



COLORADO FISCAL
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Why We Need Government and Government Needs Us

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Introduction

The Unique Public Sector

Aristotle once said, “if liberty and equality, as is thought by some, are chiefly to be found in democracy, they will be best attained when all persons alike share in government to the utmost.” Research shows that many Americans would like to believe that government can make a difference in their lives. Many have come to one of two conclusions, however: government is unable to make a difference in their lives, or government chooses not to. Both conclusions are equally dangerous. In the United States, government is not only an institution that can make a difference in the lives of every American citizen—it is the only institution equipped to improve economic justice and equality for all Americans.

This paper presents an historical analysis of successful government-sponsored public investments, and is based on the thesis that current levels of American prosperity would not have been achieved without public sector involvement. And as the examples in this paper demonstrate, government has consistently undertaken investments and activities that have profoundly and positively improved the quality of life in America.

As James Madison wrote in the *Federalist Papers*, the purpose of our representative government is “to refine and enlarge the public views, by passing them through the medium of a chosen body of citizens.”¹ The Founders created a separation of powers in the federal system to check abuses of power by any one branch, be it legislative, judicial or executive. Additionally, representative

¹ James Madison, “The Federalist Papers,” *No. 10*, 1787.

elections hold senators and representatives accountable to their constituents. In other words, the public sector was organized from the beginning to prevent tyranny and withstand accountability. Since its inception, our nation has been structured to protect minority viewpoints, to uphold a rule of law, and to preserve the rights of each autonomous individual.

Inherent within American federal government is a mission to act on behalf of the public interest. The Framers intended American government to support and promote important societal goals such as the general welfare of its citizens, a prosperous and healthy future for all Americans, protection from without and within, and stewardship of America's resources. While the interpretation and understanding of those responsibilities has changed over time, that intent remains intact. It is not so much the structure or purpose of the public sector that has changed, but rather America's faith in that sector—a faith that has been shaken by public scandal, eroded by years of intentional anti-government political messaging and undermined by historical distance from substantial, comprehensive public action. In some ways, the success of public activities have contributed to their current diminished reputation as citizens now take essential public services for granted, or, perhaps worse, see only the problems yet unresolved. Despite this shift in perception, the unique structure and purpose of the public sector makes it an essential ingredient in providing for the needs of the nation.

Economic Theory

Support for the premise that the public sector plays a unique role in societal achievement is not restricted to political theory. Fundamental free market economics would support this notion as well. Adam Smith, well known for his antagonism toward government involvement in the economy, acknowledged that the free market's "invisible hand" cannot meet every societal need.

According to the system of natural liberty, the sovereign has only three duties to attend to ... first, the duty of protecting the society from the violence and invasion of other independent societies; secondly, the duty of protecting, so far as possible, every member of the society from the injustice or oppression of every other member of it, or the duty of establishing an exact administration of justice, and thirdly, the duty of erecting and maintaining certain public works and certain public institutions, which it can never be for the interest of any individual, or small number of individuals, to erect and maintain...

The Wealth of Nations, Book IV, Chapter IX

Even Smith, with his extremely limiting view of public interventions, acknowledged the need for a system to administer justice and the need to invest in public works and institutions. He argues that justice and its administration is the work of governments. In today's complex society, the role of government in defining justice for all has changed yet what remains the same is that while private acts of benevolence yield charity, only collective and public actions can yield justice. Due to its institutionalized self-interest, profit maximization orientation, the private sector often does not sufficiently provide for the marginalized, meet many social needs, or protect the rights of the autonomous individual.

A more just society exists in the harmonization of private economic activity with a supportive public foundation. It requires striking the appropriate balance between encouraging individual profit and enhancing the public good. It is about strengthening public investments that make it possible for individuals to succeed and in help those who benefit from the bounty of public goods to reinvest in their maintenance.

Present Realities

Despite the unique calling of the public sector—to provide for the marginalized and protect individual rights—public distrust permeates American politics. The Council for Excellence in Government noted in 2006 that a mere sixteen percent of Americans “have a ‘great deal’ or ‘quite a lot’ of confidence in Congress.”² Similarly, only one-quarter of Americans “say that they have a ‘great deal’ or ‘quite a lot’ of confidence in the president and cabinet officials.”³ This pervasively low confidence in government is unsurprising, but its significance is in its correlation to personal connectivity with the government.

According to a Hart-Teeter poll conducted in 1999, Americans who felt “connected to the federal government [were] about twice as likely as the disconnected to have confidence in the federal government (30% vs. 15%) or to trust the federal government (38% v. 23%).”⁴ The study made several additional important observations:

² Peter D. Hart Research Associates, Inc., “Partisanship Up, Confidence Down: Americans Want Compromise and Competition,” 15 May 2006, conducted on behalf of *The Council for Excellence in Government*, <http://www.excelgov.org/admin/FormManager/filesuploading/partisan_politics.pdf> (4 April 2008).

³ *Ibid.*

⁴ Hart-Teeter Research Associates, “America Unplugged: Citizens and Their Government,” 12 July 1999, conducted on behalf of *The Council for Excellence in Government*, <http://www.excelgov.org/admin/FormManager/filesuploading/America_Unplugged_full_report.pdf> (4 April 2008).

“the two types of sentiment appear to be mutually reinforcing: connection and involvement with government builds trust and confidence, and feelings of trust and confidence spur greater involvement. Today, however, there appears to be a vicious cycle of negativity at work: as citizens lose faith in government, they become more disengaged, which in turn undermines their confidence and trust in government.”⁵

These data suggest that Americans are presented with a forced choice: either to strive to be connected to their government and influence the public sector’s decisions, or to disengage from the political process completely. Increased connectivity greatly increases the likelihood of individual confidence and trust in the government. Disengagement would in turn preserve the status quo of the general public’s mistrust toward government.

The election cycle of 2008, however, marks a tremendous surge in connectivity to public activity. Record numbers of Americans actively participated in the political process, from voting to more intense and sustained engagement in electoral activities. Through the collapse of financial markets, the credit crisis, and the Wall Street bailout, Americans refocused on the connection between government regulation and private interests, and began to look to government to provide solutions

The 2008 election saw virtually no ideological shift in the electorate, with exit polling showing roughly the same percentages of voters self-identifying themselves as moderate, conservative, or liberal as has been the case in recent national elections. However, for the first time since exit polling began in 1994, a slim 51 percent majority of Americans want government to do more to solve problems.⁶

The public sector—at the local, state, and federal level—plays an important role in societal achievement. It provides the foundation upon which the private sector can flourish with innovation and profit. It creates the necessary conditions for private investments to pay the greatest and most equitable dividends. And beyond that, it creates a corpus of public good that benefits everyone.

⁵ *Ibid.*

⁶ Associated Press, “Exit Poll Survey Confirms Partisan Shift,” November 4, 2008.

