water and waterways directly, through legislation that allows or prohibits certain activities.³⁶ But the federal government can also indirectly regulate water use in this country through the Taxation Clause of the Constitution.³⁷

²⁹ *Cappaert v. United States*, 426 U.S. 128, 138 (1976) (stating that a party “acquires a reserved right in unappropriated water which vests on the date of the reservation and is superior to the rights of future appropriators”).

³⁰ *See Hammond v. Rose*, 11 Colo. 524, 526 (1888); *Benson*, *supra* note 24, at 251.

³¹ *Benson*, *supra* note 24, at 250–51.

³² *Sanpete Water Conservancy Dist. v. Carbon Water Conservancy Dist.*, 226 F.3d 1170, 1173 (10th Cir. 2000).

³³ *See e.g., Brummund v. Vogel*, 184 Neb. 415, 420–21 (1969) (“[W]hen the waters of any natural stream are not sufficient for the use of all those desiring to use the same, those using the waters for domestic purposes shall have preference over those claiming it for any other purpose.”).

³⁴ *Benson*, *supra* note 24, at 242.

³⁵ *See id.* at 252–54 (discussing the Commerce Clause and the Property Clause as they relate to water regulation).

³⁶ *Id.*

³⁷ U.S. CONST. art. 1, § 8, cl. 1.

¶12 The Taxation Clause empowers Congress to impose taxes to pay the country's debts, to provide necessary defense for the country, or to provide for the general welfare of the country.³⁸ Under the Taxation Clause, the government has the power to impose an excise tax, defined as "[a] tax imposed on the manufacture, sale, or use of goods (such as a cigarette tax)."³⁹ The most relevant example of a Federal Excise Tax to our discussion is the federal gasoline tax, which is discussed below as an analogue to the proposed legislation that would impose an excise tax on all non-public water withdrawals.

¶13 All of the legal systems discussed above serve as the functional background on which this proposed federal legislation would operate.

III. THE FEDERAL GASOLINE TAX: A MODEL FOR INDIRECT REGULATION

A. *History of the Federal Gasoline Tax*

¶14 The Federal Gasoline Tax was first passed not as a way to regulate the gasoline market, but to generate revenue for the federal government as it tried to weather the effects of the Great Depression.⁴⁰ The first gas tax was included in the Revenue Act of 1932, which imposed a variety of new taxes and tax increases in order to raise the money needed to offset the government's skyrocketing deficit.⁴¹ The gas tax required refineries to pay a one cent per gallon tax for all gasoline sold.⁴² The gas tax was temporary until the Revenue Act of 1941, which made the tax permanent and raised it to one and a half cents per gallon.⁴³ Congress justified the increase of the tax and its newfound permanence by saying that the increased revenue was necessary to pay for the country's defense in light of World War II.⁴⁴

¶15 The next major development of the gas tax was the Federal-Aid Highway Act of 1956, which extended the life of the tax for thirty years, and which funneled revenue from the gas tax into a Highway Trust Fund to be used in building and maintaining the developing Interstate Highway System.⁴⁵ Since its permanent establishment in 1956, the only significant changes in the gas tax have been periodic increases in the amount of the tax, leading up to the present-day rate of 18.4 cents per gallon.⁴⁶

B. *Regulatory Effects of the Federal Gas Tax and the Theory of Indirect Regulation*

¶16 The gas excise tax is a good example of a system of indirect regulation, although it was not intended to be used as such. The gas tax is analogous to the Water Excise Tax because of its statutory nature, and the constitutional justification which allowed its initial and continuing existence.

³⁸ *Id.*

³⁹ BLACK'S LAW DICTIONARY 605 (8th ed. 2004).

⁴⁰ U.S. Department of Transportation, Federal Highway Administration, *Ask the Rambler: When did the Federal Government Begin Collecting the Gas Tax? The Revenue Act of 1932*, <http://www.fhwa.dot.gov/infrastructure/gastax.cfm> (last visited Mar. 25, 2009).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.* (citing JAMES S. SWEET, THE FEDERAL GASOLINE TAX AT A GLANCE: A HISTORY (1993)).

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

¶17 The gas tax is first and foremost a federal excise tax, adopted by Congress under the Taxation Clause. Therefore, Congress had to justify passing the tax based on one of the grounds enumerated in the Constitution.⁴⁷ Initially, the gas tax was justified as a measure to reduce national debt.⁴⁸ Later, the tax was enacted in its present form to fund the Interstate Highway System, which was said to be necessary for the defense of the country.⁴⁹ The Federal Gas Tax is an example of a constitutional federal excise tax on a liquid commodity.

¶18 The gas tax is also an example of an indirect regulatory system. The gas tax imposes a cost on the refiners of gasoline for every gallon of product that they sell.⁵⁰ This cost is passed on to the distributors who buy from the refiners, then to the franchises, and finally to the consumers themselves.

¶19 Americans can easily understand the effect of indirect regulation in their own lives through an example using the gas tax. Assume the government raised the gas tax from 18.4 cents per gallon sold to \$2.18 per gallon sold. The first to feel the pinch would be the refiners, who would raise their price per gallon by at least \$2.00 as well. That increase would then be passed on to the gas station franchises which, in turn, would have to raise the prices paid by consumers from \$3.50 to \$5.50. Anyone who owns a car would be immediately horrified by these increases in gas prices, and, after the initial shock wore off, would start considering how the prices affect her life.⁵¹ There are three obvious solutions: the first is to keep driving as much as before the price raise; the second is to drive less or not at all; and the third is to switch to a vehicle that uses less gas. This is a prime example of the effect of indirect regulation. By increasing the cost of something that is necessary for certain activities, the government forces us to change how we go about those activities.⁵²

¶20 The effects of this exact phenomenon can be seen in the commuting habits and car purchases of the American public in response to the rise in gas prices that took place between 2005 and 2008. When there was an unexpected rise in gas prices in the wake of Hurricane Katrina in 2005, Sport Utility Vehicle sales plummeted as consumers became unwilling to buy cars with poor fuel efficiency.⁵³ Correspondingly, sales of fuel efficient cars, particularly hybrids, have risen significantly in the past few years as gas prices continued to rise.⁵⁴ Because the increase in consumer gas prices was not orchestrated by the government, this is not a true example of indirect *regulation*. However, it is a very

⁴⁷ See U.S. CONST. art. 1, § 8, cl. 1.

⁴⁸ U.S. Dep't of Transp., *supra* note 40.

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ See Lisa Stark & Kate Barrett, *Infrastructure in Jeopardy With Fewer Miles Driven*, ABC NEWS, July 28, 2008, available at <http://abcnews.go.com/Business/BusinessTravel/story?id=5465036&page=1>.

⁵² See *id.*; see also Jeff Bailey, *Holiday Travelers Hit the Road, but Scrimped a Bit*, N.Y. TIMES, May 30, 2006, at A1; Lisa Belkin, *Your Raise Will Be in Gallons*, N.Y. TIMES, Aug. 7, 2008, at G1; Michael Winerip, *In Tight Times, the Day Trip Appeals*, N.Y. TIMES, Aug. 3, 2008, at L14.

