

**THREE ARTICLES ON USDA RD'S WATER AND WASTE DISPOSAL DIRECT
LOAN AND GRANT PROGRAM IN OKLAHOMA: AN EVALUATION**

A Record of Study

by

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ABSTRACT

This record of study presented an evaluation of the U.S. Department of Agriculture Rural Development's Water and Waste Disposal Direct Loan and Grant Program. The study is presented in a three-article format. The study is introduced in the first chapter. Then, the three articles are examined. The first article examined the historical record of funding within the decade of 2008-2018 throughout the state of Oklahoma in USDA's Water and Waste Disposal Direct Loan and Grant program recording the recipient of funding, location of recipient, amount of assistance, purpose, and agency definition of impact. The second article examined a qualitative approach to perform a utilization-focused program evaluation of USDA Rural Development's Water and Waste Disposal Direct Loan and Grant Program. The third article employed a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis to identify needs and/or gaps of USDA, Rural Development's Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma. The final chapter of this dissertation presents the findings throughout the study, along with discussions, implications, and recommendations.

DEDICATION

This work is dedicated to my family who have sacrificed, supported and loved me every step of the way. To my husband and best friend, John Case Roundtree. I will never truly be able to express my gratitude to you and your endless patience, love, encouragement, and the constant to our crazy lives. To my children, Andee Sue and Raynes Paul. You are my purpose every day, and I pray this will forever be a testament to never give up and always follow your dreams.

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NOMENCLATURE

CBDG	Community Block Development Grant
CWA	Clean Water Act
DEQ	Department of Environmental Quality
EDA	Economic Development Administration
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FOIA	Freedom of Information Act
FY	Fiscal Year
IHS	Indian Health Service
ODEQ	Oklahoma Department of Environmental Quality
ODWSRF	Oklahoma Drinking Water State Revolving Fund
OMB	Office of Management and Budget
OWRB	Oklahoma Water Resources Board
RBS	Rural Business-Cooperative Service
RHS	Rural Housing Service
RUS	Rural Utilities Service
SDWA	Safe Drinking Water Act
SWOT	Strengths, Weaknesses, Opportunities, Threats
USDA RD	U.S. Department of Agriculture Rural Development
USDA	U.S. Department of Agriculture
WEP	Water & Environmental Programs

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CHAPTER I

INTRODUCTION

Congress exercises its “power of the purse” through the federal budget (Driessen, 2016, p. 2). Budget debates are of common interest between the public, Congress, and the President every year. The ideas of policy decisions on spending and the financial sustainability of the United States of America is found to be a topic of interest every fiscal year, as well as with every election. What programs should stay? What programs should be cut? Where should the budget go from here? All are common questions when facing a solution to budget deficit. Throughout history, previous presidents have changed, modified, and critiqued previous years’ budgets in hopes of solving and prioritizing the nation’s need for stability. Federal deficits exist in topics of every federal budget, while balancing the investment to improve the quality of life in America. The U.S. has accrued 20-trillion debt throughout historical years. President Trump’s philosophy of *Making America Great Again*, proposed budget cuts to address this deficit (U.S. Office of Management and Budget [OMB], 2017). After rejection from his proposal of the 2018 budget, he reformed the 2019 budget calling it the *Efficient, Effective, Accountable: An American Budget* (U.S. OMB, 2018). Throughout history, budget changes, changes in administrations of different political parties, many government shutdowns, and changes to American policy have occurred leaving question to programs’ funding within the federal budget.

The U.S. Department of Agriculture (USDA) comprises more areas than agriculture alone. USDA is “committed to the future of rural communities” (U.S. Environmental Protection Agency, 2013, p. 9), through the dedication of one of its 17 agencies known as Rural Development (RD). In addition to RD, USDA consists of Agricultural Marketing Service (AMS), Agricultural Research Service (ARS), Animal and Plant Health Inspection Service

(APHIS), Center for Nutrition Policy and Promotion (CNPP), Economic Research Service (ERS), Farm Service Agency (FSA), Food and Nutrition Service (FNS), Food Safety and Inspection Service (FSIS), Foreign Agricultural Service (FAS), Forest Service (FS), Grain Inspection, Packers and Stockyards Administration (GIPSA), National Agricultural Library (NAL), National Agricultural Statistics Service (NASS), National Institute of Food and Agriculture (NIFA), Natural Resources Conservation Service (NRCS), and Risk Management Agency (RMA).

Each individual agency serves rural America and agriculture in a unique way. Of the 17 agencies, RD stands out in its distinct differential programs, but also in the proposed 2019 budget. Secretary of Agriculture Sonny Perdue announced his reorganization of USDA, which includes elevating RD with its leadership equivalent to the leadership of USDA entirely (U.S. Department of Agriculture [USDA], 2017). “The economic health of small towns across America is crucial to the future of the agriculture economy. It is my commitment to always argue for the needs of rural America, which is why we are elevating Rural Development within USDA,” said Secretary Perdue (2017) in his announcement of the Proposed 2017 Reorganization of the Department of Agriculture, “No doubt, the opportunity we have here at the USDA in rural development is unmatched” (USDA, 2017, para. 11).

The 2018 Budget proposed a zero allocation of the entire portfolio of programs within USDA RD in order to phase out the program funding levels for administration of funds to be allocated to other federal and state agencies (USDA, 2017). USDA RD has approximately 60 services available for rural residents, communities, and businesses. RD can provide services to stabilize, sustain, and promote rural America with an ultimate goal in mind to diminish poverty, unemployment, population decline, and isolation in rural America (Janeski, 2012). USDA RD

provides financing in its programs for rural housing, rural utilities, rural infrastructure, small businesses, and more.

The term “rural” is defined differently based on each program, but for this study and purpose “rural” is established as a population of a community of less than 10,000 with further explanation in literature (USDA, 2010). RD has a valid presence across the U.S. serving the rural communities with its opportunity in programs. Previous administrations expanded services from RD to rural America for support in the development to enhance prosperity, decrease poverty and unemployment, and improve the overall quality of rural life. According to the U.S. Census Bureau, approximately 27% of the U.S. population live in areas deemed as rural (U.S. Census Bureau/American Factfinder, 2010). Literature has proven strength in direct linkage to positive economic impact when rural infrastructure investments exist (Copeland, 2012). Cowan (2016) found positive economic impacts also exists in the rural areas in which these RD programs are implemented due to their investment and financial support (Cowan, 2016). A gap in literature exists regarding program evaluation particularly in USDA RD programs.

Importance of Water and Wastewater

The first question in literature is: of all the programs within USDA, why did the researcher choose to evaluate the Water and Waste Disposal Direct Loan and Grant Program? According to the U.S. Environmental Protection Agency (EPA) (2013), 97% of Americans receive their drinking water from regulated water systems. “There are nearly 60 thousand community water systems in the United States and 93 percent of them serve populations of fewer than 10,000 people—67 percent serve populations of fewer than 500 people” (Condon, 2019, p.1). Small community water systems (serving up to 3,300 persons) have funding needs of \$64.5 billion (17% of the total national need) to provide safe drinking water—accounting for a

disproportionate percentage of community water system needs (U.S. EPA, 2013). In 2015, 9 percent of all water systems had a documented violation of water quality standards, exposing 21 million people to unhealthy drinking water” (Condon, 2019, p. 1). Water quality violations have a greater likelihood to occur in rural areas, due to their difficulty in obtaining financing maintenance (Condon, 2019). Water quality is affected in rural areas by pollutants, decline in populations, and aging infrastructure (Condon, 2019). Although small systems account for only 8% of the population served, nearly 83% of all systems with reported funding needs are small communities (U.S. EPA, 2013).

The reported need in infrastructure according to literature proves rural communities financing investment is desired (U.S. EPA, 2013). In the federal spectrum of financing, there are a number of programs that assist with developing water and waste disposal systems. Agencies providing the most support for infrastructure water and waste disposal programs are the Department of Housing and Urban Development (HUD); the Appalachian Regional Commission (ARC); the Economic Development Administration (EDA); the Environmental Protection Agency (EPA); and the USDA (Copeland, 2014). While it is important to note the importance of all programs, this study is focused primarily on the purpose of the USDA in infrastructure under the RD Water and Waste Disposal Direct Loan and Grant Program. Of the programs listed above providing financing assistance for infrastructure, RD’s Water and Waste Disposal Program is the only program devoted to rural communities.

“Rural” Defined

Literature varies in defining the term rural. Literature has examined rural as a subjective state of mind, but also as an objective quantitative measure. The USDA ERS (2010), provides

insight to rural definitions with an article, *Defining the “Rural” in Rural America: The use of different definitions of rural by Federal agencies*.

The Census Bureau identifies rural as encompassing the population, housing, and territory within an urban area, which is established as 50,000 or more to create urban clusters of at least 2,500 and less than 50,000 people (U.S. General Accounting Office [GAO], 1995). The White House’s Office of Management and Budget (OMB) establishes a Metropolitan and a Micropolitan Statistical Area Standards instead of a definite rural area definition. Metropolitan Statistical Areas (population of 50,000 or more) and Micropolitan Statistical Areas (10,000-50,000 population) are standard based on urban areas within these areas (U.S. GAO, 1995). The USDA ERS uses defining rural as incorporating nonmetro counties with a definition of open countryside further defining rural towns of places with fewer than 2,500 people and urban areas with populations ranging from 2,500 to 49,999 (USDA, 2010).

USDA RD even has its own variety of definitions in terms of rural. In relation to Section 6018(a) of the 2008 Farm Bill, the term “rural” is provided with its appropriate definitions for specific program use, then established for the 2010 American Census Survey population data, superseded by the updated survey every decade. The default definition of rural is the one commonly used for most business development programs and housing programs, establishing a rural area as a town, city, or unincorporated area with a population of 50,000 or less (USDA, 2010). For the Community Facilities Loans and Grants, rural is established as any area with a population of less than 20,000 inhabitants (USDA, 2010). The term rural and rural area under the Water and Waste Disposal Grants and Direct and Guaranteed Loans refers to a city, town, or unincorporated area having a population of less than 10,000 inhabitants (USDA, 2010).

Statement of the Problem

In order to assess the need of USDA programs within federal budget planning, a program evaluation is necessary. Each program serves a different purpose in rural America, but for the purpose of this study, an evaluation of RD's Water and Waste Disposal Direct Loan and Grant Program was conducted. In this study, the evaluation of program effectiveness in quantitative and qualitative measures provided a different outlook to current and future policy makers that existing policy makers did not have.

USDA established a published strategic plan for the fiscal years 2018-2022. This strategic plan is important to note as it develops the history, purpose, and driven mission behind the purpose of this study. Within the *USDA Strategic Plan FY 2018-2022*, seven goals are established along with strategies to accomplish each goal (USDA, 2018). Under the first goal of the *USDA Strategic Plan: 2018-2022*, lies Objective 1.4 "Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize Return on Investment" (USDA, 2018, p. 10). This objective establishes the need for more program evaluations within USDA as it strives to educate the tax paying citizens where their money is being most utilized. In order to provide decision-makers and stakeholders with accurate and reliable data, it is important to measure impacts of those programs (USDA, 2018). By achieving this objective, USDA can provide constant improvement to program delivery while evaluating intended and unintended program outcomes (USDA, 2018). The purpose of this study followed the mission of the strategic plan.

Oklahoma was the target for investigation due to its unique rural demographics and water characteristics. Oklahoma is unique in demographic nature because of its miles (55,646) of shoreline between lakes and ponds, its square miles of water area combined is larger than the state of Rhode Island and contains approximately 167,600 miles of rivers and streams (OWRB,

2012). The Oklahoma Water Resources Board compiled data for an Oklahoma Comprehensive Water Plan and found the total water use was at 1,814,762 acre-feet (OWRB, 2012). According to this citation, 41% of the water used is for crop irrigation, 32% for public water supply and municipality, 12% used for livestock and aquaculture, leaving 15% for other purposes.