The body of this paper outlines the positive impact of several effective government-sponsored public investments to support this contention. Effective involvement in government shapes public discourse, policy priorities, and our nation's future. When individuals connect the role of government to the quality of their lives, their confidence in government increases. That renewed confidence then propels the kinds of investments that improve the development and allocation of public good. Therefore, grassroots confidence in American government (from both the public and organizations) is essential for the public sector to reach its potential and meet the needs of the American people.

Historical Support

The examples explored in depth by this paper highlight federal public investment, rather than state and local projects. The lessons as to the value of public investment can and have been applied to state and local governments and increasingly state and local governments have assumed the role as "Laboratories of Democracy." This paper, however, limits its exploration of public investment to federal decisions, as they best demonstrate the broad-scale advantages of a strong public sector.

While successful public investments clearly occur at the state level, federal investments more clearly show impacts on all American citizens regardless of state boundaries. Government-sponsored public investments can be broken down into three categories: economic prosperity, construction of public infrastructure, and development of public services. In the examples outlined below, the federal government saw a societal need that was not being met, and responded to the need with a focused plan that elicited positive results. It is hard to imagine society today without these particular public sector achievements.

Economic Prosperity

The G.I. Bill

In 1943, the National Resources Planning Board and the Armed Forces Committee on Post-War Educational Opportunities for Service Personnel presented reports to President Roosevelt. These reports predicted that there would be eight to nine million unemployed workers during the

“readjustment period” immediately following World War II.⁷ They further recommended that more substantive benefits be provided to returning veterans to offset this impending crisis. The aftermath of World War I, in which many veterans were left unemployed upon returning from the war, remained fresh in the nation’s memory. President Roosevelt emphasized that we would repeat our World War I experience and veterans would be left in “breadlines and apple selling” unless the Congress passed effective legislation.⁸ Congress answered this need with the Servicemen’s Readjustment Act, more commonly known as “The G.I. Bill,” which Roosevelt signed into law on June 22, 1944.

The Act had several purposes, most notably to reduce unemployment and stimulate the economy as the war ended. The bill included titles on employment, mortgages, and various types of skills-based training for new jobs.⁹ These provisions eclipsed the meager benefits provided to World War I veterans (which were mostly limited to disabled veterans).¹⁰ While each section had a significant impact on post-war America, the G.I. Bill’s Educational Title the most notable and systematic results.

Prior to the enactment of the G.I. Bill, most veterans did not plan to further their education. Surveys conducted by the War Department throughout the war estimated that only seven to twelve percent of veterans planned to return to school, with a very small portion of these planning to attend a college.¹¹ The G.I. bill shifted many veterans’ outlooks toward education. Almost half of all World War II veterans utilized G.I. benefits to continue their education.¹² The G.I. Bill increased college enrollment dramatically; total enrollment jumped by more than 50 percent, from 1.3 million in 1939 to over 2 million in 1946.¹³ Veterans accounted for about 70 percent of all male enrollees in the years immediately following World War II.¹⁴ The G.I. Bill stimulated a dramatic educational revolution in the United States.

The G.I. Bill was made available for virtually every World War II veteran, and granted one year of education benefits to any veteran who had been honorably discharged and served at least

⁷ Keith W. Olson, “The G.I. Bill and Higher Education: Success and Surprise,” *American Quarterly* 25, no. 5 (1973): 597.

⁸ *Ibid.*, 598.

⁹ *Ibid.*, 600-601.

¹⁰ Suzanne Mettler, “Bringing the State Back in to Civic Engagement: Policy Feedback Effects of the G.I. Bill for World War II Veterans,” *The American Political Science Review* 96, no. 2 (2002): 354.

¹¹ Olson, 601.

¹² Charles B. Nam, “Impact of the ‘GI Bills’ on the Educational Level of the Male Population,” *Social Forces* 43, no. 1 (1964): 28.

¹³ John Bound and Sarah Turner, “Going to War and Going to College: Did World War II and the G.I. Bill Increase Educational Attainment for Returning Veterans?” *Journal of Labor Economics* 20, no. 4 (2002): 785.

¹⁴ *Ibid.*

ninety days of active duty. It further granted one month of additional education benefits for each month of active service (with a limit of four years).¹⁵ Most World War II veterans served tours of at least 3 years, so many were eligible to receive the maximum benefits.¹⁶

The Bill covered \$500 in tuition and fees per year. Veterans taking advantage of the benefits also received monthly payments of \$75 if they were single, \$105 if they had one dependent, and \$120 if they had two or more dependents.¹⁷ These benefits were substantial, covering even the charges of more expensive schools (such as Yale and Harvard). Moreover, the Bill provided monthly stipends that amounted to approximately 50% of the amount a single veteran could earn if he or she was working full-time.¹⁸ The G.I. Bill did not strictly apply educational benefits to veterans attending four-year colleges, as many used their benefits to enroll in craft, trade, farm training, or industrial courses.¹⁹

Approximately 250,000 veterans between 1940 and 1955 would not have completed their undergraduate college degree without the benefits the G.I. Bill provided.²⁰ Fifty-one percent of all returning veterans (7.8 million) took advantage of at least some of the G.I. Bill's benefits. 2,200,000 veterans had attended college and 5,600,000 participated in vocational training programs or on-the-job training under the G.I. Bill in the decade immediately following World War II.²¹ The support the G.I. Bill provided veterans helped keep unemployment at a low level following the war.

The Bill provided an education for many of our nation's future leaders. Fourteen veterans who utilized the Bill's benefits later won Nobel Prizes and three became presidents (Gerald Ford, Jimmy Carter and George H.W. Bush). Additionally, when considering the cost of sending World War II veterans to college, the extra national economic output due to the education the veterans received, and the additional federal tax revenues, the G.I. Bill returned \$6.90 for every \$1 it invested in veteran education.²² Considering these statistics, the words of historian Sidney A. Burrell are well deserved: the G.I. Bill produced "what may have been the most important educational and social transformation in American history."²³

¹⁵ Mettler, 354.

¹⁶ Bound and Turner, 790.

¹⁷ Mettler, 354.

¹⁸ Bound and Turner, 790.

¹⁹ Nam, 29.

²⁰ Nam, 31.

²¹ Mettler, 351.

²² "Servicemen's Readjustment Act of 1944." *Free Higher Education*, <http://www.freehighered.org/h_gifact.html> (18 March 2008).

²³ Olson, 597.

