

The Colorado River Controversy

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I. Introduction

The Colorado River begins in the primarily in the state of Colorado with many tributaries from surrounding states adding to its volume. (See Appendix A). The river continues some 1400 miles to its delta on the Sea of Cortés.¹ (See Appendix B). While the river travels towards the sea, it affects the lives of people in the Upper Basin states of Wyoming, Utah, Colorado, and Nevada, in addition to the states of Arizona California, and New Mexico in the Lower Basin.² The states of Baja California and Sonora in Mexico also depend on the river before the river completes its journey. Throughout its path, the actions of humans modify and change, not only the river basin but also lands far from the river itself.

Today, through the expansion of technology the river is able to serve a population of nearly 25 million people in the United States and Mexico.³ The river's hydroelectric plants produce 12.2 trillion kilowatt hours of electricity each year⁴, enough to power nearly 40 million average households in the United States.⁵ The cheap electricity produced by the river allows for extravagant use of lights in nearby Las Vegas, and also the ability to grow crops in areas previously known as deserts.⁶ The populations living near the river have become so dependent on its resources that the benefits have turned into necessities. Although the river is a valuable and necessary resource to many people, the river's benefits do not come without controversy.

¹ Also known as the Gulf of California.

² Basin Designations coming from the treaty of 1922. 45 Stat. 1057 at 1064 (1928).

³ Colorado River Users Association: The Colorado River at http://crwua.mwd.dst.ca.us/tct/crwua_tc.htm

⁴ *Id.*

⁵ United States Department of Energy at <http://www.doe.gov>

⁶ Marc Reisner, *Cadillac Desert* 12 (1986).

The controversy begins where the river ends. A consistent lack of river water reaching the Sea of Cortés has caused problems with the aquatic life in the Sea. The lack of water also causes another environmental problem; the river's delta shrinks more each year.⁷ The environmental damage caused downstream by the consumption of water upstream adds a dynamic political aspect to the problem, especially since the river runs through both the United States and Mexico.

The international controversy continues past the delta. Irrigation farmers in Mexico depend on the waters of the river to survive. The farmers are plagued with receiving either not enough water, or water too salty to support their crops. Since nearly all of the dams, reservoirs, and diversions are located within the United States⁸, Mexican farmers have only the United States to blame for their lack of both quantity and quality of water. Farmers in the United States also have their own concerns with the availability of the river's water. Urban expansion and a large population growth add further strain to the river's abundant yet increasingly insufficient volume of water.⁹

Given the diverse controversy surrounding the Colorado River, problems do not have clear solutions. The real world effects on the environment, the economy and the politics of the two nations along with the amount of laws and jurisdictions covering the river further complicate any solution. Therefore, the two countries must be able to implement legally their solution and they must also consider its impact upon all of the other controversies indelibly linked to the Colorado River.

⁷ Robert J. Glennon & Peter W. Culp, *The Last Green Lagoon: How and Why the Bush Administration Should Save the Colorado River Delta*, 28 ECOLOGY L.Q. 903, 906 (2002).

⁸ *Id.* at 905

⁹ Colorado River Water Users Association: Urban Uses at http://crwua.mwd.dst.ca.us/tct/crwua_ur.htm

II. Loss of Biodiversity

Most people consider the Colorado River as a benefit to the environment since the many hydroelectric plants reduce the amount of fossil fuel burning, and the many dams and reservoirs provide for flood control, in addition to providing the ability to sustain the population through much longer droughts.¹⁰ However, the river has also devastated the environment. Human interference with the river's natural processes have changed animal habitats and polluted the water.

The Sea of Cortés supported a large aquatic habitat for fish shrimp and sea mammals. Now, Mexico's fishing industry is in the past. The fisheries have all left Mexico because there are too few fish to catch.¹¹ The Colorado River once flowed freely into the sea creating a large brackish water environment necessary for the spawning of many fish. With the consumption of water by both the United States and Mexico, a meager amount of water now flows into the sea. The introduction of freshwater into the sea is necessary to support the shrimp population in addition to the populations of the totoaba, a small fish, and the vaquita, a type of porpoise, are now on the United States' endangered species list.¹² The vaquita is "perhaps the most endangered marine mammal in the world."¹³

The environmental devastation continues into the marshy areas of the river delta. The river delta consisted of nearly 1.8 million acres in the early twentieth century.¹⁴ The delta's 1.8 million acres supported numerous species plant and wildlife, however, the

¹⁰ The Colorado River Water Users Association at http://crwua.mwd.dst.ca.us/tct/crwua_tc.htm

¹¹ 28 ECOLOGY L.Q. 903, 906 (2002).