⁵³ Nick Bunkley & Bill Vlasic, *Aiming to Keep Pace, Chrysler is Shrinking S.U.V.'s*, N.Y. TIMES, Aug. 14, 2008, at C1; Sholnn Freeman, *Truck and SUV Sales Plunge as Gas Prices Rise*, WASH. POST, Oct. 4, 2005, at D1.

⁵⁴ Bunkley & Vlasic, *supra* note 53; Naoko Fujimura & Tetsuya Komatsu, *Toyota Profit Rises on Overseas Car Sales, Weaker Yen (Update 2)*, BLOOMBERG NEWS, Nov. 7, 2007, <http://www.bloomberg.com/apps/news?pid=20601087&sid=a8RaJCM6ZQts&refer=home> (last visited Mar. 22, 2009).

tangible demonstration of the power of market forces on consumers, which is the thrust of indirect regulation.

¶21 Government control over the public's everyday lives in this way might seem almost Orwellian, but consider the other effect of indirect regulation using the gas tax. Imagine the same situation as above, where the government has raised the price of the gas tax by \$2.00. That cost would also eventually be passed on to the consumers who use gasoline for commercial or industrial purposes.⁵⁵ Essentially, the same increase in cost that would apply to the general public would also apply to factories that use gas in production, overland shipping companies, and any other commercial enterprise that uses gasoline. The effect would be an increase in the cost of doing business for all of these companies, regardless of the business' purpose.

¶22 Although consumers would initially experience increased costs,⁵⁶ the tax would eventually result in more efficient and less costly business practices. Basically, if a factory used gasoline to produce standard sized screws, the price consumers would pay for those screws would go up a certain amount, reflecting the increased cost of making the screws. This seems to be an argument against indirect regulation, since the only change effected by the regulation would be to raise the price paid by everyday consumers.

¶23 However, indirect regulation creates new market incentives that eventually will change the business practices of industry, rather than changing the prices paid by consumers. Going back to the screw example, given the sudden increase in the price of screws, there would be an incentive for a company to reduce the cost of manufacturing to arrive at a lower sale price. One obvious way to do that would be to decrease the amount of gasoline needed in the production process, since that is now a costly material, or to remove gasoline entirely from production. Consumers will favor the cheaper product of the same quality, and the company that has eliminated or reduced its use of the more costly material will prosper.

¶24 In this way, indirect regulation changes how a material is used in commerce or industry simply by artificially raising its price through excise taxes. These taxes introduce market forces which have the same effect as direct regulation, but which are universal in their application, and which cannot be avoided through loopholes in statutory language.

C. *Similarities Between the Federal Gas Tax and the Water Excise Tax*

¶25 The Federal Gas Tax is a good example of an excise tax which has the potential for indirect regulation both of the public's use of automobiles and vehicle travel, and of the industrial and commercial use of gasoline. There are several differences between gasoline and water; most notably, gasoline, unlike water, is not essential for human survival, despite what many may think these days. Because gasoline is not essential to human life, federal and state governments can impose extra costs on it, even when those costs will be passed down to the general public. The situation is different with water. The government should never impose taxes that will increase the cost that the general

⁵⁵ Robert A. Hanneman, *Taxation and Economic Management in the Western Nations*, 459 ANNALS AM. ACAD. POL. & SOC. SCI. 123, 127 (1982).

⁵⁶ *Id.*

public must pay for access to water; the effect of such legislation would be the selective dehydration of our country's most needy.

¶26 Yet, the imminent water shortage is a real problem which needs to be addressed as soon as possible to mitigate the damage done each year to America's future water supplies.⁵⁷ If the government cannot indirectly regulate public consumers, but it needs to significantly reduce the amount of water used each year in this country, what is the solution? The first step is to identify which segments of American society use what amounts of water to determine whether those uses can be reduced and improved. Essentially, where is all of the water going?

IV. WATER USE IN THE UNITED STATES

¶27 In calculating the amount of water used in the United States in 2000, the U.S. Geological Survey (USGS) used eight categories: Domestic Use, Livestock, Aquaculture, Mining, Industrial, Public Supply, Irrigation, and Thermolectric Power.⁵⁸ The categories are listed below in order of volume of withdrawals from smallest to greatest.

A. Domestic Use

¶28 In calculating totals for the 2000 water use report, the USGS tallied the amount of water which private users supplied themselves and used for domestic purposes.⁵⁹ Essentially, this category includes household water not drawn off the main public supply system, but rather taken from wells or other sources. Domestic water accounted for less than one percent of the total water withdrawals in 2000.⁶⁰

¶29 One interesting feature of domestic withdrawals is that there does not seem to be a strong correlation between the availability of public supply and the reliance on domestic withdrawals.⁶¹ California, the largest public supply withdrawer, also has the highest amount of domestic withdrawals, though this may simply be a function of its size.⁶² However, the data does show that the states in the Southwest have the smallest population percentage using self-supplied domestic water.⁶³ While the data is not explicit, it seems to suggest that in those states where water is becoming, or is already, scarce, there is increased reliance on public supply.

B. Livestock and Aquaculture

¶30 The livestock and aquaculture industry withdrawals each account for less than one percent of the total water withdrawals for 2000.⁶⁴ Livestock withdrawals include all water withdrawn for consumption by animals, for raising animals, and for the process of

⁵⁷ *Climate Change 2007: Synthesis Report*, *supra* note 14, at 48–50.

⁵⁸ USGS REPORT, *supra* note 17, at 5.

⁵⁹ *Id.* at 16.

⁶⁰ *Id.* at 16. Domestic use withdrawal total of 3590 million gallons per day is fairly small when compared with the total public supply withdrawal of 43,300 million gallons per day. *Id.* at 14, 17.

⁶¹ *See id.* at 16.

⁶² *Id.*

⁶³ *Id.* at 17–18.

⁶⁴ *Id.* at 23–28 (tabulating only freshwater withdrawals for aquaculture).

getting animal products, such as milk.⁶⁵ In general, livestock withdrawals are highest in the plains states, although the Southeast and California both are significant withdrawers.⁶⁶

¶31 Many of the same concerns that apply to farming, discussed below, also could be raised in the livestock context, particularly, that adding water as a cost to farmers would place a large burden on a necessary industry. The simple answer is that the livestock industry will have to adjust sooner or later.⁶⁷ By controlling that adjustment and allowing it to take place over a longer period of time, the government can minimize the harmful effects that it will have on the industry.⁶⁸ Also, the traditional idea of ranchers as rugged individualist settlers on the plain is no longer accurate. The U.S. livestock industry is rapidly moving towards the factory farm system where large corporations mass produce the animal products that Americans use and eat everyday.⁶⁹ Therefore, indirect regulation would not force Ma and Pa to pay for the water they use. Rather, it would only add a cost to the spreadsheets of corporations.⁷⁰

¶32 The aquaculture industry raises fish and shellfish for “food, restoration, conservation, or sport.”⁷¹ Water withdrawals for aquaculture usually go to fish farms and fish hatcheries.⁷² The effects of indirect regulation on the aquaculture industry are different from its effects on other types of farming because in aquaculture the water is not just a necessary ingredient or material. Instead, it is the medium in which the product must live. Despite the unique challenge of aquaculture, fish farms will not be able to exist as they do today given the increased demands for and decreased supply of water in the future.⁷³ Therefore, whatever changes can be made now through indirect regulation must be made, in order to preserve the future of the industry.