The Tennessee Valley Authority

In the midst of the Great Depression, the Tennessee Valley was in trouble. With a population of more than 2.5 million people, the region's average annual income was estimated at 50 percent below the national average (which was already very low due to the Great Depression).²⁴ Dr. Arthur E. Morgan, who would become the Tennessee Valley Authority's (TVA) first chairman, told Congress in the fall of 1933 that in some of the Valley's counties, more than 50 percent of the families were dependent on relief programs, with more than 87 percent of families on relief in a single county. He concluded that a considerable part of the Tennessee Valley population was on the verge of starvation.²⁵ Likewise, in March of 1933, an investigator from the U.S. Department of Agriculture's Bureau of Agricultural Economics reported that immigrants were living on abandoned farmlands and were

“practically destitute – some would starve but for the generosity of their farmer neighbors...Some are living in tents, others in windowless and floorless log cabins, and yet others in tumble-down buildings that would ordinarily be considered unsafe to use for any purpose.”²⁶

Endemic poverty in the region was compounded by outbreaks of disease, particularly malaria. Approximately one-third of all northern Alabamians who lived within a mile of the Tennessee River suffered from malaria.²⁷ Navigation on parts of the Tennessee River was nearly impossible for even the smallest commercial vessels.²⁸ Because of the impossibility of navigation, there was little commerce on the Tennessee River prior to the inception of the Tennessee Valley Authority.²⁹

The region had a long history of environmental abuse. By 1933, fifty-foot gullies cut into the hillsides of the valley, sheet erosion had stripped the topsoil of local farmland, and the forests were retreating due to fire and poor care.³⁰ Prior to the TVA's involvement in the region, up to

²⁴ Daniel Schaffer, “Managing the Tennessee River: Principles, Practice, and Change,” *The Public Historian* 12, no. 2 (1990): 18.

²⁵ W. H. Droze, “TVA and the Ordinary Farmer,” *Agricultural History* 53, no. 1 (1979): 188.

²⁶ *Ibid.*, 188.

²⁷ Schaffer, 19.

²⁸ *Ibid.*, 22.

²⁹ Roscoe C. Martin, “The Tennessee Valley Authority: A Study of Federal Control,” *Law and Contemporary Problems* 22, no. 3 (1957): 362.

³⁰ Schaffer, 19.

ten percent of total forest growth was ravaged by fire annually, often due to human negligence.³¹ The region also faced frequent flooding, unemployment, and scarce resources.

President Roosevelt signed the Act creating the Tennessee Valley Authority, a government-run utilities corporation, on May 18, 1933. Its goals were to develop the Tennessee River for navigation, create a mechanism for flood control, and generate electric power. Within the next twelve years, the TVA constructed sixteen dams and completed a system of twenty-four major impoundages.³² These projects provided steady work for many of the region's residents. The TVA also attempted to address the other problems in the region. It investigated the proper use of "marginal lands," efficient methods of reforestation, and options to achieve economic well-being for the valley's residents.³³

The Tennessee Valley Authority introduced new farming techniques using volunteer "demonstration farms." Through the use of terracing, crop rotation, and no-till agriculture, these farms began to control soil erosion in the valley.³⁴ As a result of these demonstrations, TVA began to transform the domination of cotton farming into diversified farming and in the process balanced agricultural outputs. The Authority devoted resources to the development of cutting-edge agricultural tools, such as improved fertilizer. It assisted states in organizing fire prevention programs and establishing fire danger stations in at-risk areas. In the period prior to World War II, the TVA funded more malaria research than any other institution in the country.³⁵

The Tennessee Valley Authority met each of its primary goals. As a result of TVA projects, the Tennessee River was completely navigable by 1943.³⁶ The dams and other flood controls proved effective: the fifth, sixth, and seventh highest regional floods of record would have occurred in 1946, 1947, and 1948 without the TVA's regulation of the river. But as a result of the TVA's planning, the floodwaters were contained with only marginal damage.³⁷ Through groundbreaking innovation, TVA engineers discovered methods to use dams to both prevent floods and harness electrical power, a feat previously considered unrealistic.³⁸ By 1956, the

³¹ Martin, 367.

³² E. L. Bishop, "The Prevention and Control of Malaria," *The American Journal of Nursing* 46, no. 5 (1946): 282.

³³ Stuart Chase, "TVA: The New Deal's Best Asset," *Nation* 142, no. 3701 (1936): 738.

³⁴ David S. Freeman, "The Nine Lives of TVA," *Environment* 27, no. 3 (1985): 8.

³⁵ Elizabeth Fee and Theodore M. Brown, "Depression-Era Malaria Control in the South," *American Journal of Public Health* 94, no. 10 (2004): 1694.

³⁶ Schaffer, 22.

³⁷ Martin, 361.

³⁸ Freeman, 8.

average residential use of electricity in the TVA area in 1956 was double the national average, while the cost was less than half the national average.³⁹

The TVA also managed to provide solutions for the other problems the Tennessee Valley faced. It provided jobs to a previously largely unemployed population; at no time in the 1930s did the annual number of TVA employees fall below 11,000 and pay was considered generous by contemporary standards.⁴⁰ Malaria was eradicated from the region by the 1940s.⁴¹ Between 1934 and 1957, TVA planted 295,000,000 seedlings in the Valley to replenish the region's decimated forests.⁴² As a result of the TVA's efforts, the Valley was sixty percent forested by 1985.⁴³

The region's economy, previously considered one of the worst in the nation, grew rapidly under the TVA's direction. In 1934, after the first year of TVA implementation, 2,000,000 tons of freight moved on the River.⁴⁴ By 1955, total river traffic had increased to 10,000,000 tons of freight, moved with an annual cost savings estimated at \$16,700,000.⁴⁵ Additionally, the TVA explicitly encouraged private investment, which had previously been nonexistent: capital was invested in the construction of shipping terminals along the river and in the freight actually moving on the river.⁴⁶

Private corporations were not equal to the task of repairing life in the Tennessee Valley during the Great Depression. The environment was floundering, jobs were scarce, and poverty was rampant. Within ten years the efforts of the Tennessee Valley authority showed dramatic results and helped transform the region into an economic success story. As Stephen Neuse argued: "TVA may be...The most ubiquitous and dramatic peaceful symbol of U.S. technology, ingenuity, and national will."⁴⁷

³⁹ Martin, 365.

⁴⁰ Schaffer, 23.

⁴¹ Fee and Brown, 1694.

⁴² Martin, 368.

⁴³ Freeman, 8.

⁴⁴ "The Tennessee Valley Authority Act." *The Yale Law Journal* 43, no. 5 (1934): 815-816.

⁴⁵ Martin, 362.

⁴⁶ *Ibid.*, 363.

⁴⁷ Steven M. Neuse, "TVA at Age Fifty – Reflections and Retrospect," *Public Administration Review* 43, no. 6 (1983): 498.

Public Infrastructure

The Federal Aid Highways Act of 1956

In July of 1954, Vice President Richard M. Nixon presented President Dwight D. Eisenhower's findings concerning the current state of America's highways at a conference of state governors in New York. This speech came at a time when governors were debating the need for federal gas taxes and the even whether the federal government ought to be involved in highway construction and maintenance in any capacity.⁴⁸

Eisenhower cited five detriments to the nation's current interstate highway system: the annual death and injury toll resulting from inferior roads, the waste of billions of dollars in detours and traffic jams, the clogging of the nation's courts with highway-related suits, the inefficient transportation of goods, and the inability of the status quo to provide quick transportation in the event of catastrophe or attack.⁴⁹ In short, Eisenhower's findings demonstrated that the contemporary decentralized approach to highway building and maintenance was not working.