Oklahoma, according to the 2010 U.S. Census, is the 28th-most populous state with 3,751,616 inhabitants, but different from other populous states in its unique land mass spanning 68,594.92 square miles ranking Oklahoma as the 19th state in land area comparison in the U.S. (OWRB, 2012). According to the 2010 Census Bureau, Oklahoma has 77 counties and 823 communities. Of those 823 communities, U.S. Census Bureau (2010) 769 of those communities have a population of 10,000 or less. According to USDA Rural Development's Water and Environmental Programs 93.44% of Oklahoma rural communities qualify for USDA Rural Development's Water and Waste Disposal assistance (U.S. Census Bureau, 2010).

Purpose and Objectives

The purpose of this study is to evaluate the impact of the USDA RD Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma between FY 2008-2018. The structure of this study portrayed three main articles to fully evaluate USDA, RD's Water and Waste Disposal Direct Loan and Grant Program being offered to rural Oklahoma. Within each article, the following research objectives (RO) were examined:

Content Analysis of the Historical Record of USDA, Rural Development's Water and Waste Disposal Direct Loan and Grant Program: 2008-2018

RO 1: To observe location of utilization of funding recipients by county of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 2: To examine project purpose of the recipients of USDA RD's Water and Waste Disposal Direct Loan and Grant Program

RO 3: To investigate average loan dollars obligated to a project by threshold of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 4: To investigate average grant dollars obligated to a project by threshold of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 5: To investigate average population of project size of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 6: To assess overall population impact and monetary investment of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 7: To examine impact of funding received from the agency perspective of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

Utilization-Focused Evaluation of USDA Rural Development's Water and Waste Disposal Direct Loan and Grant Program

RO 1: To evaluate the current condition of the water/wastewater systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 2: To evaluate the current or future needs of the systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 3: To evaluate the overall knowledge of RD from recipients of the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 4: To evaluate the additional funding sources received, besides RD, from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 5: To evaluate additional financial and program assistance needs from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 6: To evaluate the impact of RD funding from the perspective of the recipient of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis: A Template for identifying gaps of USDA RD's Water and Waste Disposal Direct Loan and Grant Program serving rural Oklahoma

RO 1: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's strengths.

RO 2: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's weaknesses.

RO 3: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's opportunities.

RO 4: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's threats.

This record of study is presented in the three-article dissertation format, first introducing the study and its purpose. Next, the first article examined content within a historical record of USDA RD Water and Waste Disposal Direct Loan and Grant Program recipients from Fiscal Year's (FY) 2008 to 2018. The second article further examined the perceptions of the recipients from the first article in regard to the Water and Waste Disposal Direct Loan and Grant Program. The final article examined the effectiveness of the overall program presented through the utilization of Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis identifying gaps and needs of the program, as well as success and failures. Finally, the final chapter concludes and implicates the findings within all three articles.

Common Limitations

This research and results were limited to the location of the state of Oklahoma only; however, the program affects all of the rural areas of the United States of America. Results of this study cannot be generalized beyond Oklahoma. Also, the plausibility of researcher bias exists due to the researcher's employment through USDA RD. The researcher does not currently work within this program area, but has been involved in previous project financing within the WEP financing area of USDA RD. This limitation could affect the data collected if the participant has a negative response and fears of expressing this opinion. Measures were taken in efforts to prevent this limitation from existing in this study, collecting data only in areas the researcher has not worked before. Another limitation of this study is the depth of the target audience is limited to stakeholders and/or recipients. Finally, the word impact, in particular to interviewees and agency responses, is an interpretation of the person and their personal opinion of the definition left open-ended for their judgement and could vary in responses.

Common Assumptions

For the purpose of this study, three major assumptions were made in reference to the researcher and the interviewees. First, the researcher would be impartial, unbiased, and neutral in efforts to collect qualitative data deemed trustworthy (Lincoln & Guba, 1985; Patton, 2002). The researcher's role as an employee within USDA RD offers no incentive within her place of employment for reasons of advancement nor compensation. Second, the participants would answer the interview protocol questions with only honest and true responses in reference to their experiences, conditions, and expressions. Finally, the results of this study increase federal program evaluations in USDA RD while offering additional information for stakeholders and

decision makers directly involved with the Water and Waste Disposal Direct Loan and Grant Program.

Institutional Review Board

Federal Regulations in addition to the policies of Texas A&M University and Texas Tech University, require all research studies involving human subjects be reviewed and approved before investigators can begin their research. In accordance with this policy, this study met the requirement and was approved to proceed. This research was assigned the following research project number: IRB 2019-0728. A copy of the IRB approval form is presented as Appendix C.

CHAPTER II

**CONTENT ANALYSIS OF THE HISTORICAL RECORD OF USDA, RURAL
DEVELOPMENT'S WATER AND WASTE DISPOSAL DIRECT LOAN AND GRANT
PROGRAM: 2008-2018**

Introduction

Efforts made by Abraham Lincoln resulted in the formation of USDA in 1862 (Cowan, 2016). USDA became the foundation of the U.S.'s agriculture industry to introduce modern agriculture technology through land cultivation, conservation, and economic development. "The People's Department," as Lincoln named the Department of Agriculture, protected and represented the interest of farmers and farming communities, making up over half of the U.S. population during this time (Rafer et al., 1982). Following its establishment, the USDA was elevated to the cabinet level in 1889 by President Grover Cleveland.

The Rural Electrification Administration (REA) was created by President Roosevelt on May 11, 1935 which opened the door for the Rural Electrification Act of 1936. Franklin D. Roosevelt founded the Rural Electrification Act of 1936 (49 Stat. 1363), passed through Congress on May 20th, 1936 which sought to bring electricity to rural America for the first time. At the time of this era, only 10 percent of the rural population had electricity (Cowan, 2016). The lack of electricity in rural America posed a threat to rural Americans due to the lack of sanitation, no running water, and little means to store their food. With the assistance of this legislation, by 1975 more than 99% of all rural homes and farms had electricity (Cowan, 2016).

The Rural Electrification Act (REA) does not exist in its original form and is now under the umbrella of USDA RD's Rural Utilities Service (RUS) administering rural electric programs that were previously overseen by the REA (Cowan, 2016). This act formulated The Farmers

Home Administration (FmHA), offering programs for credit for agriculture and rural development. In 1994, a reorganization of USDA forced the function of FmHA to be transferred to the Farm Service Agency (FSA) until 2006 when the FmHA was fully terminated (Cowan, 2016). The housing and community programs were transferred to the newly formed USDA RD, while FSA held the farm programs.

USDA Rural Development

“Committed to the future of rural communities” is the slogan that drives the purpose of USDA RD (U.S. EPA, 2013, p. 9). RD is dedicated to improving the economy as well as the quality of life in rural America. The mission of USDA RD includes enhancing rural communities by providing financial and technical resources to rural areas in need. Financial assistance is offered to rural communities through loans, grants, and loan guarantees to support rural life to enhance essential services such as housing, economic development, and infrastructure. The Agricultural Reorganization Act of 1994 (P.L. 103-354) established three agencies responsible for the mission area which include: The Rural Housing Service (RHS), the Rural Business-Cooperative Service (RBS), and the Rural Utilities Service (RUS). USDA RD offers over 40 active programs for rural communities.

Water and Environmental Programs (WEP)

Under the Rural Utilities Service, the Water and Environmental Programs (WEP) offers many forms of assistance through funding opportunities. USDA RD’s Water and Waste Disposal Direct Loan and Grant Program is the only Federal program dedicated solely to the infrastructure development and technical assistance to rural communities of populations of 10,000 or less (Copeland, 2014). Each of the programs under WEP serve a specific purpose of support in rural

water and sewer infrastructure. For the importance of this study specifically, the Water and Waste Disposal Direct Loan and Grant Programs will be analyzed for thorough review.

USDA Water and Waste Disposal Programs

The RD agency under the U.S. Department of Agriculture (USDA) offers direct and guaranteed loans and grants for water and wastewater projects for rural areas. To qualify for USDA RD's Water and Waste Disposal Programs communities must be a population of 10,000 or less; must be an eligible entity for application including municipalities, authorities, districts, and certain Indian tribes; must be denied credit through normal commercial channels; and must meet comparable rates to similar systems. Loan making is of priority for USDA, grants are primarily used to subsidize projects to assist rural communities in finding affordable rates and terms. The average loan/grant allocation accounts to 80% loan and 20% grant, which is encouraged to use in individual scenarios for underwriting as well. Copeland (2014) found in the previous decade, approximately 65% of loan dollars and 57% of grant dollars were obligated to water projects, while the remainder of funds were dedicated to waste disposal projects. USDA RD's Water and Waste Disposal Direct loans are financed at a 40-year term or the useful life of the facility, whichever is less. The agency has no prepayment penalties for the applicant if they wish to pay off early or are financially capable to in time. There are two types of loans under the Water and Waste Disposal Programs, known as the direct and guaranteed loan programs. The major difference is the guaranteed program is a loan guaranteed up to 90% made by third-party lenders, whereas the direct program reflects the name establishing USDA as the lender directly to the applicant. The guaranteed loan is used if the borrower can afford a more conventional loan standard but cannot afford to go directly to a lender to borrow the money. For this study, the focus of the evaluation will be primarily on the Direct Water and Waste Disposal Loan Program.

Water and Waste Disposal Direct Loans and Grants.

The Water and Waste Disposal Direct Loan and Grant Program offers financing options for rural areas to remove health and sanitary issues for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage (U.S. EPA, 2013). This program is limited to rural communities of a population of 10,000 or less where qualified applicants include most state and local governmental entities, private nonprofits, and federally recognized tribes. Applicants must not show eligibility for commercial credit, and in turn meet the eligibility requirements for the Water and Waste Disposal Direct Loan and Grant Program.

Subject to appropriations, the 2014 farm bill sanctioned \$30 million per year through fiscal year 2018. This program is authorized and allocated funding under the Consolidated Farm and Rural Development Act. Loan terms are repaying at 40 years, or the useful life of the facility, whichever is less, with a fixed interest rate that is established every quarter of every year (USDA, 2020). The interest rates are determined by the economic state in which the country is in at the time of the quarter. Referenced in Appendix A, the history of the interest rates within USDA RD's Water and Waste Disposal Direct Loan Program are shown. There are three types of interest rates in the Water and Wastewater Disposal Program: Poverty, Intermediate, and Market. When a median household income (MHI) is below 80% of the statewide nonurban MHI, or poverty level, and the project is deemed necessary to eliminate a health or sanitary standard a poverty interest rate qualifies, which is set at a 60% of the market rate. A project can qualify for an intermediate interest rate if the applicant does not have the means to pay for market rate, but does not meet the requirements of poverty rate, which is set at 80% of the market rate. The market rate is established and adjusted quarterly through an average of a

specified 11-bond index. The market rate qualifies those applicants that have an MHI that reflects the statewide nonurban MHI. Direct loans and grants are based on loan repayment ability, similar system's rate structures, and necessity of the project. The allocation of the Water and Waste Disposal Direct Loan and Grant Program in Fiscal Year 2018 was estimated a total of \$759 million in grant dollars and \$4.1 billion in loan dollars; however, in 2018 the actual allocations reflected a total of \$264 million in grant dollars and \$4.1 billion in loan dollars (U.S. OMB, 2017).

The 2019 Proposed Budget proposed an allocation of funding to support \$1.2 billion in direct loans to improved rural water and waste disposal facilities, significantly lower than the 2018 allocations stated above (U.S. OMB, 2018). USDA RD is dedicated to improving the quality of life for rural residents, and safe drinking water and sanitary waste disposal systems are a vital key player to achieving this goal. The proposed 2019 Budget also proposes to raise the population limit from 10,000 to 20,000 to allow more rural communities to be eligible for the Water and Waste Disposal loans (U.S. OMB, 2018). Priority is given to public entities serving rural populations less than 5,500 and applying for loans to improve a deteriorating water system or an inadequate waste facility (U.S. EPA, 2013). The other programs offering financial assistance in rural communities for infrastructure are not devoted solely to rural areas. A gap in literature denotes the need for more research in the Water and Waste Disposal Programs through USDA RD. USDA RD receives appropriations of funding through Section 306 of the Consolidated Farm and Rural Development Act of 1972; 7 U.S.C. 1926. The Water and Waste Disposal Direct Loan and Grant Program's federal program allocations have increased in loan from \$1 billion in 2008 to \$4 billion in 2018 but decreased in grant from \$374 million in 2008 to

\$264 million in 2018 (U.S. OMB, 2007; U.S. OMB, 2017). The grant to loan ratio has decreased from 36.63% in 2008 to 6.38% in 2018 (U.S. OMB, 2007; U.S. OMB, 2017).