C. Mining

¶33 Mining accounted for less than one percent of the total water withdrawals in 2000, adding up to roughly 3490 million gallons of water withdrawn per day.⁷⁴ In mining,

⁶⁵ *Id.* at 23–25 (indicating that California, Texas and Oklahoma combine for almost fifty percent of the country’s total water withdrawals for livestock and two-thirds of the surface water withdrawn for livestock).

⁶⁶ *Id.* at 24–25.

⁶⁷ See U.N. Envtl. Programme [UNEP], Sub-Comm. on Intergovernmental Panel on Climate Change, *Climate Change 2001: Impacts, Adaptation and Vulnerability*, 757 (2001) (prepared by James J. McCarthy et al. eds.) [hereinafter *Climate Change 2001: Impacts, Adaptation and Vulnerability*]; see also U.N. Envtl. Programme [UNEP], Sub-Comm. on Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report*, 48–50, 52 (2007) (prepared by Rajendra K. Pachauri et al. eds.) (finding that the western United States will suffer from drought increases which, in turn, will lead to increased livestock deaths).

⁶⁸ See generally *Climate Change 2007: Synthesis Report*, *supra* note 14 (finding that adaptation of existing water use techniques to changing circumstances will reduce the risk that climate change poses for food production).

⁶⁹ MATTHEW SCULLY, *DOMINION: THE POWER OF MAN, THE SUFFERING OF ANIMALS, AND THE CALL TO MERCY* 28–29, 31 (2002).

⁷⁰ See *id.*

⁷¹ USGS REPORT, *supra* note 18, at 26.

⁷² *Id.* at 26–28 (indicating that Idaho withdrew the most water of any state for aquaculture in 2000, with California, Mississippi, Louisiana, Arkansas, and Utah trailing).

⁷³ See generally *Climate Change 2001: Impacts, Adaptation and Vulnerability*, *supra* note 67; *Climate Change 2007: Synthesis Report*, *supra* note 14 (discussing the impact that climate change will have on agriculture and food production).

⁷⁴ USGS REPORT, *supra* note 18, at 33.

water is used in a variety of ways, usually to extract minerals that are in the form of solids, or to extract petroleum and some gases.⁷⁵ States with higher mining water withdrawals are scattered across the country, as the industry only develops in areas where there are minerals, petroleum, or gas to extract.⁷⁶

¶34 Indirect regulation of the water used in the mining industry would have roughly the same effect as it would on industrial water use. If the water used were to cost more, the industry would adjust by developing mining techniques and technologies that no longer required the use of as much, or any, water. As with all the other industries discussed, the mining industry will have to adjust eventually, and indirect government regulation is the best way to effect that change proactively, softening the adjustment period.

D. Industrial

¶35 Industrial water use comprised five percent of the total water use in the United States in 2000.⁷⁷ Water is used in industry in a wide variety of ways, namely, as a component of products, as a component of the production process, or simply as a medium for cleaning the production facility.⁷⁸ The most water-greedy industries are the food, paper, chemicals, refined petroleum, and primary metals industries.⁷⁹

¶36 The argument in favor of indirect regulation is, perhaps, clearest when applied to industrial water withdrawals, because in these cases it is easiest to see how such regulation will lead to changes in business practices. Water in industry is a material used like any other; production techniques are based on available technology and are designed to minimize the cost of production in order to maximize the overall net profit. By raising the price of the water used in industry, the government would simply be raising the price of a material used in production. Technology then can be developed to reduce or remove the need for water, production techniques can be employed to achieve the same result, or both new technology and production techniques can combine to reduce water use. Simply put, industrial water use would respond to indirect regulation in very predictable ways, chiefly by reducing the amount of water used to achieve the same result in order to maximize net profits.

E. Public Supply

¶37 Public supply accounted for eleven percent of total water use in the United States in 2000.⁸⁰ Public supply describes all the water withdrawn by government agencies, which is usually cleaned, distributed and used in our homes, schools, community facilities, and

⁷⁵ *Id.* at 32 (discussing how Texas, Minnesota, and Wyoming combine to account for forty-six percent of the total water withdrawn for mining purposes while businesses in Florida, California, Utah, New Jersey, and Alaska withdraw significant resources as well).

⁷⁶ *Id.* at 32–34.

⁷⁷ *Id.* at 29.

⁷⁸ *Id.*

⁷⁹ *Id.* at 29–31. The report indicates that businesses in Louisiana, Indiana, and Texas combined for about thirty-eight percent of the total industrial withdrawals and vastly out-measured all other states in terms of volume withdrawn. In the rest of the country, the Great Plains region withdrew almost no water for industry, while almost all the states east of the Mississippi withdrew a moderate amount of water for industry.

⁸⁰ *Id.* at 13.

fire hydrants.⁸¹ In 2000, when the USGS survey was conducted, about eighty-five percent of the country's population relied on public supply water for its daily needs.⁸² This number was up eight percent from 1995, reflecting a general trend towards population growth in urban areas where public water is prevalent, and a decrease in rural populations where private well water is more common.⁸³ Not surprisingly, states with the highest populations accounted for the highest water withdrawals for public supply.⁸⁴ However, not far behind were several states in the arid West.⁸⁵

¶38 As populations continue to grow, and as the trend towards urbanization continues, the amount of water withdrawn for public supply each year will increase, as will the percentage of the population which relies on it. It is this type of water use that we must guarantee for the future in the face of dropping water availability.

F. Irrigation

¶39 Irrigation is the second largest category of water withdrawals, accounting for thirty-four percent of total water withdrawals in 2000.⁸⁶ Irrigation water use is self-explanatory: in areas where rainfall is insufficient to support the desired crops, irrigation supplements the rainfall to allow crops to grow. The western states account for the vast majority (eighty-six percent) of water withdrawn for irrigation purposes.⁸⁷

¶40 Irrigation is a category of water usage which is not directly necessary for human survival. Granted, irrigation is necessary to grow much of the food that we eat and the agricultural products on which we rely. However, because the water withdrawn for irrigation is used as part of a process that eventually produces necessary goods rather than being the necessary good in itself, there is room for improvement. That improvement, in irrigation technology, in choice of crops, in alternate water source technology, and so forth is not only possible, it is necessary.⁸⁸

¶41 The farming industry as it currently exists will experience a severe decrease in its production capacity in our lifetime.⁸⁹ That is the simple fact that Americans must face. Once that has been generally accepted the government is faced with a choice. The first option is to wait and see, letting nature take its course and watching farms slowly die as water tables drop and fewer gallons are available each year for irrigation.⁹⁰ The second option is to take action now before changing conditions force us to.

¶42 By using indirect regulation to improve the water use aspects of the farming industry, we will preserve the drinking water necessary for our growing population and encourage the change necessary to preserve the farm industry in the future.⁹¹ First, the

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.* at 13–15 (noting the order of water withdrawal: California, Texas, New York, Florida, and Illinois).

⁸⁵ *Id.* at 14–15 (noting that, for example, Arizona, Utah, New Mexico, and Nevada combined withdrew 11,180 million gallons of water per day, half of what Texas withdrew).

⁸⁶ *Id.* at 20–22.