Without a national standard for interstate highway systems, the quality of highways differed from state to state. Absent a national vision, the highway systems merely served each individual state's needs without providing for effective interstate travel. President Eisenhower observed this reality firsthand during his participation in U.S. Army's first Transcontinental Motor Convoy in 1919. While attempting to cross the nation via automobile, he experienced the dilapidated condition of the interstate highways' in many areas of the United States. This experience proved pivotal in Eisenhower's later advocacy for federal involvement in interstate highway development.

The first attempt toward the development of a cooperative, centralized interstate program began with the enactment of the Federal-Aid Highway Act of 1944. Unfortunately, this act did not really depart from the efforts of the status quo. While Section 7 authorized a 65,000 km (approximately 40,000 miles) interstate highway system, it did not commit federal resources to this system's construction.⁵⁰ Between 1944 and 1956, token amounts of federal dollars were earmarked for interstate highway construction, but these commitments did not near the amount

⁴⁸ Richard F. Weingroff, "Federal-Aid Highway Act of 1956: Creating the Interstate System," *Public Roads* 60, no. 1 (1996).

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*

that would be required to build the 40,000 mile interstate highway system our nation so desperately needed.

By 1956, the time for action had arrived. American involvement in the Korean War had ended and the call for domestic security had gained immediacy. Congress had been working for several years towards legislation that would provide the funding this project would require. With President Eisenhower's signature, the Federal-Aid Highway Act was enacted on June 29, 1956. This Act expanded the 1944 vision for the interstate highway system by 1,000 miles and authorized \$25 billion to be made available through 1969 (later legislation would further expand this vision). The federal government would pay 90% of the costs, while state governments would cover the remaining costs.⁵¹ Existing state toll roads could be incorporated, but only if they complied with the newly mandated standards (e.g., by the 1960s, federal standards required that roads in the interstate system have at least four lanes).

The Federal-Aid Highway Act would connect 209 of the 237 American cities with a 1956 population of 50,000 or more.⁵² The Act had three sections outlining the work to be done. The first increased Federal aid for intrastate road construction throughout the forty-eight continental states and provided for construction of about 700,000 miles of these roads. The second section provided federal funds for national park, forest, and Native American reservation roads. The final section designated construction of the 41,000 miles of interstate highway to be known as the "National System of Interstate and Defense Highways."⁵³

At the time, the Federal-Aid Highway Act represented the largest public works project in American history. Additionally, the Act demonstrated partisan collaboration and cooperative federalism at its best. The Act passed through the House of Representatives and the Senate with only one single dissenting vote!⁵⁴ Each of forty-eight state highway departments and the Federal Bureau of Public Roads worked together to plan the implementation of the Act. The federal government saw an overarching national need and worked across partisan lines and state boundaries to meet this need. As author and magazine editor Richard Thruelsen stated in October of 1956, the Federal-Aid Highway Act was "a brave new effort to get [the United States] out of its national traffic jam."⁵⁵

⁵¹ "Roads to Somewhere," *Economist* 379, no. 8483 (2006).

⁵² Richard Thruelsen, "Coast to Coast Without a Stoplight," *Saturday Evening Post* 229, no. 16 (1956): 54.

⁵³ *Ibid.*

⁵⁴ *Ibid.*, 23.

⁵⁵ *Ibid.*, 54.

The project, originally slated for twelve years, ended up taking much longer, but its positive impact began to be seen soon after construction. The first and most obvious impact was the increased ease of travel. American citizens could finally count on reliable roads from state to state. The construction reaped economic benefits as well. According to John Fernald, a senior economist at the Federal Reserve Bank of Chicago, “building an Interstate system that tied the economy together turned out to be extraordinarily productive.”⁵⁶ Even according to conservative estimates, the interstate highway system has returned more than \$6 in economic productivity for each \$1 it cost to construct.⁵⁷

The positive impact of the construction of the interstate highway system exceeds even economics. This efficient, reliable mode of interstate travel made roads safer, and more gas efficient. Some estimate that as of 1999, as many as 187,000 fatalities and almost 12 million injuries had been avoided during the 40-year lifetime of the system.⁵⁸ Finally, by designing an efficient interstate system with limited points of access, the U.S. government saved the average motorist as much as four cents a mile (in gas, oil, tires, time, etc.).⁵⁹

According to President Eisenhower, “more than any single action by the government since the end of the war, [the Federal-Aid Highway Act changed] the face of America... Its impact on the American economy – the jobs it would produce in manufacturing and construction, the rural areas it would open up – was beyond calculation.”⁶⁰ But one observation holds as much significance as any of the interstate highway system’s economic or social impacts: that centralized and focused public sector action can bring great visions to fruition.

The Rural Electrification Act

By the mid-1930s, the American electric utility industry had existed for over fifty years and yet nearly 90% of America’s farmers lived without electricity.⁶¹ These farmers did not live without electricity by choice or for lack of necessary technological advances. Ninety percent of

⁵⁶ Justin Fox, “The Great Paving,” *Fortune* 149, no. 2 (2004).

⁵⁷ “Century’s Top 10 Construction Projects,” *Roads and Bridges* Vol. 37, no. 2 (1999): A8.

⁵⁸ *Ibid.*

⁵⁹ Thruelsen, 59.

⁶⁰ Dwight D. Eisenhower, *Mandate for Change: 1953-1956* (Garden City, NY: Doubleday & Company, Inc., 1963).

⁶¹ John M. Carmody, “Rural Electrification in the United States,” *Annals of the American Academy of Political and Social Science* 201 (1939): 82.

American farmers lived without electricity in the 1930s because they were unable to persuade utility companies to provide rural areas with electricity.

At the end of 1930, only 10.2 percent of American farms were electrified. Four years later, this percentage had only risen by seven tenths of a percent. At the rate that rural electrification rose between 1925 and 1935, electric service would not have become available to even fifty percent of American farms until 1985.⁶² Several factors accounted for the slow development of rural electrification, most of which could be attributed to the private sector's desire to maximize profit.

Excessive rural electrification rates, strict requirements for line extensions, and burdensome construction costs prevented most rural areas from obtaining electricity. The cost private utility companies would demand for the construction of an electrical line to a rural area was often prohibitive. Private utility companies would often ask the rural customers to pay for the construction of the electric line, and would charge more than the value of the electric line itself!⁶³ In addition to demanding payment for the construction of the line, utility companies forced rural residents to give title to the line after it was built, to agree to purchase electricity for several years, and to pay a higher rate for the electricity.⁶⁴

The private utility industry was not meeting the needs of America's rural population. The government saw a market with unnecessary barriers and acted in the interests of rural America. As President Roosevelt declared, "electricity is a modern necessity of life and ought to be in every village, every home, and every farm in the United States."⁶⁵ The public sector led the way in the effort to provide electricity to rural America with the creation of the Rural Electrification Administration (REA) in 1935.