Table 2.1 further examines the Oklahoma allocation for the Water and Waste Disposal Direct Loan and Grant Program. Each table also shows the comparison to grant versus loan allocation by percentage each year. The grant percentage provides a historical comparison of allocations throughout the decade of FY 2008-2018. The historical comparison educates and informs the researcher and provides a setting prior to collecting data for analysis.

Table 2.1

Oklahoma Water and Waste Disposal Direct Loan and Grant Allocation by Year

Fiscal Year	Loan	Grant	% Grant to Loan
2018	\$78,670,000	\$12,441,000	15.81%
2017	\$19,166,000	\$6,139,000	32.03%
2016	\$20,701,000	\$5,978,000	28.88%
2015	\$22,237,000	\$6,073,000	27.31%
2014	\$22,237,000	\$6,150,000	27.66%
2013	\$16,909,000	\$5,359,000	31.69%
2012	\$13,886,000	\$5,971,000	43.00%
2011	\$17,154,000	\$6,046,000	35.25%
2010	\$19,521,000	\$6,629,000	33.96%
2009	\$15,863,000	\$5,354,000	33.75%
2008	\$20,773,000	\$7,128,000	34.31%

Water and Waste Disposal Guaranteed Loan Programs.

Water and Waste Disposal Guaranteed loans are similar to direct loans in nature, in accordance with purpose and utilization of funds. The guaranteed loans funds are RD insured for 80% of the loan amount or, in exceptional circumstances, 90% of the loan amount (U.S. EPA, 2013). Unlike the direct loan program, the interest rates are not established by federal quarterly rates rather are negotiated between the borrower and lender. The ultimate goals of RD's direct funding opportunities are to see the borrowers graduate and become available to obtain

commercial credit at reasonable rates and terms, in years to come. This program offers a stepping stone to this goal in USDA RD as it provides commercial credit, with the reassurance of the government's security. The guaranteed loan program in fiscal year 2018 was allocated a total of \$852 million in loan dollars (U.S. OMB, 2017).

Federal Budget

Every year the budget has its own proposals, and with every administration those proposals vary. A gap in literature exists in reference to the federal budget analysis. As reflected in the report provided by Driessen (2016), if the Federal deficit continues to increase, the future of the U.S. will face oppressions and reflect tax increases. Fiscal year (FY) 1996 appropriations initiated a new beginning for the budget, in conjunction with the 1996 Farm Bill, when Congress consolidated the water and waste disposal grant and loan appropriations in a single Rural Utilities Assistance Program (U.S. OMB, 2018).

USDA RD's Water and Waste Disposal Direct allocations have reflected an increase in loan dollars and a significant decrease in grant dollars; the interest rates have decreased with the grant dollars. Although in dollar terms, EPA has administered the most federal programs that exclusively assist water and waste disposal needs, EPA offers no programs solely dedicated to rural areas (Cowan, 2016). Even with the dedication of USDA RD's program activity supporting financial activity in rural areas, Cowan (2016) said "still, funding needs in rural areas are high (more than \$88 billion, according to state surveys summarized in EPA reports), and there is heavy demand for funds" (p. 3).

USDA Strategic Plan: FY 2018-2022

USDA published a strategic plan in May of 2018 outlining seven strategic goals, and strategies to reach these goals (USDA, 2018). For the purpose of this study it is important to note

the first goal of this strategic plan: “Ensure USDA Programs Are Delivered Efficiently, Effectively, with Integrity and a Focus on Customer Service” (USDA, 2018, p. 10). There are four objectives under the first goal, but Objective 1.4 “Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize Return on Investment” proves the necessary importance of evaluating impact of current programs within USDA. The importance of measuring these impacts could better “inform decision-makers and stakeholders both within and outside USDA” (USDA, 2018, p. 10).

Historical Background of Water and Wastewater

The Clean Water Act (CWA) was the first of laws related to water first established in 1948 named the Federal Water Pollution Control Act later reorganized and named the CWA in 1972 (Clean Water Act of 1972, 2018). The Clean Water Act demonstrates the basic form of regulation on discharges of pollutants into bodies of water in the U.S. while regulating quality standards (Clean Water Act of 1972, 2018). Next in line for water regulations and law was the Safe Drinking Water Act (SDWA) was passed by Congress in 1974 and later amended in 1986 and 1996. The purpose of the SDWA is to regulate the U.S.’s public drinking water supply to protect the citizen’s public health (Safe Drinking Water Act of 1974, 1996). The SDWA and the CWA enact minimal requirements regarding quality of drinking water and wastewater treatment in rural areas.

Rural water systems are owned primarily by non-profit organizations and account for 77% of all systems in the U.S. (Copeland, 2014). These rural systems have recorded a similarly high percentage regarding noncompliance with drinking water regulations. These same rural water systems struggle in terms of credit history, producing income, and struggle to find affordable financing for improvements. Although small-medium sized systems, those serving

3,301 to 50,000 persons, find financing to be an easier endeavor, they also still face challenges. Rural water systems have proven to have limited access to financial markets and creditworthiness than larger systems (Janeski, 2012).

Water is not the only driving force behind the efforts of these two laws, wastewater is also deemed equally important by the EPA under the same two laws. The CWA requires wastewater treatment to follow guidelines applying to all communities discharging municipal sewage into the nation's water supplies (Clean Water Act of 1972, 2018). Like that of the SDWA wastewater systems serving rural communities have proven to be in noncompliance at a higher rate than that of larger systems. The funding needs for rural communities reflect over \$100 billion dollars estimated by EPA (EPA, 2013). Furthermore, EPA estimated rural communities (populations of less than 10,000) show infrastructure needs of \$23.7 billion, which reflects 7% of the total federal funding (EPA, 2013).

Related Literature

Links between infrastructure and economic development in urban and rural areas are evident in literature. Numerous studies suggest infrastructures positive direct effect to economic development (Adelaja et al., 2009; Bagi, 2002; Janeski, 2012; Janeski and Whitacre, 2014; Jiwattanakulpaisran et al., 2009; Whitacre and Shideler, 2010). Rodriguez (2010) performed a research comparison of infrastructure relationships to economic development in literature. While research proving the relationship between infrastructure and economic development exists, little research exists evaluating programs offering the financing for this development.

Purpose and Objectives

The purpose of this study was to evaluate the historical record of funding in USDA RD's Water and Waste Disposal Direct Loan and Grant Program with a primary focus on rural

Oklahoma projects provided from the Freedom of Information Act (FOIA) Request. The following objects guided the study:

Research Objective 1: To observe location of utilization of funding recipients by county of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

Project location reveals the location of the utilization of funding throughout the state to better assess program delivery.

Research Objective 2: To examine project purpose of the recipients of USDA RD's Water and Waste Disposal Direct Loan and Grant Program:

The purpose of this objective was to provide the most frequent project purpose for program utilization. Projects categorized as water include water treatment plant rehabilitations, water line extensions, existing distribution line replacement, and pump station repairs or replacements. Sewer projects include wastewater treatment plant rehabilitations, sewer line replacement, sewer lagoon replacement or repair, and lift station rehabilitation or addition. Other projects, including office rehabilitations or Americans with Disabilities Act (ADA) required repairs.

Research Objective 3: To investigate average loan dollars obligated to a project by threshold of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

Loan dollars were examined to analyze historical project grant obligations in projects funded between 2008-2018. Thresholds were utilized to categorize data for ease of analysis. For example, if a project received \$627,553.00 in loan dollars, then it was categorized as a \$500,001-\$1,000,000 threshold. These loan amounts received were categorized in million-dollar increments except for the amounts between zero to one million to reflect the difference in the first million dollars of projects, due to frequency in these results.

Research Objective 4: To investigate average grant dollars obligated to a project by threshold of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

Grant dollars were investigated to analyze historical project grant obligations in projects funded between 2008-2018. The threshold categories were utilized to offer a breakdown of large data amounts for comparison. For example, if a project received \$200,000.00 in grant dollars, then it was categorized as a \$100,001-\$500,000 threshold. These grant amounts received were categorized in million-dollar increments except for the amounts between zero to one million to reflect the difference in the first million dollars utilized in projects, due to frequency in these results.

Research Objective 5: To investigate average population of project size of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

The average population of obligated projects was investigated the utilization of program dollars based on size of community.

Research Objective 6: To assess overall population impact and monetary investment of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

The measure of monetary investment and potentially impacted population between 2008-2018 quantifies the program investment through the Water and Waste Disposal Direct Loan and Grant infrastructure investments.

Research Objective 7: To examine impact of funding received from the agency perspective of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

The impact of funding from the agency's perspective offers insight to agency terminology, mission, and program utilization through the lens of the federal government

Methodology

In order to examine program performance, the researcher must first examine the historical recipients, delivery, and funding. USDA Strategic Plan FY 2018-2022 established goals, strategies, and objectives in order to improve USDA, customer service, and the program delivery. Amongst these objectives, investment in measuring program impact through evaluation is prioritized in Objective 1.4 “Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize Return on Investment” (USDA, 2018, p. 10).

The target of investigation in the Water and Waste Disposal Direct Loan and Grant Program in USDA RD is Oklahoma. According to the 2010 Census, Oklahoma has a total of 823 communities, defining 769 of the 823 as rural (population of 10,000 or less). Hence, Oklahoma has 769 communities that potentially could qualify for USDA RD’s Water and Waste Disposal Loan and Grant Assistance.

Population

The target population of this study includes all water districts, municipalities, associations or nonprofits located in Oklahoma who have received funding from USDA RD in the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Data Collection

The FOIA Request was submitted to USDA RD requesting information on obligated projects between 2008-2018 in efforts to evaluate impact and program intent for subsequent studies. The FOIA Request included the following information for each project funded within 2008-2018: the name of recipient, purpose of the project funds, loan dollar amount, grant dollar amount, county of recipient, obligation date, population served, and defined agency impact. The items were received in a Microsoft Excel Spreadsheet format. The entire historical record of

projects funded under the Water and Waste Disposal umbrella of USDA RD were collected. For the purpose of this study, the data for evaluation only includes the Water and Waste Disposal Direct Loan and Grant Program from fiscal year 2008 to fiscal year 2018. The data source consisted of 10-years of funding allocations to account for the historical data analysis of this study. A 10-year window was chosen to enhance validity and reliability of the study providing a probable mean to the objectives of the study. A request through FOIA can be found in Appendix D, submitted to USDA RD.

Data collection for the historical content analysis of recipients of funding within 2008 and 2018 in USDA RD's Water and Waste Disposal Direct Loan and Grant Program was received through the Freedom of Information Act (FOIA) request. The FOIA offers a method to individuals to request copies of records in the custody of Executive Branch agencies through petition to the federal government (Motta, 2009). FOIA requests are the individual petitions processed by government employees.

Research has proven FOIA is a major element of U.S. government information policy (Bushkin & Yurow, 1980; Halstuk, 1999; Liu & Cheng, 2007), however, it is considered by under-researched (Cuillier, 2010; Glover et al., 2006; Hazell et al., 2010; Kimball, 2001, 2012; Piotrowski, 2007). Through evidence of the lack of research some researchers mention the FOIA process as a black box (Carr, 2007; Lee, 2001; Riley, 2009; Yildiz, 2007). Since little is known about the process of FOIA, as it is protected records documented for the government's interest, not that of the people, some researchers feel there is censorship (Barzilai-Nahon, 2005, 2008a, 2008b). Through a FOIA request, the petitioner is confident on where and when their request is submitted; however, can be in the dark as to who received the request and whether or not the government is processing it. In response, this complicates the requests submitted if the requesters

are unable to perceive or comprehend the thoughts, decisions, and actions of the individuals tasked in the federal government with processing their request (Wilson, 2015).

Researchers have studied FOIA from both a historical perspective (Archibald, 1979, 1993; Halstuk, 1999; Kennedy, 1978; Kostyu, 1990) and a records management perspective (Glover et al., 2006; Kozinets, 2011; Whitmore, 2012); while other researchers have examined the impacts of FOIA in conjunction with federal laws or management programs (Cramer, 2009; Hazell, et al., 2010; Piotrowski, 2007). Existing records have been defined in research as data obtained from secondary sources instead of from the original collection of data (Hatry, 1994; Kettner et al., 1990). There are two categories of existing records: internal regular agency records and existing data collected by external sources. Data can be collected regularly, or is required by law, or while others are voluntary.