⁸⁷ *Id.* (placing California at the top of the list for withdrawal volume, followed in order by Idaho, Colorado, Nebraska and Texas).

⁸⁸ *Climate Change 2001: Impacts, Adaptation and Vulnerability*, *supra* note 67, at 754–59, 783–84.

⁸⁹ *Id.* at 757.

⁹⁰ See *id.* for the effects on the agriculture industry.

⁹¹ See *id.* at 757–58 (acknowledging that while the relationship between changes in irrigation demand and

farming industry will be able to develop technologies that will allow it to survive in an environment with much less water over a longer period of time rather than in the face of mass droughts and food shortages. Essentially, when water drops below the levels now needed to sustain our farming industry, the industry will have already adjusted, and will be able to continue providing us with the food and products that we need. Second, by decreasing the amount of water used by agriculture, the government would free up more water for public supply⁹²—an ultimate goal of the indirect regulation measures. Finally, where it becomes clear that certain types of crops will not be viable in a water-deprived future, proactive adjustment will give us time to develop or find different crops which are viable and fulfill society's needs.⁹³ There is really no question, whether we change the farming industry now or later, that a change will inevitably happen.⁹⁴ It is in the best interest of our country and the farming industry to make that change now in a way that will minimize the damage done by transition.

G. Thermoelectric Power

¶43 Last, we turn to the largest use of water in the United States: thermoelectric power. Forty-eight percent of the water used in the United States in 2000 was used in thermoelectric power plants.⁹⁵ Thermoelectric power passes water through heat exchangers that turn the water into steam. The steam then rises to turn turbines which in turn generate electricity.⁹⁶

¶44 There are two types of cooling systems used by thermoelectric plants: once-through cooling systems, and closed-loop cooling systems.⁹⁷ There is an enormous difference in the amount of water needed to produce the same amount of energy between the two systems.⁹⁸ The once-through systems withdraw water from a source, cycle it through the heat exchanges where the necessary steam is created, and then flush the water back out into a surface-water body.⁹⁹ As the water is pumped through the power plant, some of it is converted into steam to drive the turbines, but most is passed through to another body of water. This type of technology was developed in the eastern United States where water was an abundant resource.¹⁰⁰ With the Great Lakes and the Atlantic Ocean close at hand, eastern states had no incentive to develop water-efficient thermoelectric power plants.¹⁰¹

water supply have not been fully assessed, scenarios where irrigation demand declines provide benefits such as relieving stress on regional water sources); *Id.* at 783–84.

⁹² *Id.* at 757–58.

⁹³ *See id.* at 783–84.

⁹⁴ *See generally id.*

⁹⁵ USGS REPORT, *supra* note 18, at 35 (noting that the total water withdrawal for thermoelectric power was 195,000 million gallons of water per day).

⁹⁶ *Id.* at 35. Ninety-nine percent of the water withdrawn for use in thermoelectric power plants was surface water, and about a third of that surface water was saline, accounting for ninety-six percent of all saline withdrawals in the United States in 2000. *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¶45 Where water was naturally less abundant, states developed other means of generating electricity.¹⁰² In the Pacific Northwest, most states rely on hydroelectric power, which is an in-stream form of power generation that does not lead to any water being consumed.¹⁰³ In the arid Southwest, states have developed more efficient forms of thermoelectric power that have a higher consumptive rate (more steam produced from the same amount of water) than their Eastern counterparts.¹⁰⁴ Specifically, Southwestern thermoelectric plants use closed-loop cooling systems which recycle water through the plant.¹⁰⁵ Basically, water is withdrawn from a source and pumped past the heat exchanges to create steam just as it would be in a once-through system.¹⁰⁶ However, the water that does not evaporate is recycled through the heat exchange over and over until it is all evaporated.¹⁰⁷ The only water that is withdrawn from the source is the amount necessary to replace the water that has been converted into steam.¹⁰⁸ Three quarters of the closed-loop cooling systems achieved a consumptive rate of fifty percent in 2000 compared with an average consumptive rate of half of a percent for once-through systems.¹⁰⁹ The consumptive rate for thermoelectric plants measures the amount of water that is actually turned into steam and used in the energy process.¹¹⁰ So by comparison, a once-through system would have to divert one hundred times the amount of water diverted by a closed-loop system to generate the same amount of energy producing steam.

¶46 The effect of indirect regulation on the thermoelectric power industry is quite clear: it will drive the industry towards new and already-existing techniques for thermoelectric power production which use water more efficiently. The philosophy that guided the development of the thermoelectric power plants in the eastern states can no longer apply. Fresh water is not an abundant resource, and will become scarcer as time goes on. Once-through cooling systems are no longer a viable technology because they waste too much water to achieve the same result closed-loop cooling systems do by diverting, and often polluting, the water they use. The thermoelectric power industry would benefit from indirect regulation because it would be further encouraged to move towards technologies which use fresh water more efficiently, thereby preparing the industry for the decrease in fresh water availability in years to come.

¶47 There are two important features of the thermoelectric industry that warrant a separate analysis. First, the thermoelectric power industry has been moving towards the closed loop technology over the past few decades as a result of federal legislation passed in the 1970s.¹¹¹ In 2000, sixty percent of the country's thermoelectric plants used something other than a once-through system.¹¹² It might seem that if federal legislation is

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*; BEN DZIEGIELEWSKI ET AL., USGS, DEVELOPMENT OF WATER USE BENCHMARKS FOR THERMOELECTRIC POWER GENERATION, ES-3, *available at* water.usgs.gov/wri/04grants/Progress%20Completion%20Reports/2004IL56G.pdf.

¹¹⁰ Horton, *supra* note 4, "Consumptive (Water) Use."

¹¹¹ USGS REPORT, *supra* note 18 at 42; *see* Clean Water Act, 33 U.S.C.A. § 1311 et seq. (2008).

¹¹² USGS REPORT, *supra* note 18, at 42. Amazingly, closed loop withdrawals totaled 18,300mg/d while

already in place that is encouraging this positive shift in thermoelectric technology, indirect regulation of the industry might not be necessary. However, the legislation implemented in the 1970s only imposes water quality standards for the water leaving the plants.¹¹³ The focus of the law is not on the amount of water going into the plant, but on the cleanliness of the water leaving the plant.¹¹⁴ While the law has resulted in a decrease in water-wasting technology, there is no guarantee that this decrease will continue since it is not the focus of the law. Indirect regulation shifts the industry focus to the amount of water being withdrawn and puts in place economic incentives that will lead to a decrease in withdrawals.

¶48 The second feature of the thermoelectric industry which is worthy of further note is that about thirty percent of the water withdrawn for this use is salt water.¹¹⁵ Because the water excise tax attaches only to freshwater withdrawals, the salt water withdrawn by the thermoelectric industry would not be taxed. As a result, the thermoelectric industry may replace freshwater withdrawals with saltwater withdrawals to avoid taxation. So the end result of the water excise tax on the thermoelectric industry will be to encourage it to move towards water conservation technology, or to change the type of water that it withdraws.