President Roosevelt had a grand vision for the REA. He ordered the Administration "to initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas."⁶⁶ In 1937, Congress responded to President Roosevelt's vision by passing the Rural Electrification Act. The Rural Electrification Act established a program designed to promote rural electrification by lending funds for construction of rural electric systems to cooperatives and other community entities.

⁶² John M Carmody, "Rural Electrification: Progress and Future Prospects," *Journal of Farm Economics* 20, no. 1 (1938): 364.

⁶³ *Ibid.*, 365.

⁶⁴ *Ibid.*

⁶⁵ Carmody, "Rural Electrification in the United States," 88.

⁶⁶ Carmody, "Rural Electrification: Progress and Future Prospects," 361.

The cooperation of our federal legislative and executive branches produced immediate results. Within two and a half years after the establishment of the Rural Electrification Administration, the rural electric lines built by REA loans benefitted fifty thousand famers.⁶⁷ This achievement brought electricity to more American farms than in any previous two-year period.⁶⁸

The Rural Electrification Act did more than just provide loans to approved cooperatives. The REA incentivized private companies to act in a way that benefitted the public. Competition with entities receiving government loans encouraged private utilities to reduce or eliminate charges for the construction of rural lines, to drastically lower rural electric rates, and to lower their monthly charges.⁶⁹ The Niagara Hudson Corporation provides a good example of the transformation the Rural Electrification Act incited.

The Niagara Hudson Corporation provided electricity to a large portion of New York State in the 1930s. Prior to the introduction of the Rural Electrification Administration, the Niagara Hudson Company made rural electrification progress very difficult. When a potential customer proposed a new rural line (defined as averaging four customers per mile), each customer had to guarantee a minimum monthly bill. This minimum was difficult for many rural customers to guarantee. Shortly after the REA's formation, the Niagara Hudson Company dropped the monthly bill requirement from \$6 to \$2 a month. Following this change, over twenty thousand New York farms were electrified between 1935 and 1938.⁷⁰

The Rural Electrification Administration caused drastic changes in rural America. With the drastic technological change came new challenges to America's rural community. To meet these challenges, the REA provided for the education of communities receiving electricity for the first time. The REA organized a traveling demonstration caravan featuring electrical farm equipment and household appliances. Additionally, farmers had the opportunity to observe demonstrations of cooking on electric ranges, dehydration, and deep freezing.⁷¹

The Rural Electrification Administration acquainted rural communities with the practical services electricity could provide. The Administration provided engineers and economists to

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*, 365.

⁷⁰ *Ibid.*, 365-366.

⁷¹ H. S. Person, "The Rural Electrification Administration in Perspective," *Agricultural History* 24, no. 2 (1950): 78.

assist the local cooperatives. The Administration trained wiring inspectors to ensure that safe wiring had been installed throughout the rural areas receiving electricity. Additionally, the REA loaned money for rural Americans to finance the installation of wiring, plumbing, and even electric appliances in their homes.⁷²

The Rural Electrification Administration effected long-lasting change. Between 1935 and 1949, 1,054 borrowers constructed and operated 839,685 miles of energized lines, serving 2,778,180 rural consumers.⁷³ The efforts of the Administration increased the number of rural customers receiving electricity from less than 11% in 1935 to 78.2% by 1949.⁷⁴ By 1979, ninety-nine percent of American farms had electricity.⁷⁵

While these numbers are impressive, the true impact that the Rural Electrification Administration made on the life of the average rural American is not quantifiable. The words of a Wyoming rural housewife concerning the day her ranch received electricity demonstrate the significance electrification held for the rural American. She remembered how “lights shone where lights have never been, the electric stove radiated heat, the washer turned,” and an electric pump replaced “the old hand pump...buried under six feet of snow.”⁷⁶

Public Services

The Clean Water Act

Pollution has long been a problem in the United States. In 1900, waterborne disease caused nearly one-quarter of the reported infectious disease deaths in major U.S. cities.⁷⁷ Raw sewage surfaced in the Potomac River throughout the 1960s. In 1968, the Cuyahoga River burned due to excessive pollution in its waters.⁷⁸ Water quality has greatly improved since the 1960s. Without the public sector’s leadership in this arena, we could still be worried about burning rivers today.

⁷² Carmody, “Rural Electrification in the United States,” 87.

⁷³ Person, 87.

⁷⁴ *Ibid.*

⁷⁵ Wayne D. Rasmussen, “The New Deal Farm Programs: What They Were and Why They Survived,” *American Journal of Agricultural Economics* 65, no. 5 (1983): 1160.

⁷⁶ Brian Q. Cannon, “Power Relations: Western Rural Electric Cooperatives and the New Deal,” *The Western Historical Quarterly* 31, no. 2 (2000): 133.

⁷⁷ David Cutler and Grant Miller, “The Role of Public Health Improvements in Health Advances: The Twentieth Century United States,” *Demography* 42, no. 1 (2005).

⁷⁸ Brandy E. Fisher, “Downstream in America,” *Environmental Health Perspectives* 102, no. 9 (1994): 740-745.

The Clean Water Act is the primary federal legislation regulating water pollution. The Act is comprised of a series of acts and subsequent amendments. I will limit my discussion to the 1972 Federal Water Pollution Control Amendments. The Act's significance lies in the major transformation the 1972 Amendments presented: from ineffectual decentralized state and private pollution regulation to standardized cooperation between the federal government, private industry, and the states.

Prior to the 1972 Amendments, the federal government deferred to the states and private sector's regulation of water pollution. By 1970, each state had minimum standards for water pollution and plans to implement these standards.⁷⁹ However, most states were not actually implementing these standards.⁸⁰ According to a Senate investigation, the state standards were disparate, widely unenforced, and generally unenforceable.⁸¹ While any private company or state could set lofty standards and promise to begin to implement those standards, only the federal government could ensure that a universal plan for water pollution reduction would be implemented in each state of the Union.

Congress responded to the messy situation by enacting the 1972 Federal Water Pollution Control Amendments. The National Corn Growers Association outlines the 1972 Amendments with eight goals: 1) states must keep pollutants out of streams, rivers, lakes or bays; 2) states have regulatory authority to establish the designated use for each waterbody; 3) each state must determine the maximum levels for specific pollutants needed to protect a waterbody's designated use (and report to the EPA); 4) A federal permit is required to discharge pollutants through pipes, ditches or similar means; 5) permits allow pollutant discharge at the lowest level possible using the best technology that is economically achievable; 6) runoff from agricultural lands is exempt from the CWA's mandatory permits; 7) states must follow "total maximum daily load" (TMDL) guidelines developed after permits and voluntary management practices fail to reduce pollutants to approved use levels; and 8) states must calculate the maximum amount of a pollutant a waterbody contains before assigning appropriate shares among all sources.⁸² To clarify, a

⁷⁹ Oliver A. Houck. *The Clean Water Act TMDL Program: Law, Policy, and Implementation*, 2d ed. (Washington, D.C.: Environmental Law Institute, 2002).