Some advantages of existing records in quantitative research include: low cost to retrieve (O'Sullivan & Rassel, 1995), minimum of participants needed (McKenzie & Smeltzer, 1997), easily accessible data (Kettner et al., 1990; McKenzie & Smeltzer, 1997), and data can be available (Kettner et al., 1990; O'Sullivan & Rassel, 1995). Some disadvantages of existing records could include incomplete data (Hatry, 1994), information may not be accessible (McKenzie & Smeltzer, 1997), definitions of data may vary over time (Hatry, 1994), and unformattable data (Hatry, 1994; Kettner et al., 1990). Neuendorf (2002) content analysis methodologies were utilized for the purpose of this study.

Data Analysis

For the purpose of this study, the researcher received the data in a spreadsheet format, where the data was then broken down, categorized, and themes were established. Existing data from the FOIA request were analyzed using the SPSS© for Windows statistical package version

15.0. Descriptive statistics were utilized to describe content analyzed. Frequencies were reported for each objective and used to explain the historical trends of USDA RD's funding in the Water and Waste Disposal Direct Loan and Grant Program. The documents received through the FOIA request were reviewed and verified common themes based on multiple forms of vocabulary used. For example, agency response to project purpose said: line expansion, while others may say distribution system repairs. These were verified through the experience of the researcher, then coded through thematic similarities, and finally analyzed using the SPSS© for Windows statistical package version 15.0. Each emerging theme was coded with a number for categorization and tracking.

Unit of Analysis

A total of 145 projects were funded in a 10-year period in Oklahoma. The content analysis examined seven major variables including: county project took place in, purpose of the project (water, sewer, or other), loan dollars each project received, grant dollars each project received, grant percentage compared to overall project, and impact of the project in agency terms. The results from the FOIA request prompted these variables for examination. The unit of analysis is the recipients of funding in the Water and Waste Disposal Direct Loan and Grant Program through USDA RD in Oklahoma between October 1, 2008 to September 31, 2018.

Content Analysis

This study used content analysis as the primary research method. Content analysis has been a well-versed term in research methodology for several decades and is often combined with historical and ethnographic research (Edgar, 2007). Based on rules of coding, the definition of content analysis has most commonly been referred to the systematic, replicable technique

through the compression of text into fewer content categories (Berelson, 1952; U.S. GAO, 1996; Krippendorff, 1980; Weber, 1990).

Content analysis offers an ease in the breakdown of large volumes of data in a systematic fashion (U.S. GAO, 1996). Historical documents, transcripts, and publications are most commonly analyzed through content analysis in research. Content analysis research has proven its importance in research through analyzing data that would be impossible, too costly, or too conspicuous through the use of other techniques (Krippendorff, 1980). Krippendorff (2004) identified four strengths of content analysis including: unobtrusive; can handle unstructured matter; context sensitive and therefore can process symbolic data; manages large volumes of data. Content analysis can be a powerful tool in evaluating origination, exploring trends and patterns in documents, and establishing providing an empirical basis for monitoring shifts in public opinion (Stemler, 2001).

Three potential problems can occur when documents are being assembled for content analysis. First, if documents are missing, the content analysis must be abandoned. Second, if records are deemed unnecessary for analysis, those records should be discarded. If records are discarded, a record of the reasoning behind the discard should be kept. Finally, some documents could be missing passages or ambiguous content but still relevant in topic (U.S. GAO, 1996).

Quantitative content analysis often reflects performing a word frequency count, grouping and categorizing words that reflect the most common concern of research. Word frequency counts can reflect an important factor; however, in some cases synonyms may be used, which can further lead a researcher to underestimating the usefulness of a theory (Weber, 1990). Another important concept to consider in word frequency counts, is a word could not accurately represent a category. Due to the inadequate weighting methods, the researcher must be aware of

this limitation in proceeding with data analysis in word counts. Weber (1990) referenced the difficulty to acknowledge all issues equally. Finally, the researcher should recognize in performing word frequency counts, that not all words have the same meanings. For the purpose of this study an example may be “state”, which could mean to speak, or refer to a political body, or condition. Word frequency counts are used in data analysis to identify potential words of interest, using a Key Word in Context (KWIC) search to examine the dependability of usage of words. Some software packages (e.g., the revised General Inquirer) have the ability to incorporate artificial intelligence systems, which detect the difference between a word with multiple meanings in context (Rosenberg et al., 1990).

Weber (1990) referenced the idea that synonyms may be used throughout documents which may lead a researcher to underestimate the importance of concept. Another study by Stemler (2001) noted content analysis has the potential to not best represent the group or category as each word may have multiple meanings, while noting word meanings could vary as time changes. In order to achieve semantic validity, words or other coding units used in content analysis need to acquire similar connotations (Weber, 1990). Krippendorff (1980) found that semantic validity occurs when words or other units have similar meaning or connotations decided on by persons familiar with the language and texts.

Content analysis depends significantly on the categorization of the data and coding in data analysis. A category as a body of words similar in meaning or connotations (Weber, 1990). A category in content analysis should prove to be mutually exclusive and exhaustive (U.S. GAO, 1996). Mutually exclusive categories occur when a unit or category does not appear between two data points, and each unit or category constitutes only one data point. To achieve exhaustive categories and assist with semantic validity, the researcher used historical data provided by the

agency to develop a potential framework of primary and secondary research theme areas (Weber, 1990). The categories are revised to improve validity and reliability in order to further maximize mutual exclusivity and comprehensiveness (Weber, 1990).

Defining coding units can be difficult in nature, with different methods to define coding units. The first method to define coding units is to physically define the coding units within their intrinsic boundaries (Krippendorff, 1980). The second method to define coding units is through separations established by the author which include paragraphs, sentences or words (Krippendorff, 1980).. The third method to define coding units includes the method of which a unit is portrayed, also known as referential units (Krippendorff, 1980). An example of referential units might include reference to the U.S. Department of Agriculture Rural Development as “RD”, or “USDA, RD.” Referential units are useful in research when conclusions need to be made about perspectives, values, or preferences. A fourth method of defining coding units in some ways is the most complex method by using propositional units, in which the text is broken down to further investigate the underlying assumptions (Krippendorff, 1980). For example, a statement might reflect delineated sanitary health hazards, but we would break it down to remove potential health impacts by improving sewer lagoons. Content analysis utilizes three types of units: sampling, context, and recording. Sampling units vary in nature and include words, sentences, or paragraphs, and in projects with mission statements the sampling unit is the mission statement. Context units can overlap with recording units, and don’t need to be independent or separately describable. Unlike sampling units, context units have physical limits on the collection of data (Krippendorff, 1980).. Recording units are not as easily defined with physical boundaries. Recording units can be coded in separate recording units with one sentence or idea and potentially belonging to only one category (Krippendorff, 1980).

Reliability and Validity

Reliability is achieved in quantitative studies through consistency of measurement. In this study, reliability is achieved through one requested data set for all projects directly related to the Water and Waste Disposal Direct Loan and Grant Program in USDA RD. Shapiro and Markoff (1997) argued that content analysis alone is only proven valid and meaningful to the degree that the results are connected to other measures. From this perspective, an exploration of the relationship between average impact of Oklahoma's WEP projects and the emphasis on the collections of interviews performed would enhance the validity of the findings. To achieve reliability in this study the following measures were taken: the units of content analysis were independent; the nominal scale categories were self-sufficient, mutually exclusive, and comprehensive; and independently collected the data (Cohen, 1960).

Validity in quantitative content analysis is utilized most often through a research question. Validation through conclusions of text from one analytic approach demands more than one source of information be utilized. To prove best results in a study, validity should try to be achieved in the research design. In quantitative research, validation is often achieved through a research instrument measuring the intent of what it is supposed to measure. Data oriented validity, in this study, is achieved through a Freedom of Information Act request with the variables to be measured in all projects funding within the 2008 to 2018 time period in the USDA RD Water and Waste Disposal Direct Loan and Grant Program. Data oriented validity is generated through a source and achieved through the technique the data was collected (Krippendorff, 1980).

Table 2.2*Obligated RD Project Recipients Categorized by County*

County	<i>f</i>	%	<i>Population</i>
Pittsburg	12	8.1	45,837
Leflore	10	6.8	50,384
Atoka	6	4.1	14,182
Haskell	6	4.1	12,769
Hughes	5	3.4	14,003
McCurtain	5	3.4	33,151
Pottawatomie	5	3.4	69,442
Creek	4	2.7	69,967
Delaware	4	2.7	41,487
Lincoln	4	2.7	34,273
Okfuskee	4	2.7	12,191
Ottawa	4	2.7	31,848
Pushmataha	4	2.7	11,572
Seminole	4	2.7	25,482
Sequoyah	6	4.1	42,391
Bryan	3	2	42,416
Cherokee	3	2	46,987
Choctaw	3	2	15,205
Johnston	3	2	10,957
McIntosh	3	2	20,252
Cimarron	2	1.4	2,475
Cleveland	2	1.4	255,755
Craig	2	1.4	15,029

Table 2.2 (continued)*Obligated RD Project Recipients Categorized by County*

County	<i>f</i>	%	<i>Population</i>
Grady	2	1.4	52,431
Grant	2	1.4	4,527
Harmon	2	1.4	2,922
Mayes	2	1.4	41,259
Murray	2	1.4	13,488
Muskogee	2	1.4	13,488
Noble	2	1.4	11,561
Oklahoma	2	1.4	718,633
Okmulgee	2	1.4	40,069
Rogers	2	1.4	86,905
Washington	2	1.4	50,976
Adair	1	0.7	22,683
Blaine	1	0.7	11,943
Canadian	1	0.7	115,541
Coal	1	0.7	5,925
Custer	1	0.7	27,469
Dewey	1	0.7	4,810
Ellis	1	0.7	4,151
Garvin	1	0.7	27,576
Harper	1	0.7	3,685
Jefferson	1	0.7	6,472
Logan	1	0.7	41,848
Marshall	1	0.7	15,840

Table 2.2 (continued)

Obligated RD Project Recipients Categorized by County

County	<i>f</i>	<i>%</i>	<i>Population</i>
Nowata	1	0.7	10,536
Pawnee	1	0.7	16,577
Payne	1	0.7	77,350
Pontotoc	1	0.7	37,492
Stephens	1	0.7	45,048
Texas	1	0.7	20,640
Wagoner	1	0.7	73,085
Total	145	100	

Note. The population represents the county population; however, the data collected represents the population within an individual rural community or area.

Research Objective 2

In addition to the location of projects funded Table 2.3 refers to frequency of projects categorized as water, sewer, or other. The importance of this factor is to note which project type is being utilized or needed most within the program. The results in Table 2.3 reflect a majority of water projects were funded in the decade 2008 to 2018 at 64.9% of total projects. Within these project types, sewer was the second primary type at 31.1%. The project type defined as other included office building renovations, and an undefined project purpose that is no longer in use known as water and sewer at 3%.

Table 2.3*Purpose of Utilization of Project Funding in USDA RD's Water and Waste Disposal**Direct Loan and Grant Program by Type*

Project Type	<i>f</i>	%
Water	96	64.9
Sewer	46	31.1
Other	3	2.0
Total	145	100.0

Research Objective 3

Table 2.4 reflects the projects receiving loan dollars within a certain threshold. The most frequent threshold of loan dollars received for a project resulted in \$100,001-\$500,000 allotting for 23.6% of the projects reflecting fiscal years 2008-2018. 74.2% of the projects received less than \$3,000,000 in loan dollars. The loan dollars received by threshold categorizes similarities in loan dollars spent, but also where most projects are in threshold to better observe percentage in allocation from the federal budget in comparison to percentage in overall projects.