¹² *Id.* at 958.

¹³ *Id.*

¹⁴ *Id.* at 906.

current 40,000 acres of the delta force a reduction in the delta's past biodiversity.¹⁵

Although the complete list of endangered species supported by the delta is small, the continued destruction of plant and animal habitat will certainly cause the list to grow.

Scientists estimated that the river delta habitat was beyond repair, until the flood of 1997. The flood forced the United States to release surplus water from its two primary reservoirs on the Colorado River, Lake Mead and Lake Powell.¹⁶ (See Appendix B).

Scientists were shocked at how quickly the delta managed to recover. The small amount of water released when compared to the amount of growth in the delta lead them to believe that a release of 32,000 acre feet annually with periodic artificial flooding of 260,000 acre feet would be enough to restore the river delta habitat to its original state.¹⁷

The amount of water needed to restore the delta is small, but legal obstacles prevent a simple solution. The law governing the use of the river's water historically only considered human needs. Therefore, the delta and the environment in general are last on the long list of where to use the water.¹⁸ With the more contemporary recognition of the importance of the environment, there is new hope for the delta, and the species it supports. Creative use of existing United States law and the possibility of modifying international treaties provide hope for obtaining the water that the delta needs.

The river delta will require persistence and determination by both the United States and Mexico to restore the delta. Both countries need to recognize the seriousness

¹⁵ 28 ECOLOGY L.Q. 903, 906 (2002).

¹⁶ *Id.* at 933.

¹⁷ Jennifer Pitt et al., *Two Nations, One River: Managing Ecosystem Conservation in the Colorado River Delta*, 20 NATURAL RESOURCES JOURNAL 819, 827 (2000).

¹⁸ 28 ECOLOGY L.Q. 903, 940 (2002).

of the environmental devastation. The recognition must force the delta to receive higher priority to the Colorado River's water or the delta will disappear forever.

III. The Economic and Environmental Effects of Higher Water Salinity

Not only does a lack of water create controversy in the environment, but also the quality of the water, specifically its salinity. The salinity of the water is a problem more regularly addressed since it has real economic prices. The salinity of the river affects the economy of not only the consumers¹⁹ who drink the water, but also to the farmers who irrigate with the water, and to the federal government.

The river begins with a very low salt content, but the salinity rises quickly, and continues to rise well into Mexico. At the beginning of the river, the water has a salinity of fifty parts per million (ppm), but the agricultural use of the water for irrigation quickly adds salt to the water.²⁰ Although the fifty ppm of salt at the beginning of the river is relatively low, it still requires treatment to lower the salinity to the twenty ppm that the World Health Organization recommends for drinking water.²¹ Irrigation adds to the salinity because water used for irrigation eventually seeps back into the river. As the water travels through the soil, it extracts salt from the soil, re-entering the river with a much higher salinity.²² The agricultural use is virtually the sole contributor of salt to the water.²³ However, consumption of the water compounds the problem since it reduces the amount of water with a low salinity from entering the river and diluting the salty

¹⁹ "Consumer" signifies residential users of water who either pump the water from the ground through wells or purchase their water from a municipal water supply authority.

²⁰ 28 ECOLOGY L.Q. 903, 930 (2002).

²¹ Contra Costa Water District - Water Quality - Frequently Asked Questions at <http://www.ccwater.com/waterquality/faq.html#sodium>

²² 28 ECOLOGY L.Q. 903, 930 (2002).

²³ Alan P. Kleinman & F. Bruce Brown, *Colorado River Salinity: Economic Impacts on Agricultural, Municipal, and Industrial Users*, United States Department of the Interior, Water and Power Resources Service 1 (1980).

agricultural run-off. These two factors work together to raise the salinity of the water from fifty ppm to nearly 800 parts per million at the Imperial dam.²⁴ (See Appendix A).