⁸⁰ *Ibid.*

⁸¹ *Ibid.*

⁸² "The Clean Water Act," *The National Corn Growers Association*, 2007

<<http://www.ncga.com/news/publications/PDF/The%20Clean%20Water%20Act%20-%20TMDL.PDF>> (18 March 2008).

TMDL guideline “is the amount of a particular pollutant that a particular stream, lake, estuary or other waterbody can ‘handle’ without violating state water quality standards.”⁸³

The Clean Water Act was successful. Granted, not all of America’s waters are perfectly clean. But the efforts Clean Water Act made them cleaner than they were before 1972. In 1969, 60% of the nation’s waterbodies met the Public Health Service’s safety standards. Today, 89% of Americans have access to water that meets all of EPA’s health standards.⁸⁴ According to Oliver Houck, Professor of Law and former Vice-President of the National Wildlife Federation, after the enactment of the 1972 Amendments, “industrial pollution plummeted; rates of wetlands loss slowed, and in some regions even reversed; and municipal loadings, the subject of \$128 billion in public funding for treatment works, dropped by nearly 50% while their populations served were doubling in size.”⁸⁵ By 1994, toxic organic pollutants given “priority” by the public sector decreased by 99% since the 1972 Amendments (by almost 660,000 pounds less discharged in our nation’s bodies of water per day).⁸⁶ Additionally, toxic metal discharge reduced by almost 98% between 1972 and 1994 (a reduction of more than 1.6 million pounds per day).⁸⁷

Former Vice President Al Gore summarized the significance of the Clean Waters Act by saying: “since the passage of the Clean Water Act, we have stopped billions of pounds of pollution from flowing into our rivers, lakes, and streams; and doubled the number of waters safe for swimming and fishing.”⁸⁸ Granted, the battle over our nation’s water is far from over, however, without the public sector’s engagement and commitment, the battle for cleaner, healthier water might never have begun.

Tuberculosis Eradication in the United States

Tuberculosis has long been present in human history. At the turn of the nineteenth century, tuberculosis killed more people than any other disease, as one in five people developed this disease.⁸⁹ Tuberculosis remains a significant danger today. As of 2001, tuberculosis infected

⁸³ “What’s a TMDL?” <<http://www.ctic.purdue.edu/KYW/tmdl/tmdlhome.html>> (18 March 2008).

⁸⁴ Margaret Kriz, “Cleaner Air, Cleaner Water,” *National Journal* 39, no. 3 (2007).

⁸⁵ Houck, Oliver A. *The Clean Water Act TMDL Program: Law, Policy, and Implementation*.

⁸⁶ Robert Adler, “The Clean Water Act: Has it Worked?” *EPA Journal* 20 (Summer 1994).

⁸⁷ Adler, “The Clean Water Act: Has it Worked?”

⁸⁸ Gore, Albert. “The 25th Anniversary of the Clean Water Act.” *Essential Speeches*, 2003.

⁸⁹ Eugene McCray; Cindy M. Weinbaum; Christopher R. Braden; and Ida M. Onorato, “The Epidemiology of Tuberculosis in the United States,” *Clinics in Chest Medicine* 18, no. 1 (1997).

more than one-third of the world's population.⁹⁰ The story of the American battle with tuberculosis is one of federal vision and grassroots implementation.

The U.S. federal government became actively involved in tuberculosis prevention in 1944 with the establishment of the Division of Tuberculosis in the U.S. Public Health Service. Tuberculosis occurrence declined continuously in the following decades. For example, during the 1950s, tuberculosis rates fell 75%.⁹¹ Many of the major improvements that caused this decline can be attributed to the Division of Tuberculosis (and later the Advisory Council for the Elimination of Tuberculosis within the Center for Disease Control and Prevention).⁹² The Division of Tuberculosis encouraged and aided state and local departments to establish tuberculosis screening, diagnostic, and treatment facilities. By 1960, nearly 1200 tuberculosis clinics existed in the United States.⁹³ Additionally, the public sector spearheaded the effort to interrupt the transmission of the disease and develop new antibiotic agents to combat the disease. With these efforts in place, actual eradication of the disease seemed possible.

The presence of tuberculosis in the United States continued to decline until the 1980s. In early 1980s, complacency replaced the energetic attempt to combat and eradicate tuberculosis. Public funding decreased substantially and the public sector began to abandon tuberculosis control efforts that were not "maximally cost-effective."⁹⁴ As a result, after more than three decades of a steady tuberculosis decline in the United States, the occurrence of the disease actually began to increase in the latter half of the 1980s and continued to increase until 1993.⁹⁵ Between 1985 and 1991, the number of reported tuberculosis cases in the United States increased by eighteen percent.⁹⁶ The loss of public funding for tuberculosis screening and treatment was a primary cause of this tuberculosis increase in the United States.⁹⁷ As the federal vision for tuberculosis eradication lost support, the grassroots effort faltered as well.

⁹⁰ Peter M. Small and Paula I. Fujiwara, "Management of Tuberculosis in the United States," *New England Journal of Medicine* 345, no. 3 (2001):189.

⁹¹ Eugene McCray; Cindy M. Weinbaum; Christopher R. Braden; and Ida M. Onorato, "The Epidemiology of Tuberculosis in the United States."

⁹² George W. Comstock, "Tuberculosis: Is the Past Once Again Prologue?" *American Journal of Public Health* 84, No.11 (1994): 1730.

⁹³ *Ibid.*

⁹⁴ *Ibid.*

⁹⁵ Eugene McCray; Cindy M. Weinbaum; Christopher R. Braden; and Ida M. Onorato, "The Epidemiology of Tuberculosis in the United States."

⁹⁶ Amy L. Fairchild and Gerald M. Oppenheimer, "Public Health Nihilism vs. Pragmatism: History, Politics, and the Control of Tuberculosis," *American Journal of Public Health* 88, no. 7 (1998): 1105.