Table 2.4*Loan Dollars Allocated to Individual Projects by Threshold*

Threshold	<i>f</i>	%
\$0	2	1.4
\$1-\$50,000	3	2.0
\$50,001-\$100,000	3	2.0
\$100,001-\$500,000	35	23.6
\$500,001-\$1,000,000	32	21.6
\$1,000,001-\$2,000,000	27	18.2
\$2,000,001-\$3,000,000	16	10.8
\$3,000,001-\$4,000,000	6	4.1
\$4,000,001-\$5,000,000	9	6.1
\$5,000,001-\$6,000,000	1	0.7
\$6,000,001-\$7,000,000	2	1.4
\$7,000,001-\$8,000,000	4	2.7
\$8,000,001-\$9,000,000	1	0.7

Table 2.4 (continued)

Loan Dollars Allocated to Individual Projects by Threshold

Threshold	<i>f</i>	%
\$9,000,001-\$10,000,000	4	2.7
Total	145	100.0

Research Objective 4

As seen in Table 2.5, the grant thresholds were evaluated and analyzed similar to the loan amounts thresholds. The most frequent threshold of grant dollars received for a project resulted in \$0, or no grant received, allotting for 37.8% of the projects reflecting fiscal years 2008-2018. 36.8% of the projects received \$1-\$2,000,000 in grant dollars, and together these two categories amount for 74.6% of projects grant funding in fiscal years 2008-2018. The grant dollars received by threshold categorizes similarities in grant dollars utilized by project, but also where most projects are in threshold to better observe percentage in allocation from the federal budget in comparison to percentage in overall projects.

Table 2.5

Grant Dollars Allocated to Individual Projects by Threshold

Threshold	<i>f</i>	%
0	56	37.8
1-50,000	1	.7
50,001-100,000	2	1.4
100,000-500,000	29	19.6
500,000-1,000,000	20	13.5
1,000,001-2,000,000	26	17.6
2,000,001-3,000,000	7	4.7
4,000,001-5,000,000	2	1.4
8,000,001-9,000,000	1	.7
9,000,001-10,000,000	1	.7
Total	145	100.0

Table 2.6 illustrates the grant percentage compared to the overall project by annual average. For example, if the project cost was \$2,050,000 and the grant was \$50,000. This would account for 41% of the total project. These figures were analyzed at each individual project, then averaged each year to reflect the percentage of grant to project in that year. This is primarily to visualize how grants have changed each year, if any. The average size of grant percentage throughout the ten-year span reflects 32% in combination where the average loan size accounts for 68% of the total project cost.

Table 2.6

Average Grant to Loan Ratio Percentage by Fiscal Year

FY	% of Grant to Loan Ratio
2008	26.47%
2009	44.05%
2010	22.44%
2011	17.64%
2012	28.33%
2013	17.58%
2014	56.30%
2015	26.71%
2016	11.93%
2017	39.25%
2018	30.54%

Research Objective 5:

Table 2.7 evaluates population size served by project to better understand what average size of communities are utilizing the Direct WEP Loan and Grant Program the most through USDA. Table 2.7 illustrates RD serving 75% of rural communities of a population of less than 3000, and 80% of the funding was utilized to rural Americans who live in an area of a population of less than 4000. The most frequent population category is 1-1000 at 47 projects within this size, and accounting for 31.9%.

Table 2.7*Population Served through USDA RD Water and Waste Disposal Direct Loan and Grant**Financing*

Population Threshold	<i>f</i>	%
1-1,000	47	31.9
1,001-2,000	38	25.7
2,001-3,000	20	13.5
3,001-4,000	12	8.1
4,001-5,000	6	4.1
5,001-6,000	5	3.4
6,001-7,000	1	0.7
7,001-8,000	4	2.7
8,001-9,000	3	2.0
9,001-10,000	1	0.7
10,001-20,000	8	5.4
Total	145	100.0

Research Objective 6

Investment in rural Oklahoma between 2008-2018 quantifies to monetary investment and population impacted. The monetary investment from USDA RD's Water and Waste Disposal Direct Loan and Grant Program amounts to \$270.9 million in loan investment and \$101.8 million in grant investment. The population impacted by this monetary investment of federal funding is 413,124 based on the data received. Table 2.8 represents the investment and impact summary with a yearly breakdown.

Table 2.8*USDA RD Water and Waste Disposal Direct Loan and Grant Program Investment and**Impact Summary from 2008-2018*

FY	Loan Investment	Grant Investment	Population Impacted
2008	\$ 31,087,320	\$ 5,312,420	58,939
2009	\$ 27,304,942	\$ 29,875,345	39,410
2010	\$ 27,443,631	\$ 8,261,375	26,430

Table 2.8 (continued)

USDA RD Water and Waste Disposal Direct Loan and Grant Program Investment and Impact Summary from 2008-2018

FY	Loan Investment	Grant Investment	Population Impacted
2011	\$ 33,160,567	\$ 5,717,046	37,829
2012	\$ 13,760,133	\$ 5,585,722	10,129
2013	\$ 18,310,475	\$ 5,785,775	22,386
2014	\$ 14,154,000	\$ 10,065,120	25,749
2015	\$ 11,334,409	\$ 5,698,700	38,813
2016	\$ 54,221,455	\$ 11,017,200	83,664
2017	\$ 3,122,000	\$ 2,315,200	7,836
2018	\$ 37,013,000	\$ 11,540,000	61,939
Total	\$ 270,911,932	\$ 101,173,903	413,124

Research Objective 7

Table 2.9 categorizes the impact theme by project, as provided by the agency response in the FOIA. The most frequent impact theme for the impact of project financing received reflects Alleviate ODEQ Consent Orders (CO) accounting for 50.7% of the total projects receiving financing within fiscal years 2008-2018. ODEQ CO can be issued with water quality issues or wastewater disposal health concerns. The Water Quality impact theme includes projects mentioning water capacity, water pressure, and/or water loss issues being resolved. Providing safe and potable water is an impact theme to establish new line development from a system, to add users who do not have water from a water system or association. Sewer capacity is line replacement and other accounts for one office renovation.

Table 2.9

USDA RD Defined Impact of Water and Waste Disposal Direct Loan and Grant Project Financing

Impact Theme	<i>f</i>	%
Alleviate ODEQ CO	75	50.7

Table 2.9 (continued)

USDA RD Defined Impact of Water and Waste Disposal Direct Loan and Grant Project

Financing

Impact Theme	<i>f</i>	%
Water Quality	49	35.1
Provide Safe, Potable Water	18	12.2
Sewer Capacity	2	1.4
Other	1	0.7
Total	148	100.0

Note. Table 2.9 reflects the impact theme in the Water and Waste Disposal Direct Loan and Grant Program provided by USDA.

Discussion and Implications

In summary, a FOIA request was utilized to request historical data concerning the USDA RD Water and Wastewater Disposal Direct Loan and Grant Program. Descriptive statistics were calculated to describe the content analyzed. Frequencies were reported for each objective and used to explain the historical trends of USDA RD's funding in the Water and Waste Disposal Direct Loan and Grant Program. The study analyzed a 10-year funding fiscal year period between October 1, 2008 to September 31, 2018. Several variables of impact are included in the study, as follows: project purpose of funds utilized; loan amount received; grant amount received; defined county of recipient; date of funds obligated; and impact of funding (agency defined). The purpose of this study was to further evaluate the direct, quantitative impact and intended consequences of the USDA RD Water and Waste Disposal Direct Loan and Grant Program to provide information to decision-makers and stakeholders of USDA (USDA, 2018).

The location of projects funded within 2008-2018 through USDA RD Water and Waste Disposal Direct Loan and Grant Program was examined. Pittsburg County received the greatest

number of funded projects between 2008-2018. According to the U.S. Census Bureau, the county's median household income (MHI) is \$39,245 which is 87.9% of the state of Oklahoma's MHI at \$44,647. Its total population from the 2010 census data is 33,745 which is less than 1% of the total population of Oklahoma. In conjunction with literature, it has been found water and wastewater infrastructure investment creates jobs, increases property value, attracts private investors, and additional engagement from federal funding sources (Bagi, 2002; Deno, 1988). Because Pittsburg County received the most funded projects in Oklahoma in the decade of 2008-2018, it is also the most likely to find the most impacts as a county since the most financial investments in infrastructure occurred.

Next, the frequency of projects categorized as water, sewer, or other was examined. Findings reflect a majority of water projects were funded in the decade 2008 to 2018 at 64.9% of total projects. Within these project types, sewer was the second primary type at 31.1%. The need for project financing is a drive in the program, because if the program is not being utilized then it is not needed. To examine further, knowing where the program is assisting can help policy makers examine allocations further through examining the needs of each state. This finding concurs with literature as Copeland (2014) states rural water systems in the U.S. have recorded a high number of systems (approximately 77%) in noncompliance with drinking water regulations. Copeland (2014) found in the previous decade, approximately 65% of loan dollars and 57% of grant dollars were obligated to water projects, while the remainder of funds were dedicated to waste disposal projects. According to the U.S. EPA Drinking *Water Infrastructure Needs Survey and Assessment*, Fifth Report to Congress, 97% of Americans receive their drinking water from regulated water systems. If 77% of the 97% are not providing safe drinking water, then this finding comes by no surprise.

Third, the number of loan dollars allocated to every project by threshold was examined. These loan amounts received were categorized in million-dollar increments except for the amounts between zero to one million to reflect the difference in the first million dollars of projects, due to frequency in these results. The most frequent threshold of loan dollars received for a project resulted in \$100,001-\$500,000 allotting for 23.6% of the projects reflecting fiscal years 2008-2018. It is also important to note 74.2% of the projects received less than \$3,000,000 in loan dollars. The loan dollars received by threshold categorizes similarities in loan dollars spent, but also where most projects are in threshold to better observe percentage in allocation from the federal budget in comparison to percentage in overall projects. According to literature, rural water systems account for approximately 77% of all systems, and of these systems many have proven to have difficulty in financial markets and creditworthiness than the larger systems (Janeski, 2012). It can be assumed on average the systems receiving loans, can only afford three million or less in funding due to their repayment ability or due to their overall need for infrastructure is less due to population size. To furthermore explain, literature together states the need for smaller systems accessing USDA RD's funding at less than three million on average, is due to the smaller systems struggling to find affordable financing for improvements. In addition to these assumptions, systems could need minimal repairs due to their size and population being served.

Next, the grant thresholds were examined in the same way as the loan amounts. These grant amounts received were categorized in million-dollar increments except for the amounts between zero to one million to reflect the difference in the first million dollars utilized in projects, due to frequency in these results. The most frequent threshold of grant dollars received for a project resulted in \$0, or no grant received, allotting for 37.8% of the projects reflecting

fiscal years 2008-2018. It is also important to note 36.8% of the projects received \$1-\$2,000,000 in grant dollars, and together these two categories amount for 74.6% of projects grant funding in fiscal years 2008-2018. The grant dollars received by threshold categorizes projects similar in receipt of grant dollars utilized by a project. Grant thresholds also assist the researcher in comparing the percentage in federal allocation to percentage in individual projects. It can be assumed by the findings, grant dollars are limited for project use, which makes the loan dollars utilized smaller as well due to repayment, and competitiveness in grant money to assist in completing the project. Small community water systems (serving up to 3,300 persons) have funding needs of \$64.5 billion (17% of the total national need) to provide safe drinking water and also rural communities (populations of less than 10,000) show infrastructure needs of \$23.7 billion, which reflects 7% of the total federal funding (U.S. Environmental Protection Agency, 2013). Furthermore, in order for these small systems to make these improvements, they also need access to more affordable financing options, or more grants, as the rural systems are struggling with creditworthiness (Janeski, 2012).

The grant percentage compared to the overall project by annual average was examined. These figures were analyzed at each individual project, then averaged each year to reflect the percentage of grant to project in that year. This is primarily to visualize how grants have changed each year, if any. The average size of grant percentage throughout the 10-year span reflects 32% in combination where the average loan size accounts for 68% of the total project cost. In 2018, the federal allocations reflected a total of \$264 million in grant dollars and \$4 billion in loan dollars (U.S. OMB, 2017). The National allocation of the USDA RD Water and Waste Disposal Direct Loan and Grant program over a ten year span, beginning in 2008 and ending in 2018, the grant to loan percentages were: 37%, 37%, 34%, 36%, 43%, 31%, 28%,

27%, 28%, 27%, and 6%. In 2018, the federal grant allocation in comparison to total allocation size, is 6%. The average grant percentage to the total project is 32%. This is higher in comparison to the national average of allocation percentages. Within the 10-year examination, it appears Water and Waste Disposal Direct Loan and Grant Program was allocated on average around 30% to every project that needed it, which reflects the same national allocation percentages. From a recipient's viewpoint, 30% grant with a large loan, to the 6% grant according to 2018's allocation affecting affordability to many of these projects (U.S. OMB, 2017).