The increased salinity of the water has substantial economic repercussions. Agricultural users and consumers of the water pay for the increased costs of the water's salinity. The Imperial Valley in the United States and the Mexicali Valley in Mexico (Actually the same value with different names on each side of the border, See Appendix C) must plant crops with a resiliency to salt water.²⁵ Typically, these crops are less economically beneficial to the farmers since they tend to produce a lower yield and require more fertilization.²⁶ This forces the farmers to invest more in fertilizer for a lower profit from the plants cultivated, in addition to the farmers already paying for their irrigation water.

Agencies studying the effects of the river's high salinity apply a dollar amount to the river's salinity. They estimate that an increase of one ppm of salt content costs "irrigators in Imperial Valley a total of \$108,000 in direct and indirect costs - costs that were estimated to reach \$240,000 in the year 2000."²⁷ One can expect Mexican irrigators to pay a similar amount or possibly more in the Mexicali Valley since more land is irrigated there than in the Imperial Valley.²⁸ The price of the agricultural products reflects the extra cost paid by the farmers. Since areas outside of the Colorado River Basin often consume their agricultural products, populations throughout the United States and Mexico realize the cost of the salinity.

The consumers also see the increased costs of water with high salinity through the

²⁴ 28 ECOLOGY L.Q. 903, 969 (2002).

²⁵ *Id.* at 930.

²⁶ *Id.*

²⁷ *Id.* at 975.

²⁸ *Id.*

increased maintenance of their water delivery systems within the city, and the canals and diversion dams that carry the water to the cities. The high salinity of the water causes metal to corrode more quickly requiring repairs that are more frequent.²⁹ The water supply authorities, in the numerous municipalities, supplied by the river, pass the increased costs onto the consumers. The cost of incomplete removal of the salt in the water supplied to consumers also consists of a substantial amount of money. A City of Los Angeles study concluded that each additional part per million of salt causes \$300,000 in damage to the city's water delivery system annually.”³⁰ Consumers realize costs not included in the higher price of water through increased detergent use, and increased wear on clothing fabrics since the supplied water is not salt free.³¹

The broad impact of the water's salinity has high costs throughout the country. The Board of Reclamation, a federal water conservation agency, estimates the water's salinity to cost the United States about 1 billion dollars annually at current rates and nearly 2.5 million dollars for each additional increase of one ppm.³² These costs include the 6.8 million dollars paid by the government in order to maintain a desalination plant in a state of standby in case of the necessity to lower the river's salinity to meet treaty obligations.³³ Due to the widespread influence of the Colorado River basin, people living far from the basin pay the increased costs, sharing the burden. However, the costs will continue to rise unless the United States and Mexico address the current situation.

²⁹ 28 ECOLOGY L.Q. 903, 930 (2002).

³⁰ *Id.* at 931

³¹ *Id.*

³² *Id.*

³³ *Id.* at 932

IV. Political Pressures Influencing Decision Making

Political issues litter the conservation attempts concerning the Colorado River. The United States and Mexico constantly confront each other with problems over the river in addition to the conflict between the federal and state governments of both nations. Related outside factors wield an extraordinary influence on the Colorado River controversy including disputes over other rivers such as the Rio Grande. In addition to related factors, international agreements and relations between the two countries control many of the negotiations over solutions to the above-mentioned problems.

The United States and Mexico's economies have a symbiotic relationship. The North American Free Trade Agreement ratified in the 1990's further reinforces this fact.³⁴ By 2008, most goods will pass tax-free across the United States – Mexico border, but not water.³⁵ The banking collapse of 1994 in Mexico further demonstrated this close interaction between the two economies.³⁶ The United States offered 300 million dollars to aid Mexico during their economic crisis.³⁷ The United States decided that the collapse of Mexico's economy would adversely affect both their economies.

In contrast to the close economic relationship, relations over water rights are constantly tested. Recently, President George W. Bush illustrated the strain on the United States' close relationship with Mexico when he demanded that President Vicente Fox deliver 1.7 million acre feet (maf)³⁸ of water from Mexico's state of Chihuahua.³⁹

³⁴ Ralph H. Folsom, Michael W. Gordon & David Lopez, *NAFTA A Problem Oriented Coursebook*, 24-46 (2000).

³⁵ *Id.* at 46-178.