V. ANALYSIS: INDIRECT REGULATION: APPLICATION, DRAWBACKS, ADVANTAGES

A. *Application: Excise Tax on All Non-Public Supply or Domestic Withdrawals*

¶49 The federal government should impose an excise tax on all water withdrawn for any sector other than public supply or domestic use. According to USGS data, this tax would apply to over eighty-eight percent of all water withdrawn in this country each year.¹¹⁶ The purpose of the tax would be twofold. First, it would provide revenue to the government for research, development, and implementation of techniques and technologies which will preserve and prolong the availability of water to the general public. Second, it would create systemic change in the way that water is currently used for commercial purposes. Specifically, the tax would move industries towards technologies or techniques which are water efficient, or which require no water input whatsoever.

1. Constitutional Authority and Constitutionality

¶50 The first goal of the Water Excise Tax is essential for its authorization under the Taxation Clause of the Constitution. The Taxation Clause of the Constitution grants Congress the power to “lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defense and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States.”¹¹⁷ For

once-through withdrawals totaled 177,000mg/d in 2000. *Id.* at 38.

¹¹³ *Id.* at 42; 33 U.S.C.A. § 1311 et seq.

¹¹⁴ USGS REPORT, *supra* note 18, at 42; 33 U.S.C.A. § 1311 et seq.

¹¹⁵ USGS REPORT, *supra* note 18, at 35.

¹¹⁶ *See id.* at 5 (noting that eighty-eight percent of all water withdrawals are for purposes other than domestic use and public supply).

¹¹⁷ U.S. CONST. art. 1 § 8, cl. 1.

example, the Federal-Aid Highway Act of 1956 was within Congress' power under the Taxation Clause because the revenues from the tax were used to build an interstate highway system, nominally, for the nation's defense.¹¹⁸

¶51 Congress has the constitutional authority to pass the Water Excise Tax to provide for the general welfare of the country.¹¹⁹ Because the constitutional grant of the power of taxation to provide for the "general welfare" of the country is vague, the courts have interpreted its meaning broadly.¹²⁰ In *U.S. v. Butler*, the Supreme Court discussed the "general welfare" taxation power while examining the Agricultural Adjustment Act, which was designed to equalize the purchasing power of farmers in the wake of the Great Depression.¹²¹ The court ultimately held that the law in question was unconstitutional on the grounds that it invaded the reserved rights of the states, but in an earlier part of the decision it held that the excise tax in question was in fact not a tax at all, but a means of "expropriat[ing] money from one group for the benefit of another."¹²² The tax at issue in *Butler* was an excise tax on agricultural processors, and its proceeds were redistributed directly to farmers to increase or equalize their purchasing power.¹²³ The Court suggested that this tax did not serve the "General Welfare" of the nation because none of the tax actually went to the coffers of the federal government.¹²⁴ Thus, in the *Butler* case, the Supreme Court struck down an excise tax passed under the "General Welfare" clause of the Constitution because it found that the tax was used as a means to achieve the Act's true legislative end, to regulate agriculture, which was a power reserved for the states.¹²⁵

¶52 The following year, the Supreme Court further explained the extent of Congress' taxing and spending powers under the "General Welfare" clause in *Helvering v. Davis*, written by Justice Cardozo.¹²⁶ The *Helvering* case dealt with a challenge to excise taxes contained in the Social Security Act of 1935 and provides an instructive example of taxes passed for the general welfare of the nation.¹²⁷ The purpose of the Act, as explained by Justice Cardozo, was to combat the problem of unemployment and the lack of a financial safety net for the elderly in the wake of the Great Depression.¹²⁸ Specifically, the Court held that "[s]preading from state to state, unemployment is an ill not particular but general."¹²⁹ In discussing whether a tax is levied for the "General Welfare" of the nation, Justice Cardozo wrote:

The line must still be drawn between one welfare and another, between particular and general. Where this shall be placed cannot be known through a formula in advance of the event. There is a middle ground or certainly a penumbra in which discretion is at large. The discretion,

¹¹⁸ U.S. Department of Transportation, *supra* note 40.

¹¹⁹ U.S. CONST. art. 1, § 8, cl. 1.

¹²⁰ *U.S. v. Butler*, 297 U.S. 1, 56, 64–67 (1936) (discussing the meaning of the phrase "general welfare" without fully reaching the issue of its scope).

¹²¹ *See id.*

¹²² *Id.* at 61.

¹²³ *See id.*

¹²⁴ *Id.* at 60–61.

¹²⁵ *See id.*

¹²⁶ 301 U.S. 619 (1937).

¹²⁷ *Id.* at 634.

¹²⁸ *Id.* at 641.

¹²⁹ *Id.*

however, is not confided to the courts. The discretion belongs to Congress, unless the choice is clearly wrong, a display of arbitrary power, not an exercise of judgment. This is now familiar law.¹³⁰

The *Helvering* decision clearly states that Congress is granted great deference in determining what types of taxes and expenditures promote the general welfare.¹³¹ The courts have continued to apply the deferential standard towards Congress' power to tax and spend for the general welfare.¹³² In addition, in *Helvering*, Justice Cardozo notes that the issues that may constitute the general welfare are not static, and can change over time.¹³³

¶53 The unemployment problem discussed in *Helvering* provides a nice analogy to the water availability problem because both are national or general welfare issues with significant regional divergence. In addition, the unemployment problem was a perceived but not immediate problem, similar to the perceived problem of water scarcity which is not yet immediate in all parts of the country. Today, unemployment rates differ from state to state,¹³⁴ and from region to region,¹³⁵ yet over time the Supreme Court has identified unemployment as an issue involving the general welfare of the nation.¹³⁶ Similarly, water availability differs from state to state and region to region, but the problem of its future availability concerns the general welfare of the nation. While the future availability of water may not have always been an issue for the general welfare of the country, the prospect of its imminent unavailability makes it an issue of general welfare today.

¶54 The only remaining issue in determining the constitutionality of the Water Excise Tax is whether the tax is "uniform throughout the United States" as required by the Taxation Clause of the Constitution.¹³⁷ Because the Water Excise Tax would establish uniform rates of taxation for each industry, its application to the states is uniform. The constitutionally mandated uniformity is not upset by the fact that there may be regional differences in the effects of the tax based on what industries are in what region, or how scarce water may be in different regions.¹³⁸ What is required is geographic uniformity, not intrinsic uniformity or uniformity in the effect of the tax.¹³⁹ Again, because the

¹³⁰ *Id.* at 640–41.

¹³¹ *Id.*

¹³² *See* U.S. v. Dole, 483 U.S. 203, 208 (1987) ("In considering whether a particular expenditure is intended to serve general public purposes, courts should defer substantially to the judgment of Congress."); *see also* *Bowens v. Owens*, 476 U.S. 340, 345 (1986) ("Government decisions to spend money to improve the general public welfare in one way and not another are not confided to the courts. The discretion belongs to Congress, unless the choice is clearly wrong, a display of arbitrary power, not an exercise of judgment."); U.S. v. Lipscomb, 299 F.3d 303, 321–22 (5th Cir. 2002) (citing *Dole* as establishing a standard of judicial deference for spending decisions made by Congress); *State of Oklahoma v. Schwiker*, 655 F.2d 401, 406 (D.C. Cir. 1981) (discussing with approval the strong theory of deference established in *Butler* and *Helvering*).

¹³³ *Helvering*, 301 U.S. at 641.