The population size served by the project was investigated to better understand what average size of communities are utilizing the Water and Waste Disposal Direct Loan and Grant Program the most through USDA. Due to the program requirements, the population of most of the systems have to meet the less than 10,000 thresholds. Data collected represents RD serves 75% of rural communities of a population of less than 3,000, and 80% of the funding was utilized to rural Americans who live in an area of a population of less than 4,000. The most frequent population category is 1-1000 at 47 projects within this size, and accounting for 31.9%. According to the data, the average population assistance per project was 2,849. Although small systems account for only 8% of the population served, nearly 83% of all systems with reported funding needs are small communities (U.S. EPA, 2013). Janeski (2012) found through the examination of economic impacts of the RD Water and Waste Disposal Programs, the rural communities receiving financing through RD for infrastructure improvements are losing populations and finding difficulty in meeting the criteria for commercial loans. A decline in population also means a decline in tax base, and in turn a decline in income a rural town is receiving (Janeski, 2012). According to the 2010 Census, Oklahoma's population was 3,751,351

in 2010 but rose to 3,956,971 in 2019 (U.S. Census Bureau, 2010). If the populations are increasing in Oklahoma, but decreasing in rural areas, could this be due to water quality?

The investment between 2008-2018 revealed a monetary investment from USDA RD's Water and Waste Disposal Direct Loan and Grant Program of \$277.9 million in loan and \$101.8 million in grant. The population impacted by this monetary investment of federal funding is 413,124 based on the data received. The *USDA Strategic Plan FY 2018-2022* supports the objective found in data through its mission to "improve data collection and utilization" through exploration of opportunities to measure "both the direct effects of its programs and the broader outcomes that those activities may be having across the country and around the world" (p.10).

Finally, the impact theme by project, as provided by the agency response in the FOIA was examined. The most frequent impact theme for the impact of project financing received reflects Alleviate Oklahoma Department of Environmental Quality Consent Orders, accounting for 50.7% of the total projects receiving financing within fiscal years 2008-2018. ODEQ CO can be issued with water quality issues or wastewater disposal health concerns. The Water Quality impact theme includes projects mentioning water capacity, water pressure, and/or water loss issues being resolved. Providing safe and potable water is an impact theme representing water systems installing new line development to add users who do not have water from a water system or association. Sewer capacity is line replacement and other accounts for one office renovation. The direct impact of these loan purposes was used to alleviate approximately 46.9% of the Oklahoma Department of Environmental Quality (DEQ) Consent Orders, and in turn meet compliance standards of DEQ. Cowan (2016) found most systems receiving USDA RD Water and Waste Disposal Program financing would have continued to deteriorate without RD. As previously stated, rural water systems account for 77% of all systems in the U.S. and 10% of

sewer systems in the U.S., and of these systems many are suffering with the issue of being in noncompliance with regulations (Cowan, 2016). This means, the environmental guidelines are not currently being met if they are receiving consent orders. So, the next assumption would be, the less maintained systems need RD financing more than those maintaining. Infrastructure improvements financed through RD do not receive instant gratification nor immediate resolution to their investment (Janeski, 2012). Janeski (2012) reported without USDA RD, many of these cities would have continued to have deteriorating water and wastewater disposal infrastructure; which would in turn prove the necessary improvements utilizing RD money isn't always sufficient for economic growth in this case.

Recommendations

Recommendations for Future Research

The researcher recommends the qualitative examination of participants' attitudes and/or perceptions of USDA RD's Water and Waste Disposal Direct Loan and Grant Program for further investigation. This study would include interviews with the recipients of financial assistance. The target population would be a purposive sample from the FOIA request of this study. An established number of interviews should now be administered, but rather until the saturation point is achieved and no additional data is received in responses.

Another recommendation for future research includes further investigation of the formula used to evaluate needs of state allocations in the USDA RD Water and Waste Disposal Direct Loan and Grant Program. The calculation could offer insight to existing program evaluation for the explanation behind program consequences.

Recommendations for Practitioners

The researcher recommends practitioners quantifiably measure impact through the funding portfolio every FY. This measure should be achieved through analysis of populations impacted from RD financial investment, impact statements from recipients, and economic evaluation from the investment. These items should be published in reporting and collectively analyzed at the end of the FY from all states.

CHAPTER III
UTILIZATION-FOCUSED EVALUATION OF USDA RURAL
DEVELOPMENT’S WATER AND WASTE DISPOSAL DIRECT LOAN AND GRANT
PROGRAM

Introduction

Application of program evaluation is becoming more prevalent in the accountability era (Osborne & Gaebler, 1992). The accountability era was coined in efforts to explain the importance of demonstrating results, rewarding success, measuring impacts, recognizing failures, informing the public, and implementing improvements (Osborne & Gaebler, 1992). The purpose of this program evaluation was to explore the on attitudes and perceptions of recipients of USDA’s Water and Waste Disposal Direct Loan and Grant Program through qualitative interviews.

USDA Rural Development’s Water and Waste Disposal Direct Loan and Grant Program

USDA Rural Development (RD) is a federal agency “committed to the future of rural communities” (U.S. EPA, 2013, p. 9.) This slogan drives the agency’s mission in its dedication to improve the quality of life, economy, and infrastructure in rural America. USDA RD’s financial and technical assistance include loans, grants, and loan guarantees in over forty programs. The Agricultural Reorganization Act of 1994 (P.L. 103-354), formed three branches of agencies under RD including: The Rural Housing Service (RHS), the Rural Business-Cooperative Service (RBS), and the Rural Utilities Service (RUS).

Water and Environmental Programs (WEP)

Within RD’s RUS branch, Water and Environmental Programs (WEP) exists through its funding opportunities and financial assistance. WEP is the only federal branch solely dedicated

to rural areas, a population of 10,000 or less, in infrastructure and technical assistance loans and grants, where competition with urban areas is obsolete.

Water and Waste Disposal Direct Loans and Grants

Through WEP, the Water and Waste Disposal Direct Loan and Grant Program supports rural, populations of 10,000 or less, state and local governments, non-profits, or tribal entities through affordable financing to improve clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage (U.S. EPA, 2013). In addition to these requirements, an applicant must be unable to obtain commercial credit, while showing its ability to repay on government rates and terms. Loan terms are set at 40 years and/or useful life of the facility, the lesser of the two. The interest rates are determined quarterly based on the economic state and at three different levels: Poverty, Intermediate, and Market. The history of interest rates is shown in Appendix A. Thirty million dollars per year was set aside in the 2014 Farm Bill, subject to appropriations, under the Consolidated Farm and Rural Development Act. Poverty interest rates are utilized when the median household income (MHI) is below 80% of the statewide nonurban MHI and the project is for the elimination of a health or sanitary issue. Intermediate interest rates are utilized when commercial credit cannot be obtained but does qualify for poverty rate. The market rate is utilized when the borrower does not qualify for either of the other two but cannot afford commercial financing. Direct loans and grants are subject to approval of agency specialists who analyze loan repayment ability, rate structures in comparison to similar systems, and the need of the project. Although the federal Fiscal Year (FY) 2018 was supposed to allocate approximately \$759.4 million in grant dollars and \$4.1 billion in loan dollars; they actually were \$264.4 million in grant dollars and \$4.1 billion in loan dollars for the entire program allocation (U.S. OMB, 2017).

The proposed budget of 2019 suggests that \$1.2 billion dollars be allocated to support rural water and waste disposal systems in USDA RD through direct loans (U.S. OMB, 2018). This budget also proposes to raise the population limit under Water and Waste Disposal Direct Loans and Grants to 20,000, instead of the 10,000 threshold it is now. Today, priority to systems who are less than 5,500 in population are given if the system is applying for financial assistance for water or waste disposal improvements (U.S. EPA, 2013).

Funding Sources for Rural Communities Outside of USDA

While not all funding sources are committed exclusively to rural communities, they each serve a purpose in infrastructure development and are of the same importance in literature. Seven federal agencies are responsible for financing, funding, and technical assistance with drinking water and wastewater systems to rural communities. These seven federal agencies are USDA Rural Development (RD), Environmental Protection Agency (EPA), Department of Housing and Urban Development (HUD), Department of Health and Human Services Indian Health Service (HHS IHS), Department of Commerce's Economic Development Administration, U.S. Army Corps of Engineers, and Department of Interior's Bureau of Reclamation. Of these programs, the Environmental Protection Agency's (EPA) Drinking Water and Clean Water Revolving Funds (SRF) is known as the largest federal assistance allocation at \$907 million and \$1.45 billion respectively in fiscal year 2014, of which only some of the allocation goes to rural areas, as they are competitive throughout the U.S. (Copeland, 2014). USDA RD provides the next largest source of funding as compared in fiscal year 2014 at \$485 million. Although in dollar terms, EPA has administered the most federal programs that exclusively assist water and waste disposal needs, EPA offers no programs solely dedicated to rural areas (Cowan, 2016). The other five federal agencies listed provide funding or technical assistance to some rural communities.

Throughout the U.S., approximately 52,000 water systems provide drinking water to communities and over 16,000 wastewater plants treat sewage that returns to a body of water. Since most water and wastewater systems were initiated along the same time frames, most of those communities including rural communities need rehabilitation and/improving drinking water and wastewater systems (Copeland, 2014).

Impact Defined

Researchers (Duryea et al., 2007; Grant et al., 2009; Russell Group, 2009) have noted the requirement of an impact definition. Due to impact's broad definition by nature, purpose, and initiative, a clear definition must be established. For the purpose of this study, impact is defined as "an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia " derived from the Research Excellence Framework (REF), *Assessment framework and guidance on submissions* (REF2014, 2011b, p.1). Impact is not defined clearly through USDA program terminology; therefore, this definition is the best representation for the purpose of this study.

Literature Review

Economic development and infrastructure have grown to be a favorable topic in the success of rural and urban economies. Literature found 90% of the programs and funding provided through USDA account for infrastructure development and related programs (Blanford et al. 2008). Literature on the economic side of research offers a definition of infrastructure as the services provided from public works supported by the public sector, although it can be supplied to the private sector too; while other forms of literature defines infrastructure as the stock of capital that assists in basic services vital to economic development (Janeski, 2012).

Rodriguez (2010) offers a comparison of literature in relation to linkage between infrastructure and economic growth. Studies found infrastructure impact on economic growth can be considered a well-researched topic; however, limited literature in evaluation and impact of programs offering the infrastructure financing. The overall similar findings in all previous research is that public infrastructure directly impacts a region's economic development (Eberts, 1994).

Janeski and Whitacre (2014) are of the most relative research to this study through the examination of USDA RD's economic impact of WEP. This study found only one long-term impact of USDA RD's WEP; however, established this is not at fault of the agency, but lack of measurement in the program for impact. Applicants seeking federal infrastructure assistance are rural and have limited options for financing elsewhere (Janeski & Whitacre, 2014). As Janeski and Whitacre suggested, improvements in infrastructure most likely will have impacts, but they could be difficult to quantify. Statements about causality, as applied by Janeski and Whitacre (2014), can offer support for increase in funding or continued federal support in this program. As strength in literature reveals the importance of providing financing for rural infrastructure, assessing program impact to modify application requirements as needed also proves importance for program management (Janeski & Whitacre, 2014).

Janeski found the USDA RD WEP investments in rural Oklahoma does not completely stop population decline in these rural areas it serves, but it can slow down the decline through its stability in infrastructure improvements such as water and sewer. In the examination of borrowers, Janeski (2012) found through the examination of economic impacts of the RD Water and Waste Disposal Programs, the rural communities receiving financing through RD for infrastructure improvements are losing populations and finding difficulty in meeting the criteria

for commercial loans. A decline in population, also means a decline in tax base, and in turn a decline in income a rural town is receiving (Janeski, 2012).