³⁶ Taken from lectures given by Prof. Manuel González Oropeza in his course, Mexican Institutions. Prof. González is a law professor at the Universidad Nacional Autónoma de México in Mexico City, Mexico and an adjunct professor at Michigan State University – Detroit College of Law.

³⁷ See note 36

³⁸ One acre foot is the amount of water necessary to cover an acre of land with one foot of water.

Although the water President Bush asked for is physically unrelated to the controversy over the Colorado River, it concerns the Rio Grande; his demand relates politically to the Colorado River controversy. Bush claims that Mexico owes the United States nearly 1.7 million acre feet of water, which it has been unable to supply to the United States over the past ten years.⁴⁰ The problem came to the public's eye when Texan irrigators used their tractors to block Mexican automobile traffic from entering the United States in a small border town.⁴¹ The dispute has resulted in allegations from both sides, which may result in the abandoning of a single treaty that governs both the Colorado and Rio Grande Rivers. The dispute relates directly to Mexico's inquiry into 200,000 acre feet (af) of periodic surplus water and that Mexico claims the United States owes and the consistent high salinity of the Colorado River as it enters Mexico.

Those seeking to help solve the controversy over the Colorado River cannot ignore the enormous pressure that politics place on the already fragile relationship. Politicians must listen to their constituents, who want abundant and cheap water. The short political life of most politicians and the impatience of constituents prevent painless implementation of long-term conservation projects that address the issue at an international level. Therefore, politics insist upon short-term solutions that only delay the inevitable urgency of taking drastic, necessary steps toward an inclusive solution.

³⁹Ruben Navarrette, *Mexico – U.S. water squabble: Time to abandon treaty*, (May 29, 2002) at <http://www.dallasnews.com/opinion/columnists/rnavarrette/stories/052802dnedicybernavarrette.490489e.html>

⁴⁰ *Id.*

⁴¹ Deborah Tedford, *Water crisis hurts US – Mexico Farmers*, (May 31, 2002) at <http://www.planetark.org/dailynewsstory.cfm/newsid/16208/story.htm>

V. Controlling Law over the Colorado River

There are many laws that control distribution and management of the Colorado River and one very important international commission. Not only do states in both countries feel the need to create legislation concerning the river, but the federal governments have enacted laws also. Outside of domestic legislation in both countries, three major international, bilateral treaties apply to the Colorado River. All of the relevant laws combine to create a complex “Law of the River.”⁴²

Before the ratification of any international treaties, the United States failed to recognize fully Mexico’s water rights and state law reigned over the river. The Colorado River Compact⁴³ enacted by the United States congress in 1928 began as an agreement between the seven states found within the river basin in the United States. The compact established the Upper and Lower Basin (See Appendix B) then divided the river’s water between the two basins.⁴⁴ The compact gave the Upper Basin 7.5 million acre feet per year, and the Lower Basin 75 million acre feet over 10 years with rights to an additional 1 million acre feet per year.⁴⁵ In addition, the compact specified that the states in the two basins should use water for a “beneficial, consumptive use,”⁴⁶ but lacked a definition for beneficial, consumptive use, which resulted in interpretation by the courts and many local river organizations.⁴⁷ The compact also recognized that the Federal government reserves the right to negotiate a treaty with Mexico to divide further the waters of the Colorado

⁴² Colorado River Water Users Association: Law of the River at http://crwua.mwd.dst.ca.us/lor.crwua_lor.htm

⁴³ 45 STAT. 1957 (1928)

⁴⁴ *Id.* at 1064.

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ Colorado River Water Users Association: Law of the River at http://crwua.mwd.dst.ca.us/lor.crwua_lor.htm

River.⁴⁸ However, the compact makes a reference to “the rights, *if any*, of Mexico to the use of the waters of the Colorado River System.”⁴⁹ The implication of the compact that Mexico may not have *any* rights to the river required a later international treaty to establish Mexico’s rights.