⁹⁷ *Ibid.*

To reverse this trend, the Advisory Council for the Elimination of Tuberculosis proposed a plan for fighting tuberculosis in 1987. The Advisory Council's 1987 proposal set an overall goal to eliminate tuberculosis in the United States by 2010 (with "elimination" defined as less than one case per million).⁹⁸ The proposal made recommendations to the public sector in three categories: existing prevention and control methods; development and evaluation of new prevention, diagnostic and treatment technologies, and technology assessment and transfer.⁹⁹ While parts of this plan were followed, much of it was not fully implemented. If the proposal had been fully implemented in 1987, it is estimated that 67,000 subsequent cases of tuberculosis would not have occurred.¹⁰⁰

By the early 1990s, the continued increase in tuberculosis occurrence caused governmental agencies once again to emphasize effective tuberculosis policy. Congress increased funding for the effort to eradicate tuberculosis.¹⁰¹ Public health officials found that one major cause of the tuberculosis resurgence in the United States was a substantial number of infected patients who were not completing treatment.¹⁰² Governmental agencies targeted public health interventions using such methods as directly observed therapy and isolation of infected patients.¹⁰³ State and local officials and clinics implemented the federal vision and began to see results. As a result of the use of patient isolation and increased patient accountability, the tuberculosis resurgence stagnated and then reversed in 1993.

The renewal of the public sector's dedication in the 1990s to fight tuberculosis has had lasting results. After the reversal in 1993, tuberculosis occurrence has decreased each year in the United States. In 2000, 16,377 tuberculosis cases were reported, a 45% decrease from height of the 1985-1992 resurgence. 2007 saw the lowest recorded tuberculosis occurrence rate in the United States since national recording began in 1953 (only 13,294 cases were reported in 2007).¹⁰⁴ While the Advisory Council for the Elimination of Tuberculosis will probably not meet its 1987 goal of tuberculosis eradication by 2010, significant decreases have been made and elimination of the disease seems to be an attainable goal.

⁹⁸ Eugene McCray; Cindy M. Weinbaum; Christopher R. Braden; and Ida M. Onorato, "The Epidemiology of Tuberculosis in the United States."

⁹⁹ "A Strategic Plan for the Elimination of Tuberculosis in the United States," *Morbidity and Mortality Weekly Report* 38 (1989): 1-25.

¹⁰⁰ Small and Fujiwara, 189.

¹⁰¹ Fairchild and Oppenheimer, 1105.

¹⁰² Small and Fujiwara, 191.

¹⁰³ Fairchild and Oppenheimer, 1105.

¹⁰⁴ "Trends in Tuberculosis --- United States, 2007," *Morbidity and Mortality Weekly Report* 57, no. 11 (2008): 281-185.

The history of tuberculosis in the United States clearly demonstrates the impact the public sector can have on the most important areas of American life. The recent decades in which the public sector has made a concerted effort to reduce tuberculosis incidence have seen the greatest decrease in that incidence (the 1940s-1970s; 1990s-present). Likewise, the one short period (the latter half of the 1980s) in which the public sector sacrificed effective policy for fiscal concerns led to the only increase in tuberculosis incidence in the United States in the 20th century.¹⁰⁵ Let us hope that the public sector will continue to emphasize effective policy so the dream of tuberculosis eradication in the United States can one day be realized.

Conclusion

Clearly, the public sector plays a unique and critical role in American society. The public sector turned a bold vision of highways reaching from coast to coast into a reality. It amassed large amounts of resources to meet the needs of veterans returning home from war, and in doing so secured the future of the American economy. It recognized pervasive poverty in a river valley and transformed that region into an economic competitor. It collaborated with the health industry to eradicate disease. It brought electricity to rural communities and small towns previously ignored by private industry. It fought an uphill battle to clean America's waters. The public sector is the only entity in our society that is designed first and foremost to serve the common interests of the American people.

While the last 30 years of anti-government rhetoric has taken its toll on public commitment to the political and governance processes in this country, the election of 2008 demonstrates that reinvigoration of public support of the public good is possible. Americans rediscovered their connected vision, a dream of a community that accepted the responsibility for their brothers and sister, an economy that grows strong and vital to the benefit of all, not just the wealthiest and most powerful, and a government that adequately invests in fundamental public structures that provide the foundation on which to build economic progress and individual opportunities.

T.E. Lawrence, a British soldier and author, captured our current challenge as American citizens when he wrote "all men dream, but not equally. Those who dream by night in the dusty recesses of their minds wake in the day to find that it was vanity: but the dreamers of the day are

¹⁰⁵ Eugene McCray; Cindy M. Weinbaum; Christopher R. Braden; and Ida M. Onorato, "The Epidemiology of Tuberculosis in the United States."

dangerous men, for they may act their dream with open eyes, to make it possible.”¹⁰⁶ If each American became a “dreamer of the day” and participated actively in the political process, the public sector could fulfill its potential and improve life in America for every American.

As Miles Rapoport of Demos told Congress recently, “Our nation’s future, and that of its people, depends on a set of public structures that underpin the success of our businesses, our communities, and our citizens. Those structures—whether they are scientific research programs, levees, bridges, schools, colleges, or children’s programs— promote the common good and shape our common future. But they can only do their job if they are maintained and improved with public investment.”¹⁰⁷

In the past, government has responded to many of our greatest challenges with bold solutions and a collective commitment to leave the U.S. in a better place. The scale of these works are almost impossible to fathom in the modern environment of political partisanship and government gridlock. But our challenges today are no less daunting than they were yesterday. And overcoming those challenges will require the same kind of commitment from the public sector and same kind of investment in the public good.

What will be the next G.I. Bill that economically empowers an entire generation? Will we have the temerity to tackle poverty and economic depression as we did with the Tennessee Valley Authority? Will health care reform be the new Clean Water Act? Will the energy crisis and global climate change yield the same kind of monumental investment that it took to build the interstate highway system? What is the next great commitment toward the public good and where will it take us?

The challenge of 2008 and beyond is to recognize the historic achievements of the past, envision the next great public sector work in our future, and find a way to make true economic progress and ensure justice for all.

¹⁰⁶ T. E. Lawrence, *Seven Pillars of Wisdom* (New York: Dell Publishing Co., Inc., 1964).

¹⁰⁷ Miles Rapoport, President, Demos: A Network of Ideas and Action, testimony before the US House of Representatives, Committee on Financial Services, Washington DC, March 23, 2007.

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Bibliography

Books

- Bakan, Joel. "Corporations Unbound." In *Inequality Matters: The Growing Economic Divide in America and Its Poisonous Consequences*. Ed. James Lardner and David A. Smith. New York: The New York Press, 2005.
- Eisenhower, Dwight D. *Mandate for Change: 1953-1956*. Garden City, NY: Doubleday & Company, Inc., 1963.
- Houck, Oliver A. *The Clean Water Act TMDL Program: Law, Policy, and Implementation*, 2d ed. Washington, D.C.: Environmental Law Institute, 2002.
- Lawrence, T.E. *Seven Pillars of Wisdom*. New York: Dell Publishing Co., Inc., 1964.
- Osborne, David. *Laboratories of Democracy: A New Breed of Governor Creates Models for National Growth*. Boston: Harvard Business School Press, 1988.
- Smith, Adam. *An Inquiry into the Nature And Causes of the Wealth of Nations*. 1776.