In a similar thesis by Janeski (2012), two findings were discovered when measuring the impact of USDA's WEP on economic growth. The first finding deemed inconclusive as it reflected no short-term effects (less than 10 years) of WEP were documented, and the second reflected only one long term impact (10-20 years) was proven at median household incomes would rise with direct links to funding sources. Janeski (2012) found infrastructure investments do not reveal an instant fix or return on investment. Janeski (2012) reported without USDA RD, many of these cities would have continued to have deteriorating water and wastewater disposal infrastructure.

Typically, a positive economic development cycle reflects better infrastructure (Janeski, 2012). According to Blanford et al. (2008), infrastructure development and poverty categorized programs make up over 90% of the funding provided through USDA. Although lack of long-term analyses exists, Fox and Porca (2001) argued infrastructure strengthened through investments in rural areas offer a more productive economic growth. Deno (1988) found where growth and decline in population occurs, the investment in infrastructure reacts the same because an increase in employment will occur.

Bagi (2002) offered a thorough examination of economic impact of water and wastewater financing provided by the Economic Development Administration (EDA) in his examination of 87 funded projects: 54 urban and 33 rural across 30 different states. This study revealed benefits from infrastructure financing including attraction to new businesses, increasing economic activity, and improving local income and population (Bagi, 2002). This study found the investment in water and sewer infrastructure directly impacted the region through its ability to

create additional jobs, increase property taxes, stimulate interest from private investors, and attract more federal funding. The results reflected the construction costs were significantly higher in urban areas, than in rural areas for these projects, also making the economic benefit higher in urban areas as well. The positive impact of the water and wastewater infrastructure investments in these communities were additional funding poured into the community, raise in employment, and additional investment from the private sector (Bagi, 2002).

Lea (2000) evaluated future water needs through hydraulic simulation to prepare for growth and feasibility of the water system in Beggs, Oklahoma. This study verified water system requirements, while evaluating a single system's needs in Oklahoma. Design is crucial to infrastructure development, and can determine the life of the facility, which in turn can affect the life of the loan. The largest contributors to water loss are most commonly friction, pipe bends, and valves related to the pump station (ODEQ, 2008). The analyzed example system of Beggs, gives the researcher insight into rural water systems makeup in turn impacting the people or the system. The study found the community's water distribution system consisted of cast iron pipes and were installed around the 1960's (Lea, 2000).

While previous studies have found many positive impacts, Evans and Karras (1994) found a negative impact from government funded infrastructure arguing that infrastructure investments prove no, or in some cases negative, productivity in private production. As literature found, the infrastructure investments could be addressing large issues, and as Janeski and Whitacre (2014) argue, the recipients of funding for infrastructure should not see an immediate return on their investment.

According to USDA's Strategic Plan (2018), program evaluation and impact are important to the federal government. Literature in evaluation of USDA RD programs exist

particularly in the topic of broadband (Dinterman & Renkow, 2016; Kandilov et al., 2017; Kandilov & Renkow, 2010); however, no evaluation studies exist in literature in other RD programs.

Literature is evident linking infrastructure development to economic success; however, the lack of research is evident in that of USDA RD Programs, specifically the Water and Waste Disposal programs.

Purpose and Objectives

USDA Strategic Plan FY 2018-2022 established goals, strategies, and objectives in order to improve USDA, customer service, and the program delivery. Amongst these objectives, investment in measuring program impact through evaluation is prioritized in Objective 1.4 “Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize Return on Investment” (USDA, 2018, p. 10). The purpose of this study was to examine the perceptions and attitudes of program recipients in the USDA RD Water and Waste Disposal Direct Loan and Grant Program. The following objectives were investigated:

Research Objective 1: To evaluate the current condition of the water/wastewater systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Research Objective 2: To evaluate the current or future needs of the systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Research Objective 3: To evaluate the overall knowledge of RD from recipients of the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Research Objective 4: To evaluate the additional funding sources received, besides RD, from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Research Objective 5: To evaluate additional financial and program assistance needs from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Research Objective 6: To evaluate the impact of RD funding from the perspective of the recipient of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Methodology

Evaluation is the structured application of systematic techniques to assess the design, application, improvement or outcomes of a program (Rossi & Freeman, 1993; Short et al., 1996). The term, program, may include any organized action such as media campaigns, service provision, educational services, public policies, research projects, etc. (Center for Disease Control and Prevention [CDC], 1999). Program evaluation is designed to reveal, document, justify and support program effectiveness; while examining program weaknesses and failures to better implement a future program as necessary.

Program evaluation was selected as the study design because qualitative research designs in program evaluation validate program objectives and their relationship between variables to communicate to a larger population, which is the goal of this study. Program evaluations have several different approaches including objectives-oriented evaluation, participant-oriented evaluation, expertise-oriented evaluation, and consumer-oriented evaluation (Worthen et al., 1997).

Population

The target of investigation in the Water and Waste Disposal Direct Loan and Grant Program in USDA RD is Oklahoma. According to the 2010 Census, Oklahoma has a total of 823 communities, defining 769 of the 823 as rural (population of 10,000 or less). Hence, Oklahoma has 769 communities that potentially could qualify for USDA RD's Water and Waste Disposal Loan and Grant Assistance. The target population of this study includes all water districts, municipalities, associations or nonprofits located in Oklahoma who have received funding from USDA RD in the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Utilization-Focused Program Evaluation

A utilization-focused evaluation (UFE) was identified as the most appropriate approach of evaluation to meet the goals intended of this study as an impact evaluation. Utilization-focused evaluation was first coined by Michael Patton with goals to evaluate intended use by intended users (Patton, 2008). Patton's UFE primarily concerns applying the findings of an evaluation to their actual use (Patton, 2008). Unlike most evaluation models, methods, and theories, UFE encourages its intended users to choose the most appropriate method, model or theory to best serve its purpose. This type of evaluation encourages active involvement, which allows the intended users to feel the ownership of the process. The role of the evaluator is unlike any other traditional method, in that the evaluator is multifaceted taking on the roles of facilitator, negotiator, coordinator, and collaborator. The primary intended users of USDA RD's Water and Waste Disposal Direct Loan and Grant Program are the decision-making population (Yang, 2009).

Evaluation Design

The goal of a summative evaluation is to effectively find unintended and intended consequences of a program, and is targeted to improve, modify, or increase successes of the program for future implementations (Jason, 2008). This form of evaluation offers accountability for program management, which in federal terms is one of need to better inform policy makers about the program, as well as each agency's future (CDC, 1999). In general, the evaluation should be feasible, useful, culturally competent, ethical and accurate (CDC, 1999). Data collection should occur over time using multiple instruments proven reliable, or consistent, and valid, or measuring the intended rate (Rossi & Freeman, 1993).

Summative evaluations examine the overall quality and outcomes of a program (Fitz-Gibbon & Morris, 1987). A summative evaluation, also known as an outcome evaluation, is sufficient in examining the overall program effectiveness. Outcome or summative evaluations are targeted towards existing and established programs, like that of RD's Water and Waste Disposal Direct Loan and Grant Program. Summative evaluations have identified program goals and objectives and are formed to discover program results (Fitz-Gibbon & Morris, 1987). Effective summative evaluations should follow the characteristics of a good research study (Fitz-Gibbon & Morris, 1987).

Due to the nature of this study, a summative evaluation approach was chosen for the USDA RD Water and Waste Disposal Direct Loan and Grant Program. The intent of this program evaluation is to better serve the people, USDA, and Congress in assisting policy decisions in specific regards to USDA RD's Water and Waste Disposal Loan and Grant Programs. Communication of these findings will be shared with all parties including the target audience of the federal government.

Evaluation Procedure

Due to the nature of this program evaluation, several actions should be established before the program evaluation study is performed. First, the initiation of the evaluation's reasonings should be clearly defined (CDC, 1999). Next, the stakeholders of the program and of the evaluation must be identified. Third, the person responsible for conducting the program evaluation must be identified. Finally, a complete definition of the program to be evaluated (CDC, 1999).

First, clearly identifying the reasons for initiating this program evaluation were the intent of the researcher is to better inform policy makers, government officials, Congress, President Donald Trump, and all U.S. citizens with a greater understanding of the strengths, weaknesses, and initial outcomes of the program. Additionally, the evaluator has personal interest to gain a better understanding of the program objectives, as the evaluator has a personal investment to identify next steps regarding the program as deemed necessary from the evaluation. The final reason the evaluator initiated the evaluation is to meet the requirements of dissertation research.

Second, clearly identifying stakeholders of the program and of the evaluation helps establish the ultimate audience. A stakeholder is an individual affected directly, interested in, or involved with the program being evaluated (Gall et al., 2006). Stakeholders can help in further retaining information as needed in the evaluation, interpreting the results of the evaluation, as well as communicating the findings of the evaluation. The primary stakeholders in this evaluation are members of Congress, President Donald Trump, Secretary of Agriculture Sonny Perdue, and all other policy decision makers in regard to financial funding of the USDA, RD Water and Waste Disposal Loan and Grant Programs. Additional stakeholders include: Oklahoma USDA RD State Director Dr. Lee Denney; Oklahoma USDA; RD Community

Programs Director, Ronnie L. Jones; USDA RD employees; tribal entities; and rural water and/or sewer districts and municipalities in Oklahoma as the invested interest of the evaluation would expand to these stakeholders who also participated in retaining the FOIA information requested.

Although the program evaluator is an employee of USDA RD, this study was conducted outside the normal expectation of her position; therefore, the researcher is conducting the evaluating as an external evaluator (Worthen et al., 1997). Although this evaluator is performing the evaluation as an external evaluation, researchers have stated benefits to internal parties in evaluation as having the potential to be more knowledgeable, and familiar with the program, its history, stakeholders' interests and concerns, and organization and dynamics, in which this case would deem to be true even as an external evaluator (Worthen et al., 1997). Research has also proven benefits to external evaluators as they are more likely to be impartial and in turn deem more credible to outside audiences, which would be the goal of this evaluation (Worthen et al., 1997). A fundamental step in evaluation is, in preparation, defining and describing the program being evaluated (Worthen et al., 1997). The description allows for boundaries to be set of the evaluation. In this case, specific programs to be included, and those of evaluation to not be included because USDA RD has in fact over 40 programs, this aspect of the evaluation is important to clarify to the audience and to stakeholders what is being evaluated. For the purpose of this study, the Water and Waste Disposal Direct Loan and Grant Program will be the primary program being evaluated.

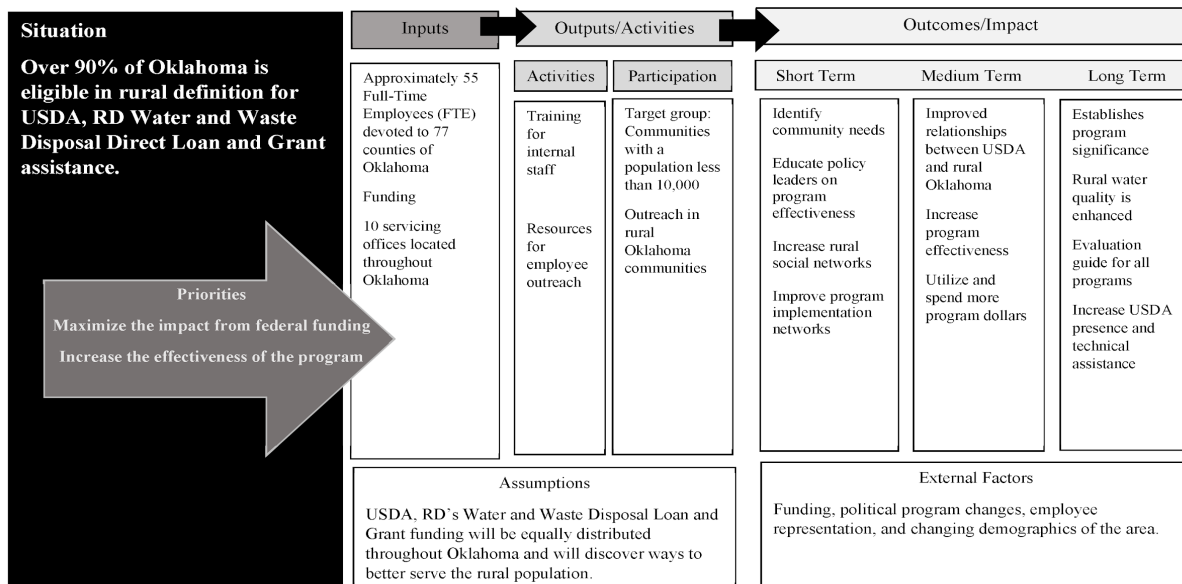
The background of the Water and Waste Disposal Direct Loan and Grant Program has been provided in literature, establishing the context for the study and an overview of the purpose, goal, and objectives of this evaluation. The timeframe of the evaluation is Fiscal Years expanding from 2008 to 2018. Logic models offer a visual representation showing “the shared

relationships among the resources, activities, outputs, outcomes, and impact for your program. It depicts the relationship between your program’s activities and its intended effects” (CDC, 1999, p. 3). For the purpose of this study, a logic model was used to provide program an outline program objective along with establishing the inputs, outputs and intended program outcomes. A logic model is referenced in Figure 3.1 to better communicate program inputs, outputs, and results.