¹³⁴ BUREAU OF LABOR STATISTICS, U.S. DEP'T OF LABOR, REGIONAL AND STATE UNEMPLOYMENT, 2007 ANNUAL AVERAGES 1–4 (2008), available at <http://www.bls.gov/news.release/srgune.nr0.htm>.

¹³⁵ *Id.*

¹³⁶ *See Helvering*, 301 U.S. at 641; *Flemming v. Nestor*, 363 U.S. 603, 609 (1960).

¹³⁷ U.S. CONST. art. 1, § 8, cl. 1.

¹³⁸ *See Knowlton v. Moore*, 178 U.S. 41, 106 (1900).

¹³⁹ *Id.* The court also discusses the validity of early excise taxes on goods which were permissible because they were geographically uniform. *Id.*

Water Excise Tax would set national rates for each industry, it passes the constitutional test of uniformity.

¶155 Under the system of deference established by the Supreme Court, Congress has the constitutional authority to pass the Water Excise Tax under the General Welfare Clause of the taxing power granted in Article 8.¹⁴⁰

2. Water Excise Tax Rates and Focus

¶156 Now that the constitutionality of the tax has been established, this Comment will examine the structure of the tax itself. The first structural question for the Water Excise Tax is to what it actually attaches; what is the physical thing that is actually taxed? The next question is how the tax rates are to be set, and to what segments of water withdrawals the rates will attach? The final structural question is where the money will go and how it will be used?

¶157 The Water Excise Tax will attach to physical withdrawals of water. Every time a business withdraws water from any freshwater source it will be subject to taxation. In this way the tax attaches to the most direct measure of how much water a business or industry actually uses. It also avoids the problem of drafting a tax which would apply to water rights in the apportionment West¹⁴¹ and the riparian East¹⁴² by attaching to the water itself, rather than the right to water.¹⁴³

¶158 The next issue is how the tax would be administered, or how the withdrawals of business would be monitored in order to be taxed. The Water Excise Tax will require all businesses that withdraw water to install a meter to measure how much water they withdraw per day. There will be an exception made for those businesses that withdraw less than an amount designated by Congress. Those businesses that withdraw less than the statutorily set volume would be required to pay a preset tax amount. The regulatory scheme proposed here is essentially the inverse of that proposed by the Excise Tax of 1791, which imposed a flat tax rate for distillers of spirits who produced over a certain volume, and taxed by the gallon for distillers who produced under a certain volume. Of course, that tax led to the Whiskey Rebellion of 1794,¹⁴⁴ but given the different times, circumstances, and liquids involved, the likelihood of a Water Rebellion seems slim. So the Water Excise Tax will attach to water withdrawals themselves, will be administered by meters for all withdrawers over a designated volume, and will assess a flat tax on all who fall below that volume.

¶159 The penultimate question in establishing the Water Excise Tax is where to set the tax rate itself. Because the second purpose of the tax is to indirectly regulate the water industry, this tax is unique in that it is intended to be set at a rate which the market cannot easily bear. In other words, if the point of the tax is to create a shift in the industries that it taxes, the tax has to be set at a level which is beyond what those industries can absorb

¹⁴⁰ *Helvering*, 301 U.S. at 640; U.S. CONST. art. 1, § 8, cl. 1.

¹⁴¹ *Supra* notes 27–33 and accompanying text.

¹⁴² *Supra* notes 20–26 and accompanying text.

¹⁴³ *See infra* notes 147–150 and accompanying text for a more detailed discussion of the tax's integration into existing water law in the United States.

¹⁴⁴ *See* Louis Fisher, *Domestic Commander in Chief: Early Checks by Other Branches*, 29 CARDOZO L. REV. 961, 977 (2008); Jason Mazzone, *The Commandeerer in Chief*, 83 NOTRE DAME L. REV. 265, 320–21 (2007).

without change. The actual level of taxation rates, however, is beyond the scope of this Comment and will require extensive research into the economics of each industry in order to determine what rates should be applied to create the necessary change, and necessary income for the government, without destroying the industry.

¶160 The final structural question is how the revenue from the Water Excise Tax would be directed and used by the federal government. The revenue from the Water Excise Tax should be deposited into a treasury fund similar to the Highway Trust Fund.¹⁴⁵ Congress could then appropriate those funds to address the looming issue of water depletion. First, the government should study the climate changes which result in water depletion and take steps to prevent negative climatic effects. The United Nation's reports cited throughout this Comment are excellent examples of such research conducted on a global level containing both scientific and normative components.¹⁴⁶ Second, the United States should research better ways to trap, extract, and store existing water resources. Finally, the government should conduct and fund extensive research into alternative water sources, particularly desalination, which will become necessary and beneficial as conventional water sources dry out and as sea levels rise.

¶161 In summary, the Water Excise Tax attaches to the amount of water withdrawn and taxes businesses which withdraw below a certain volume at a flat rate, set for the given industry, while taxing businesses who withdraw over a certain volume at a per volume rate to be determined by industry.

3. Integrating the Water Excise Tax Into Existing Water Law

¶162 It is at this step in the Water Excise Tax that state laws governing water use become relevant. Water withdrawn by owners of riparian rights in the East would have to be tallied for the tax. Likewise, water withdrawn based on established apportionments in the West would also have to be taxed.

¶163 The prior apportionment system is easier to fit into the taxation framework for several reasons. First, when a user is allotted an apportioned withdrawal, it is usually in the form of a volume amount, generally in gallons per time period.¹⁴⁷ Second, apportioned waters are usually withdrawn from a specific point in the stream or river, then transported where the industry needs them.¹⁴⁸ Thus, in much of the West withdrawal volumes are already calculated, and the extraction points are easily identifiable. Businesses would simply have to install meters at the withdrawal points which would measure the amount of water withdrawn for purposes of taxation. In this way, the withdrawal system already in place in the West can be easily integrated into the collection framework of the Water Excise Tax, especially for businesses who withdraw over the flat tax withdrawal level.

¶164 The existing water rights framework in the riparian East is not as well suited for integration with the Water Excise Tax. The difficulty is that, under the riparian system, the amount withdrawn has only minimal legal significance,¹⁴⁹ so the system is not designed to take volume measurements into account. However, the Water Excise Tax

¹⁴⁵ See U.S. Department of Transportation, *supra* note 40.

¹⁴⁶ *Supra* note 14.

¹⁴⁷ Benson, *supra* note 25, at 251.

¹⁴⁸ See *id.* at 250–52.

¹⁴⁹ Colorado v. New Mexico, 459 U.S. 176, 179 (1982).

would still require businesses to install meters to measure volume if they exceed the flat tax withdrawal level. The difficulty of installing meters is not as great as it may seem since most large withdrawals are done by corporations which feed the water into some type of system, be it irrigation, aquaculture, industry, thermoelectric generation, or any other commercial use.¹⁵⁰ Installing meters for these types of withdrawals would not be difficult given their systematized nature.

¶165 While the Water Excise Tax will initially pose some challenges in terms of introducing its administrative components, both of the local water law systems predominant in the United States are ultimately compatible with the tax.