A. The United States – Mexico Water Treaty of 1944

Treaties form the basis of the majority of the modern law applying to the Colorado River. The first treaty, signed in the late nineteenth century created the International Boundary Commission (IBC) that settled border disputes until its expansion in the United States – Mexico Water Treaty of 1944.⁵⁰ The treaty expanded the IBC to the International Boundary and Water Commission (IBWC) to enforce prior treaties concerning the border and the United States – Mexico Water Treaty of 1944.⁵¹

The United States – Mexico Water Treaty addresses Mexico’s rights to Colorado River water. The treaty allocates 1.5 maf to Mexico with the addition of 200,000 af when surpluses allow as long as “drought or serious accident” do not occur.⁵² Even though the treaty finally addresses Mexico’s rights, their rights are limited, and left with ambiguous terms such as “serious accident”; the treaty was a major step to recognize Mexico’s rights to some Colorado River water. Fortunately, provisions in the treaty were able to address problems that may occur in the future through the establishment of the IBWC.⁵³

⁴⁸ 45 Part I Statutes at Large, 1957 at 1064.

⁴⁹ *Id.* at 1066.

⁵⁰ Officially known as the “Treaty between the United States of America and Mexico respecting utilization of waters of the Colorado and Tijuana Rivers and of the Rio Grande.” Mexico and the United States signed this treaty in 1944 and ratified it in late 1945. 59 STAT. 1219. (1945)

⁵¹ 59 STAT. 1219 (1945).

⁵² *Id.*

⁵³ *Id.*

One important issue addressed by the IBWC was water quality, even though water quality did not require an amendment to the treaty until several decades later.⁵⁴ The treaty established that the Commission shall consist of an engineer from each country and assistants as “deem[ed] necessary” with the ability to pass resolutions called Minutes that effectively serve as amendments.⁵⁵ After devastating crop loss due to the high salinity (1,500 ppm) of Colorado River water during the 1960’s, the IBWC passed a resolution stating that the water received by Mexico will not exceed the salinity as tested before the Imperial dam (See Appendix A) by more than 115 ppm.⁵⁶ The salinity of the water exceeded this limitation only once, in 1996.⁵⁷ Fortunately, the IBWC is able to address regular problems with the treaty, keeping the treaty active and dynamic, however the enforceability of the Minutes are in question.⁵⁸

The United States ratified the United States – Mexico Water Treaty, which gave power to the IBWC to pass Minutes to handle minor problems, however it remains questionable if the government can enforce these Minutes. Under United States Law, treaties are superior to all state laws and prior federal laws but there is no definite determination as to the strength of the Commission’s decisions. Although the governments of Mexico and the United States consider the decisions in effect once thirty days pass without any objection by the legislatures of either nation, the United States Federal Government considers the Minutes as executive agreements:⁵⁹

The enforceability of an executive agreement depends on which category it falls into. As a general rule, both "treaty-executive" and "congressional-

⁵⁴ 28 ECOLOGY L.Q. 903, 970 (2002).

⁵⁵ 59 Stat. 1219 art. II (1945).

⁵⁶ Minute No. 242 of the IBWC: *Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River*, (August 30, 1973), reprinted in 68 AM. J. INT’L L. 376, 377 (1974).

⁵⁷ 28 ECOLOGY L.Q. 903, 974 (2002).

⁵⁸ *Id.* at 981.

⁵⁹ *Id.*

executive" agreements enjoy the same status as treaties under U.S. law. They thus override prior federal laws, administrative regulations, and state laws and constitutions, and are subject only to federal constitutional limitations. Sole executive agreements," however, have a far less well-defined status, and judicial authority addressing their enforceability is relatively sparse. The enforceability of "sole executive agreements" under federal law generally revolves around whether the subject addressed is constitutionally committed to the Executive Branch, to Congress, or to both. If the subject is fully within the authority of the Executive alone, such agreements are enforceable under federal law, and will also probably supersede prior congressional legislation.⁶⁰

As quoted above, the IBWC lacks clear enforceability over either nation, which may lead to problems in the future if one nation or rather a state refuses to comply with the Minutes.

B. Colorado River Water Users Association

State organizations have a great deal of control over the Colorado River. One organization in particular, the Colorado River Users Association (CRWUA) is comprised of members of the seven basin states in the United States.⁶¹ The Association claims to be in existence to "plan, study, formulate and advise on ways to protect and safeguard the interests of all who use the Colorado River," however, the Association only addresses the needs of those who reside within the seven basin states.⁶² Even though the Association does not have binding force to their recommendations, they do have an audience in the United States Government and many members.