Internet Sources

- "Ben Franklin Delivers the Right Mix of Resources to Grow and Strengthen Pennsylvania's Business." *Ben Franklin Technology Partners' 25th Anniversary*. <<http://www.benfranklin.org/about/index.asp>> (8 April 2008).
- Hart-Teeter Research Associates. "America Unplugged: Citizens and Their Government." 12 July 1999. Conducted on behalf of *The Council for Excellence in Government*. <http://www.excelgov.org/admin/FormManager/filesuploading/America_Unplugged_full_report.pdf> (4 April 2008).
- Peter D. Hart Research Associates, Inc. "Partisanship Up, Confidence Down: Americans Want Compromise and Competition," 15 May 2006. Conducted on behalf of *The Council for Excellence in Government*. <http://www.excelgov.org/admin/FormManager/filesuploading/partisan_politics.pdf> (4 April 2008).
- "Servicemen's Readjustment Act of 1944." *Free Higher Education*. <http://www.freehighered.org/h_gifact.html> (18 March 2008).
- "The Clean Water Act." *The National Corn Growers Association*. 2007. <<http://www.ncga.com/news/publications/PDF/The%20Clean%20Water%20Act%20-%20TMDL.PDF>> (18 March 2008).
- "Venture Michigan Fund: Frequently Asked Questions." *Venture Michigan Fund*. <<http://www.venturemichigan.com/faqs.htm>> (09 April 08).

“What’s a TMDL?” <<http://www.ctic.purdue.edu/KYW/tmdl/tmdlhome.html>> (18 March 2008).

Periodicals

- “A Strategic Plan for the Elimination of Tuberculosis in the United States.” *Morbidity and Mortality Weekly Report* 38 (1989): 1-25.
- Adler, Robert. “The Clean Water Act: Has it Worked?” *EPA Journal* 20 (Summer 1994): 10-15.
- Bound, John and Turner, Sarah. “Going to War and Going to College: Did World War II and the G.I. Bill Increase Educational Attainment for Returning Veterans?” *Journal of Labor Economics* 20, no. 4 (2002): 784-815.
- Bishop, E. L. “The Prevention and Control of Malaria.” *The American Journal of Nursing* 46, no. 5 (1946): 282-284.
- Cannon, Brian Q. “Power Relations: Western Rural Electric Cooperatives and the New Deal.” *The Western Historical Quarterly* 31, no. 2 (2000): 133-160.
- Carmody, John M. “Rural Electrification in the United States.” *Annals of the American Academy of Political and Social Science* 201 (1939): 82-88.
- Carmody, John M. “Rural Electrification: Progress and Future Prospects.” *Journal of Farm Economics* 20, no. 1 (1938): 361-369.
- “Century’s Top 10 Construction Projects.” *Roads and Bridges* Vol. 37, no. 2 (1999): A8.
- Chase, Stuart. “TVA: The New Deal’s Best Asset.” *Nation* 142, no. 3701 (1936): 738- 741.
- Comstock, George W. “Tuberculosis: Is the Past Once Again Prologue?” *American Journal of Public Health* 84, No.11 (1994): 1729-1731.
- Cutler, David and Miller, Grant. “The Role of Public Health Improvements in Health Advances: The Twentieth Century United States.” *Demography* 42, no. 1 (2005): 1-22.
- Droze, W. H. “TVA and the Ordinary Farmer.” *Agricultural History* 53, no. 1 (1979): 188-202.
- Ephron, Dan. “A Learning Disability.” *Newsweek*, 26 November 2007.
- Fairchild, Amy L. and Oppenheimer, Gerald M. “Public Health Nihilism vs. Pragmatism: History, Politics, and the Control of Tuberculosis.” *American Journal of Public Health* 88, no. 7 (1998): 1105-1117.
- Fee, Elizabeth and Brown, Theodore M. “Depression-Era Malaria Control in the South.” *American Journal of Public Health* 94, no. 10 (2004): 1694.
- Fisher, Brandy E. “Downstream in America.” *Environmental Health Perspectives* 102, no. 9 (1994): 740-745.

Fox, Justin. "The Great Paving." *Fortune* 149, no. 2 (2004): 86-90.

Freeman, David S. "The Nine Lives of TVA." *Environment* 27, no. 3 (1985): 6-11.

Gore, Albert. "The 25th Anniversary of the Clean Water Act." *Essential Speeches* (2003).

Kriz, Margaret. "Cleaner Air, Cleaner Water." *National Journal* 39, no. 3 (2007): 20-22.

Martin, Roscoe C. "The Tennessee Valley Authority: A Study of Federal Control." *Law and Contemporary Problems* 22, no. 3 (1957): 351-377.

McCray, Eugene; Weinbaum, Cindy M.; Braden, Christopher R; and Onorato, Ida M. "The Epidemiology of Tuberculosis in the United States." *Clinics in Chest Medicine* 18, no. 1 (1997): 99-113.

Mettler, Suzanne. "Bringing the State Back in to Civic Engagement: Policy Feedback Effects of the G.I. Bill for World War II Veterans." *The American Political Science Review* 96, no. 2 (2002): 351-365.

Nam, Charles B. "Impact of the 'GI Bills' on the Educational Level of the Male Population." *Social Forces* 43, no. 1 (1964): 26-32.

Neuse, Steven M. "TVA at Age Fifty – Reflections and Retrospect." *Public Administration Review* 43, no. 6 (1983): 491-499.

Olson, Keith W. "The G.I. Bill and Higher Education: Success and Surprise." *American Quarterly* 25, no. 5 (1973): 596-610.

Person, H. S. "The Rural Electrification Administration in Perspective." *Agricultural History* 24, no. 2 (1950): 70-89.

Rasmussen, Wayne D. "The New Deal Farm Programs: What They Were and Why They Survived." *American Journal of Agricultural Economics* 65, no. 5 (1983): 1158-1162.

"Roads to Somewhere," *Economist* 379, no. 8483 (2006): 36-38.

Schaffer, Daniel. "Managing the Tennessee River: Principles, Practice, and Change." *The Public Historian* 12, no. 2 (1990): 7-29.

Small, Peter M. and Fujiwara, Paula I. "Management of Tuberculosis in the United States." *New England Journal of Medicine* 345, no. 3 (2001): 189-200.

"The Tennessee Valley Authority Act." *The Yale Law Journal* 43, no. 5 (1934): 815-826.

Thruelsen, Richard. "Coast to Coast Without a Stoplight." *Saturday Evening Post* 229, no. 16 (1956): 23-65.

"Trends in Tuberculosis --- United States, 2007." *Morbidity and Mortality Weekly Report* 57, no. 11 (2008): 281-185.

Weingroff, Richard F. "Federal-Aid Highway Act of 1956: Creating the Interstate System." *Public Roads* 60, no. 1 (1996): 10-21.