B. Drawbacks of Indirect Regulation

¶166 As with any type of government legislation, indirect regulation of water using an excise tax has its drawbacks. First, indirect regulation is inherently market-dependent, so it will not affect the same types of changes in all industries unless its tax rates are tailored to each industry. Second, the change wrought by indirect regulation, as with any large scale change, will not come without hardship to individuals and industries. Third, indirect regulation may be difficult to support politically because it is a systemic change rather than a response to particular circumstances.

1. Market Inequalities

¶167 Indirect regulation is market-dependent, meaning its effects will depend on the strength of the specific industry that it affects. The purpose of indirect regulation is to increase the cost of a material, in this case water, so that the end product is no longer as profitable. Once the end product is less profitable, the industry will change its production techniques to make the product profitable once again.

¶168 But not all industries produce products of equal cost to sale price ratios. Going back to the screw example,¹⁵¹ screws do not cost very much to manufacture, but they also do not sell for very much. If some force were to make a necessary material for making screws more expensive, say an increase in the cost of gas, it would not take much of an increase in material costs to offset the profit made from selling the screws. However, in an industry where production costs are low, but sale prices are comparatively high, there would have to be a large increase in material costs to offset the profits.

¶169 It is for this reason that the Water Excise Tax rates must be set by Congress specifically for each industry. Similarly, Congress should be mindful of the effect that the Water Excise Tax will have given the amount of water used in the industry to produce the given product. Products which require very little water to produce will create very weak incentives for the industry to change its practices. However, industries which require large amounts of water across the board will be forced to change their practices in the face of the new costs imposed by the Water Excise Tax.

¶170 While all of the factors which Congress can and should consider cannot be laid out in this paper, the setting of rates based on the circumstances of different industries is essential to the proper functioning of the Water Excise Tax.

¹⁵⁰ See generally USGS REPORT, *supra* note 18.

¹⁵¹ See *supra* note 56 and accompanying text.

2. Transitional Hardships

¶71 As with any other change of this scale, the shift away from using water for commercial purposes will cause harm to some industries and individuals. Individual hardship is often the unavoidable price of progress. However, the harm inflicted on some avoids the greater harm of running out of water for the general public.¹⁵² Through systemic changes, the federal government can provide and preserve drinking water for the general public.¹⁵³

¶72 The farming industry will be perhaps the hardest hit of all of the industry sectors discussed in this Comment because of its enormous need for water,¹⁵⁴ and because the farm market is such that most individual farmers do not have much of a profit margin. This means that even a slight shift in the cost of materials will make farming unprofitable for small scale farmers. Unfortunately, this Comment has no simple solution to this very real problem, except perhaps to have state governments pay water subsidies to farmers in need. However, the farming industry is increasingly moving away from small single owner operations to large corporation controlled farms.¹⁵⁵ Because these farming corporations have more capital, they can more easily weather the higher cost of water.

¶73 The other transitional concern is that increasing the price of water used in commercial applications will increase the price that consumers must pay for commercial goods.¹⁵⁶ People might be concerned that by protecting and preserving water, the government would be raising the prices of other necessary goods prohibitively. As discussed above, indirect regulation does lead to an initial increase in cost to the consumer.¹⁵⁷ However, the increased cost for the same product creates a market for companies that can produce that good at a lower cost.¹⁵⁸ In this case, reducing the amount of water used in production would reduce the end cost to consumers. The market will select toward the more water efficient companies and the prices of the good will decrease.

¶74 Because it is a systemic change, the Water Excise Tax will inevitably lead to transitional hardships. However, the harm that will be suffered by failing to prepare for the future lack of public drinking water will be much greater.¹⁵⁹

3. Political Challenges

¶75 Perhaps the most prohibitive challenge to the Water Excise Tax is the task of getting the legislation passed in the first place. A Water Excise Tax will, in all likelihood, be opposed by all of the industries that it affects. Large industries control powerful lobbying forces that will vehemently oppose the proposed legislation. More

¹⁵² U.N. Envtl. Programme [UNEP], Sub-Comm. on Intergovernmental Panel on Climate Change, *Climate Change 2001: Mitigation of Climate Change*, (2001) (prepared by Bert Metz, et al) [hereinafter *Climate Change 2001: Mitigation*]; *Climate Change 2007: Synthesis Report*, *supra* note 14, at 56–62.

¹⁵³ *Climate Change 2007: Synthesis Report*, *supra* note 14, at 57.

¹⁵⁴ USGS Report, *supra* note 18, at 20–22.

¹⁵⁵ SCULLY, *supra* note 69, at 28–29.

¹⁵⁶ See Hanneman, *supra* note 53, at 127.

¹⁵⁷ See *id.*; see also *supra* text accompanying notes 54–55.

¹⁵⁸ See *supra* notes 47–56 and accompanying text.

¹⁵⁹ See *Climate Change 2007: Synthesis Report*, *supra* note 14 (detailing the projected harms caused by climate change and the adaptation and mitigation steps that can be taken to avoid that harm).

than that, indirect regulation is politically challenging because of its very nature. Unlike most direct legislation, indirect regulation does not react to a specific situation; it instead imposes costs to create systemic change.

¶76 For example, after the terrorist attacks of September 11, 2001, the federal government enacted a number of provisions designed to protect against future terrorist acts.¹⁶⁰ These far reaching laws were politically viable because they were seen as the necessary, or at least one necessary, response to terrorist acts.¹⁶¹ Because of its scale, the threat of our country running out of drinking water is even more deadly than any terrorist threat that our nation has ever faced. But because the situation has not come to a head in the majority of the country, there is little political capital available to address the issue. When areas do start to run out of water, the political solution will probably be to enact specific regulations to provide water in those areas,¹⁶² but not to enact legislation that will change the way our country as a whole uses water.

¶77 Indirect regulation should be implemented because it serves long-term goals of the nation and will ensure the general welfare of the people. The challenge will be to overcome the powerful lobbying forces which will oppose the Water Excise Tax, and to convince people that this tax is necessary for our survival before the water problem has become irreversible.

C. Advantages of Indirect Regulation

1. Indirect Regulations Are Self-Introducing

¶78 One of the greatest challenges in drafting legislation to regulate an industry is to establish the actual means of regulation, and the statutory language which will bind the industry to the regulation in the way intended. Indirect regulation offers an elegant solution to both problems because it requires no statutory “teeth” to effect its regulation, and it tailors itself to the industry being regulated. Indirect regulation causes industries to change their behavior by altering the cost of production, in this case to respond to the rising cost of water. Because market forces are what actually move the industry, the statute does not need to come up with ways of forcing the industry to comply or change in the desired ways. It will do so all on its own. Once the tax is imposed on an industry there is no way for a company that uses water to avoid paying for that water except by using less of it. Thus, regardless of the industry involved, the desired regulatory effect of the Water Excise Tax, which is to reduce the amount of water used by the industry, will be self-introducing.

2. There are no Loopholes in Indirect Regulation

¶79 Direct regulation of an industry’s actions encourages that industry to identify loopholes in the regulation. Direct regulation of natural resources across industries can also result in unwieldy statutes that are hard to apply as industries progress.¹⁶³ One need

¹⁶⁰ Norma J. Williams, *2007 Update on the USA Patriot Act and Executive Order 13224*, 549 PLI/REAL 43, 49 (2008).