Because the Association has a governmental audience, they are able to use political pressure to express their ideas, which may cause problems if the United States Government. Their webpage lacks acknowledgement of the rights of Mexico in regards

⁶⁰ 28 ECOLOGY L.Q. 903, 981-83 (2002).

⁶¹ The Colorado River Water Users Association: The Colorado River at http://crwua.mwd.dst.ca.us/tcr/crwua_tc.htm

⁶² The Colorado River Water Users Association <http://www.crwua.org/>

to the river.⁶³ The webpage has an entire section dedicated to the biodiversity supported by the river, but *only* the biodiversity within the United States.⁶⁴ Since the CRWUA only has advisory authority, with luck, the authorities will disregard their ideas when an inclusive international plan is contemplated and enacted but today it appears that at least the residents of the seven United States Basin states are trying to implement the ideas expressed by the CRWUA.

Private ownership of water rights along with governmental bureaucracy further complicates the controversy by limiting or blocking solutions to the controversy. The United States has a great deal of private ownership, and thus this places limitations on the government, which may need to infringe upon the property rights of the private owners in order to implement reform in the distribution of the Colorado River. In addition, the United State Constitution allows for states to legislate in areas that do not conflict with federal laws.⁶⁵ Conversely, Mexico does not have a supremacy clause; their law states that water rights fall under the dominion of federal control, but the federal government has power to release the rights into private ownership.⁶⁶ However, the federal government in Mexico may make decisions for the benefit of the population over the rights of private ownership.⁶⁷ In addition, the Mexican federal government negotiates treaties that do not have full enforceability over the states, and the system of judicial precedents requires five identical cases to be binding, *only* on identical cases.⁶⁸

Therefore, the domestic enforcement of any agreement becomes increasingly difficult in

⁶³ The Colorado River Water Users Association at <http://www.crwua.org/>

⁶⁴ The Colorado River Water Users Association at http://www.crwua.org/env/crwua_env.htm

⁶⁵ U.S. CONST. art. VI, § 2.

⁶⁶ Constitución Política de los Estados Unidos Mexicanos (Constitution of Mexico) art. IV. (1982).

⁶⁷ *Id.*

⁶⁸ See note 36.

Mexico. Even though the legal systems in both nations are quite different, they both have a well-established system that impedes rapid progression concerning the Colorado River.

VI. Barriers to Enforcement of the United States – Mexico Water Treaty of 1944

Confusion may contribute to the difficulty in meeting the demands of the Colorado River controversy and the reasoning behind the decisions of either government not to enforce their rights. Outside of the lackluster enforcement provisions of the United States – Mexico Water Treaty of 1944, which states that the IBWC should contact the appropriate authorities to obtain enforcement, the treaty continues stating that either country may seek enforcement in the courts.⁶⁹ However, the treaty fails to state which courts should hear the case. Therefore, confusion of where to file suit, or simply the possibility of one nation refusing to accept the venue may keep the disputes out of the courts, along with the real possibility that the judgment will be unenforceable. Given the difficulty of the remedies provided by the treaty, Mexico and the United States have resorted to other tactics.

In the grand scheme of relations between the United States and Mexico, all factors combine to leave both countries without effective remedies, forcing retaliation in other non-related areas. Mexico, for example, may not be asserting their rights to the Colorado River because the United States has not asserted their rights to the Rio Grande. Further, Mexico may not assert their rights to the Colorado River out of respect for the United State foreign aid that saved their economy from collapse. Further, the United States may not be enforcing their rights to the Rio Grande River because Mexico has denied

⁶⁹ 59 STAT. 1219 (1945).

assertion of their rights in several non-related NAFTA disputes.⁷⁰ Whatever each country's reasons may be, the environment continues to suffer, and greed over water rights increases daily.

Mexico has a strong argument for the strength of their argument for their rights to the Colorado River. Mexico claims that when they entered into the treaty of 1944, the bargaining power was unequal between the two nations, preventing Mexico from negotiating a fair treaty.⁷¹ Additionally, Mexico states that the United States installed many dams and reservoirs increasing their water storage capacity since they signed the treaty. With the increased water storage in the United States, Mexico receives less floodwaters and surplus waters, since the United States retains them.⁷² When Mexico signed the treaty, Lake Mead had not reached full capacity, and the United States had not contemplated the construction of the Glen Canyon Dam that formed Lake Powell.⁷³ (See Appendix A) Therefore, when Mexico signed the treaty, natural law gave them more water than the treaty guaranteed.⁷⁴ Given the unequal bargaining power, Mexico most likely was a victim of the United States philosophy that Mexico's necessities were not equal to the necessities of the United States.

VII. Possible Solutions

Many solutions such as conservation, the elimination of private water rights, and private lawsuits filed under existing law, have a possibility of alleviating the current controversy. None shows real promise at solving the problem as a whole. The proposed

⁷⁰ Ralph H. Folsom, Michael W. Gordon & David Lopez, *NAFTA A Problem Oriented Coursebook*, 425-60 (2000).

⁷¹ 28 ECOLOGY L.Q. 903 (2002).

⁷² 28 ECOLOGY L.Q. 903, 974 (2002).

⁷³ *Id.* at 990.

⁷⁴ Being downstream, Mexico would receive more than their 1.5 maf since the Colorado River's flow exceeded the storage capacity within the United States.

solutions to date are comprehensive and inclusive, but lack the necessary flexibility and authority that is necessary for a long-term or permanent solution.

Reducing the agricultural use is a manner of conserving the water available and alleviating the problem. Irrigators pay less than municipal consumers do for the water, but their profit from the irrigation is small for the farmer and non-existent to the entire basin, considering the added costs of the increased salinity and pollution. More dams, diversions and reservoirs to facilitate irrigation are not long-term solutions.⁷⁵ The population increases are simply too great to support the agricultural and municipal uses of the water.⁷⁶ The government amended the Colorado River Compact to allow California more water for municipal uses by taking this water from irrigation farmers. Although this was a step in the right direction, the population will continue to rise and the government will have to deprive continually more irrigation farmers of their water in the future.

Following the plan of reducing agricultural water use, The Pacific Institute, suggested that private corporations and the government purchase private their water rights.⁷⁷ Once purchased, the water would travel downstream to re-establish the river delta habitat. Barriers to this plan include many state laws that block the purchase of water rights without approval.⁷⁸ Further, this plan would combat the prior use doctrine governing the Colorado River in the United States, which fails to recognize the fact that most of the users of the water do not use the water in the most beneficial manner; they are simply the prior users. As the prior users, most of the farmers do not have to consider

⁷⁵ 28 ECOLOGY L.Q. 903, 936 (2002).

⁷⁶ *Id.*

⁷⁷ *Id.* at 965

⁷⁸ *Id.*

downstream users, the environmental necessities for the water, or the conservation of the water in order to allow the water to be present in the future.

Another impracticable solution suggests a reduction in water salinity by re-routing high salinity water to the river delta and supplying the river with low salinity water. However, the diversion plans are inadequate since they do not supply Mexico with its 1.5 million acre feet of treaty guaranteed low salinity water.⁷⁹ This study purports to save the river delta at all costs, yet it uses only Mexico's water to restore the delta. Mexico will not agree to give up their water to solve an international problem.

A plausible plan using the creativity of the Defenders of Wildlife Organization explores the possibility of getting results through existing federal laws. The Endangered Species Act (ESA) states that the federal government must consider environmental repercussions on endangered species.⁸⁰ Since the Colorado River basin supports several endangered species within the United States and Mexico, the Defenders of Wildlife sought to force the United States government to help re-establish the river delta habitat since the government's diversion of the river's water before the delta resulted in detrimental consequences for the endangered species.⁸¹

The Defenders of Wildlife filed suit against several United States governmental agencies in an attempt to protect both the species and their habitats. However, the court quickly thwarted their efforts by ruling that the United States governmental agencies, with control over the river and different natural resources, did not have jurisdiction to consider environmental impact outside of the United States.⁸² This solution neared

⁷⁹ 28 ECOLOGY L.Q. 903, 965 (2002).

⁸⁰ 16 U.S.C.A § 1533(a)

⁸¹ 28 ECOLOGY L.Q. 903, 952-62 (2002).

⁸² *Id.*

success, and may still be a possible solution if the United States amends the ESA, which may be difficult, and still does not solve the problem of supplying irrigation farmers or consumers with their needed water. The Defenders of Wildlife and other environmental agencies have creatively applied existing laws, but the political pressures exerted by the CRWUA and other state associations have quickly stopped litigation.