¹⁶¹ Robin Toner & Neil A. Lewis, *A Nation Challenged: Congress; House Passes Terrorism Bill Much Like Senate’s, But With 5-Year Limit*, N.Y. TIMES, Oct. 13, 2001, at B6.

¹⁶² See e.g. Goodman, *supra* note 8.

¹⁶³ See Stewart, *supra* note 10 and accompanying text.

look no further than the many environmental laws passed in the 1970s, which have proven to be too rigid and piecemeal, for examples of this difficulty.¹⁶⁴ Direct regulation of a company's water use would create the same problems: companies would try to find ways around the regulation and its application across affected industries would be unwieldy with countless individual statutes and provisions. The advantage of indirect regulation is that the statutory language is very simple—it just imposes a tax on water withdrawals based on the volume withdrawn, leaving no room for loopholes.

¶180 In addition, the active part of the regulation, or the part which causes the industry to change its practices, is the economic situation caused by the statute, not the statute itself. There are no loopholes in balancing sheets; if a material costs money, that cost has to be considered, and if it is prohibitive, companies must alter their practices to accommodate for it.

¶181 Indirect regulation is ideal for the kind of sweeping, systemic change which must take place if our country is to maintain the availability of water to the public. The Water Excise Tax does not require specific language applying it to industries or to the regulation sought—both goals are achieved by the indirect effects of the tax itself.

3. Indirect Regulation Requires Minimal Government Oversight

¶182 Indirect regulation allows market forces to do the oversight and regulatory work that a government agency would otherwise be forced to perform. Direct regulation is only meaningful when the allowed or prohibited actions are enforced. The job of regulatory enforcement usually falls on the shoulders of a government agency, or on the legal system to resolve disputes in an adversarial context. The administrative cost of direct regulation is well illustrated by the U.S. Fish and Wildlife Service's (USFWS) backlog of endangered species.¹⁶⁵ The USFWS simply does not have the capacity to process all of the mandates of the direct regulation that it is charged to enforce.

¶183 Indirect regulation has the advantage of requiring only very minimal government supervision or oversight for its enforcement. The Water Excise Tax would only require the government to monitor the amount of water withdrawn for commercial purposes through self-reporting of withdrawals under the flat rate withdrawal level and through meter checks for those withdrawals over that level. In fact, the USGS already monitors how much water different industries withdraw.¹⁶⁶ Once a system of measuring is in place, all the government would have to do is collect the tax.

¶184 As discussed above, indirect regulation relies on the cold grip of Adam Smith's invisible hand to create change.¹⁶⁷ There are no maximum or minimum amounts of water that a company or industry can use. Instead, each company can use as much water as it can afford. The regulation is achieved by increasing the cost of that water to encourage companies to use less. No government agency is required to monitor the company's use

¹⁶⁴ *Id.*

¹⁶⁵ See Ivan J. Lieben, *Political Influences on USFWS Listing Decisions Under the ESA: Time to Rethink Priorities*, 27 ENVTL. L. 1323 (1997); see also U.S. FISH AND WILDLIFE SERV., USFWS THREATENED AND ENDANGERED SPECIES SYSTEM, available at http://ecos.fws.gov/tess_public/SpeciesReport.do?listingType=C (last visited Mar. 22, 2009) (listing 283 species currently under evaluation for endangered species designation).

¹⁶⁶ See USGS REPORT, *supra* note 18, at 3.

¹⁶⁷ See ADAM SMITH, THE WEALTH OF NATIONS: BOOKS 1-3: COMPLETE AND UNABRIDGED (Seven Treasures Publications 2009) (1776).

of the water because, as long as the tax is collected, market forces will act on the company to produce the desired regulatory effect.

VI. NORMATIVE BENEFITS OF INDIRECT REGULATION

A. Indirect Regulation Will Provide Drinking Water for Our Future

¶85 As discussed throughout this Comment, the main focus of indirect regulation is to decrease the amount of water used for commercial purposes in all industries in order to prolong the availability of drinking water in the future. By making businesses pay for the water they use, indirect regulation, in the form of the Water Excise Tax, will provide a strong incentive for those businesses to use less water, freeing up more available water for public supply.

B. Indirect Regulation Would Encourage Industries to Reclaim Their Water Output and Reduce Pollution

¶86 If water became a cost on companies' balance sheets, they would have a strong incentive not only to use less water, but also to reuse water when possible. This concept is best illustrated by looking at how the Water Excise Tax would affect the thermoelectric power industry. The tax will encourage the thermoelectric power industry to move towards the more water efficient closed-loop technology, where water is recycled through the system rather than flowing directly through it. Companies will also have an incentive to minimize the pollution that they put in the water which leaves their facilities. While the full analysis of the issue is beyond the scope of this paper, it is easy to see that there would be more legal battles concerning polluted water as water becomes scarcer. If water becomes a valuable commodity, then a downstream withdrawer might want to file a claim against an upstream withdrawer who reduces the value of the downstream water by polluting it.

C. Indirect Regulation Will Encourage and Fund the Development of Alternative Water Sources

¶87 If water withdrawn from conventional sources becomes a valuable commodity, there will not only be an incentive for companies to use less of it, but there will also be an incentive for companies to develop other means of procuring water. The benefit of this new market is that alternative water source technology is the long-term solution to the water shortage problem. No matter how efficient a society's water use becomes, it will eventually run out of available drinking water. In the end, fresh water is a finite resource. However, alternative water sources, such as desalination, can provide the water we need once our usual sources have run out. Desalination is particularly well-suited to our future needs, since ocean water will become more abundant if climate change continues to have a warming effect.

¶88 Currently, the energy costs of desalination prevent its widespread use; but by raising the cost of conventional water for commercial use, indirect regulation would create a market for this type of fresh water production. Companies would have an incentive to fund research into reducing the amount of energy needed to remove the salt from ocean water and purify brackish water. Thus, the technology would improve over

time. In addition, the revenues from the Water Excise Tax can and should be allocated by Congress to research alternative water sources.

¶89 Indirect regulation will not only fix immediate, short-term water problems by providing the incentives which will decrease the amount of water used in industry, and decrease the waste and pollution of water from industry, but it will also encourage the development of new technologies that will increase the amount of water available to the world in the future.

VII. CONCLUSION

¶90 The Water Excise Tax will create the systemic change necessary to prepare our country for the imminent depletion of our public drinking water. It will generate revenue for the federal government to research and implement further water management plans to deal with the water availability problem. The Water Excise Tax will also create market incentives in the industries that use water, which will encourage those industries to decrease and improve their water usage. The tax will attach to water withdrawals and will impose a flat tax rate for withdrawals under a statutorily determined volume, and a per volume tax rate above that statutorily determined volume. The tax rates will be individually set by Congress for each industry regulated to reflect the specific circumstances of each industry. While the tax will impose some transitional hardships, the hardships which would be suffered without preparation for future water availability are much greater. Finally, the Water Excise Tax is superior to direct regulation in terms of its regulatory and administrative effects.

¶91 Indirect regulation of water resources through the Water Excise Tax is an effective way to deal with the very real concern that sometime in our lives large portions of our population could find themselves without public water. It is only through this type of systemic and sweeping change that we can stem the flood of waste and start to ensure our future in the face of the environmental challenges that are the reality of our times.