VIII. International Cooperation with Binding Effect May End the Controversy

To solve the dispute over the Colorado River, both the United States and Mexico need to make concessions and attack the problem from many areas; reformation of treaties and laws, cooperation between countries, and conservation of water. These concessions require that the United States – Mexico Water Treaty of 1944 needs to give the IBWC more authority. The past resolutions of the commission show that the commission is able to resolve the routine disputes over the river; however, their resolutions need more enforceability in order to solve the more important disputes.⁸³ The IBWC has knowledge of the problems and has proved that they are able to work together in a bi-national context to resolve disputes and consider all relevant repercussions.

Reformation of the IBWC is necessary to obtain the necessary authority. The IBWC needs the power to control all of the dams, reservoirs, and diversions in all river basins, including the Colorado River, which cross the border. If the proposed treaty gives the commission the authority to control all of the factors, political pressures will lack the myriad of outlets used to apply pressure. The presidents of each country should appoint the commissioners whom the senate should approve, to guarantee that political influence is at a minimum. Having the commissioners subject to the same approval process as

⁸³ Examining the Minutes of the IBWC show that the commission has not adopted any internationally controversial resolutions.

Supreme Court Judges will ensure their impartiality. In addition, the commissioners and other authorities should scrutinize and reform state laws concerning the Colorado and other rivers to allow for the overall balance between the environment and the water users. The presidents should appoint commissioners who realize that the rivers are not a state natural resource, nor are they a federal natural resource, but an international natural resource.

Cooperation between the two governments is essential in allowing the new IBWC the authority to administrate and manage their solutions. With the cooperation of both nations and the centralized control all rivers between the United States and Mexico, the commission will achieve efficiency in providing the benefits of the nations' shared water resources. As a check to the IBWC, an international panel composed of environmental experts, authorities in municipal water distribution, and irrigational agriculture experts, composed of an equal amount of nationals from each country. Together the countries should convene a panel to handle any possible appeals in an international setting rather than a national setting. The cooperation between the two nations to reduce their federal and state powers and relying on the equity of the IBWC and the appellate panel will allow them to manage the water resources for the equal benefit of both countries.

The IBWC should have the authority to impose stricter conservation requirements. The IBWC should implement water conservation plans, as they deem necessary while considering the environment's need for the water. Conservation is a necessary element to stretching the Colorado River, and all rivers' resources. The IBWC will be able to apply the river waters for the benefit of both countries once they have the power to implement conservation regulations without the extreme political pressures of protecting each

individual's prior use rights that may be the most detrimental water uses for the overall good of a river's water.

Providing reformation, conservation, and cooperation of current laws and habits will be beneficial in the long-term. The IBWC will then be able to make the ultimate realization that there truly is no water surplus.⁸⁴ Once the river meets the needs of everyone, the river must use the rest of its water to maintain the environment. This solution will provide a long-term solution for both the environment and the users of the water.

IX. Conclusion

The key to success with the Colorado River controversy is to attach the problem from all areas. All aspects of the river are inter-related, from the hydroelectric plants, the dams, the reservoirs, the consumers, the irrigation farmers and the environment. If the United States or Mexico allows one group of the river's beneficiaries to take more than their necessity, the nature of the Colorado River multiplies the effects throughout the entire Colorado River basin. Once the Colorado River basin realizes the negative effects, these effects are transferred to other rivers along the border, and then into un-related international issues. Attacking the problem from all areas is the only long-term solution.

The United States and Mexico rely on each other for many different things. Their two economies intermingle to the point that they need each other to survive. The advent of NAFTA has further encouraged friendly relations between the two countries; most aspects of the relationship between the two countries even promote friendlier relations. With the exception of water rights, Mexico and the United States found a solution to their

⁸⁴ 28 ECOLOGY L.Q. 903 (2002).

problems. Obviously, trust is necessary to implement the necessary solution, which should not pose a problem given the past friendly relations between the two countries.

With trust, Mexico and the United States must take risks. However, both countries should not find obstacles to taking risks. They have gambled on the international cooperation of two other countries with NAFTA and so far, the results are promising. With abandonment of archaic ideals and confidence in an international solution, Mexico and the United States can profit, along with the environment, with a new cooperative to resolve their Colorado River controversy.