Figure 3.1

Logic Model of USDA RD’s Water and Waste Disposal Loan & Grant Program

Program Objective: Determine program effectiveness in rural Oklahoma.



Data Collection

The Freedom of Information Act Request obtained in Chapter II provided the researcher with the key informants contact information. With this list, the researcher identified the most appropriate sample of interviews with customers, managers, board members, and operators of the water and sewer systems from recent projects funded in RD. The human instrument offers

continued analysis through data collection allowing for working hypotheses to be formed and adjusting interview collection techniques (Erlandson et al., 1993).. The goal of interviews was to understand, comprehend, and evaluate the impact statements of recipients of the USDA RD Water and Waste Disposal Direct Loan and Grant Program. A heterogenous purposive sample of 10 interviews were collected including a mixture of operators, customers, board members, and managers not in the service area of the researcher. The interviews reflect those individuals affected by RD's funding, along with their availability and willingness to participate in this study.

Interviews were recorded and notes were taken by hand to ensure all aspects of the participant were evaluated in this qualitative study. The interview was administered to the board member but carried out in a conversational style at his or her convenience and no time period was allotted to ensure all information is collected. The subjects' involvement was voluntary, and the names of the board members were coded, so no personal data was given. Follow up interviews, as well as a historical recollection of data requested, were administered alongside the data collection practices. If the researcher found a participant's willingness to share more information and time was desired, then the researcher did not limit time and offered an open-ended conversational style interview to ensure the participant gave all the information they felt necessary.

The method of in-depth interview was chosen for data collection in efforts to observe the participants' perceptions and attitudes towards USDA RD's Water and Waste Disposal Direct Loan and Grant Program. In-depth interviews are utilized in instances when a researcher is searching for detailed information to offer an overall complete picture while explaining the why of results. Limitations involving in-depth interviews can include prone to bias, time intensive,

and ineffective interview techniques. To avoid these limitations, the researcher should be trained and prepared to deliver the interview questions to allow for minimal bias and collecting interviews until the saturation point of data is achieved rather than a specific number of interviews completed.

Observations through the lens of the researcher during data collection allows the researcher to develop an understanding from the participants' perspectives while assisting the researcher to infer findings collected from other methods (Dooley, 2007). Field notes also help in interpreting, observing, and exploring details to better comprehend the context (Dooley, 2007; Patton, 2002). During a qualitative study, often the data collected involves more than just words, but rather behaviors, feelings, and expressions. An interview is often a purposeful conversation which focused on guided questions derived by a research study (deMarrais, 2004; Dexter, 1970; Lincoln & Guba, 1985; Merriam, 2009). Interviews permit a researcher to interpret data that otherwise would not be received unless asked for (Patton, 2002).

The interviewees were selected as a purposive heterogeneous sample from an initial Freedom of Information Act (FOIA) request. The participants were selected from a sample of 145 systems who received USDA RD Water and Waste Disposal Direct Loan and Grant funding within the years of 2008-2018. The funding recipients were purposively selected to not be in the location of the researcher's employment nor the surrounding counties the office represents. Therefore, the interviewees were selected in external counties with no prior relationship. The remaining participants' in external counties were contacted through phone message and/or email about participating in the study. The participants then returned the message and dates were set for interviews. The interviews were conducted through teleconference or the location defined by the participants (e.g. water association office, engineer's place of employment, vehicle of

interviewee). The interviews lasted anywhere between 45 minutes to 2 hours, no time limit was established. Table 3.1 represents the participant characteristics of the interviews.

Table 3.1

Interviewee Characteristics of USDA RD Water and Waste Disposal Direct Loan and Grant Program Recipients

Interviewee	Type	Interview Type
1	Water Operator	Face-to-Face
2	Engineer	Telephone
3	Management	Telephone
4	Water Association Board Member	Face-to-Face
5	Customer	Telephone
6	Management	Telephone
7	Water Operator	Face-to-Face
8	Water District Board Member	Face-to-Face
9	Management	Telephone
10	Engineer	Face-to-Face

Note. Table 3.1 categorizes the characteristics of the participants' interviews.

Data Analysis

The data analysis process for this particular study involved two methods to reach an overall result, including analysis at the time and place of the data collection and data analysis occurring during post collection (Erlandson et al., 1993). Data analysis performed post-collection included reviewing verbatim interview transcriptions, sending the transcriptions to the interviewees to edit, add, or remove information, which then concluded in constant comparative method of coding with the assistance of the Quirkos qualitative data analysis software (QDAS). Throughout the qualitative process, the data collection and analyses are ongoing while the researcher strives to the meaning of results while allowing themes to surface (Erlandson et al., 1993; Merriam, 2009). The constant comparative revealed emerging themes, consistencies, concepts, or arguments for comparison in analytical methods which have the opportunity to be

applied to various groups in research (Erlandson et al., 1993; Lincoln & Guba, 1985; Merriam, 2009). The revealed themes and subthemes were then reported for data analysis.

Coding for this study followed techniques established by Corbin and Strauss (1990): open coding, axial coding, and selective coding. Open coding was utilized first to analyze the semi-structured interviews and their transcripts to create coded categories based on similar themes emerged from the data. Open coding is a process in which data is broken down, examined, compared, evaluated, and classified (Corbin & Strauss, 1990). As categories begin to emerge during the first analysis procedure, data analysis then calls for the second technique: axial coding. Axial coding involved a more extensive review of data to establish connections between (Corbin & Strauss, 1990). Categories were created, revised, and extended as analysis was performed. Category coding includes a continuous process of refinement during data collection and analysis to reveal the connected relationships (Goetz & LeCompte, 1981).

Trustworthiness

The purpose of this data collection procedure is to strengthen the trustworthiness by setting the elements developed by Patton (1990) and Lincoln and Guba (1985). Qualitative trustworthiness involves four main aspects: credibility, dependability, transferability, and confirmability (Lincoln & Guba, 1985). As once stated by Glaser and Strauss (1967), there are three processes within a qualitative study including collection, coding, and analysis of data. This method offers flexibility to qualitative research to move in different or new directions, as the data is collected (Blumer, 1969).

First, this study established credibility through a form of triangulation. In addition to triangulation, member checking is utilized to achieve trustworthiness in this particular case study (Lincoln & Guba, 1985). Creswell and Miller (2000) found that member checking offers the shift

of the method's credibility turns from the researcher to the participants in the study. Lincoln and Guba (1985) describe member checks as a crucial piece of methodology for establishing credibility. Member checking includes returning the data interpreted to the participants, so they may confirm or revise the narrative (Creswell & Miller, 2000). During this study member checking was used to ensure the interviewee's comments are accurate and thorough. The researchers ask participants if the themes or categories make sense, whether they are developed with sufficient evidence, and whether the overall account is realistic and accurate throughout this process. In turn, researchers incorporate participants' comments into the final narrative. The participants offer an addition to credibility in the qualitative study by having a chance to react to both the data and the final narrative (Creswell & Miller, 2000).

Second, in efforts to achieve confirmability through an external eye of this study, an audit trail is utilized. The ideal results of a formal audit are to evaluate the process and the product of the findings and determine the trustworthiness (Creswell & Miller, 2000). Journaling is also known as an audit trail, used to log research activities, developing additional trustworthiness through these efforts (Creswell & Miller, 2000).

Finally, in order to establish trustworthiness through transferability, thick description is utilized. Thick description is the ability in a qualitative study to describe the position, participants, and concept (Creswell & Miller, 2000). According to Denzin (1989), thick descriptions are thorough, in depth, solid accounts while thin descriptions report primarily vague facts. The purpose of a thick description is to create an image for the audience in order to establish the relationship necessary to envision experience, feeling, and passion. Transferability, therefore, is achieved through the reader's viewpoint reading the account and transferring the account to a setting or situation (Creswell & Miller, 2000). Through the process of thick

description, vivid detail is recorded which might include small pieces to the puzzle through interaction, experience or action, to ultimately provide an audience with a deep understanding of how the participant is feeling.

Findings

Table 3.2

Themes Emerged from Interview Responses in reference to USDA RD’s Water and Waste Disposal Direct Loan and Grant Program

Objective	<i>Themes Emerged</i>	<i>Example of quotes used for coding</i>
Condition of the System	Good (1,5,7,8) Moderate (2,3,4) Poor (6,9,10)	Interviewee 1: "Good condition—received funding in the last 5 years and won't need much in the next 10-15 years."
Current/Future System Needs	Water Loss (5,6,7,9,10) Larger Project (1,4,8) None (2,3) Maintenance (7)	Interviewee 8: "Looking into a 22-million-dollar water treatment plant along with replacing our existing 2-inch lines with larger lines to meet the need of our system and customers."
Knowledge of RD Programs	General (1,2,3,4,5,6,7,8,9,10)	None.
Other Financial Assistance Received	FEMA (2,6) CBDG (2) ODWSRF (4) IHS (6,9,10) OWRB (6,9,10) None/ Unknown (1,3,5,7,8)	Interviewee 9: "Mostly RD money, and some Choctaw IHS money that I know of. I can tell you Rural Development is mostly who we use because they are easiest to work with."
Additional Financial and Program Assistance Needs	More Grant Money (1,2,4,5,6,10) Streamline/Gap Financing (1,5,7) Political Recognition (8) Issue Specific Programs (6,9) Technical Assistance (3,6,9)	Interviewee 6: "Water loss issues, more grant funding, more technical assistance, more face-to-face relationships with people like RD."

Table 3.2 (continued)

Themes Emerged from Interview Responses in reference to USDA RD's Water and Waste

Disposal Direct Loan and Grant Program

Objective	Themes Emerged	Example of quotes used for coding
Impact of RD funding	User Rates/Income (1,2,3,7,9,10) Water Quality (2,3,4,5,6,7,8,10) Economic Development (2,3,6,7,8)	Interviewee 7: "Every project we have done with RD benefits our people. RD is why we have water today. Water is the one essential we can't live without."

Note. Table 3.2 represents the themes emerged through data collection. The numbers listed (e.g. 2,3,6,7,8) are interviewee codes whose responses mentioned the themes.

Objective 1. Current Condition of Water or Sewer System

The emerging theme of water and waste systems varied in three major ranges of responses: poor, moderate, and good. The reason for this objective is to verify the current condition of the system and the system's health that received funding from RD.

The systems' responses in relation to condition of their system first found the emerging theme: good. As defined by the researcher for grouping thematic responses, good is formed the subtheme good is defined as the system in better condition than average not needing repairs for over 10 years. Participants mentioned the word "Good" (1,5,7,8), in their responses when explaining best physical state. These systems expressing confidence in the physical state of most of their systems with the assistance of their "funding in the last 5 years and won't need much in the next 10-15 years" (1). Interviewee 8 stated, "My hope for this water system was to prepare my kids, grandkids, and the future residents here with less stress of an outdated system in years

to come...After this water plant project is complete, we should be good for the next 50 years, as long as it is maintained.”

Moderate is the next common theme interpreted by the researcher. The word “moderate” was not found directly in interviewees responses. The researcher found the thematic responses were grouped into moderate when the system was moderate condition in comparison but will need additional repairs within 10 years. Participants were grouped in this emerging theme (2,3,4) when expressing an acceptable physical state with minor repairs still needed to be in “good” physical state. For example, interviewee 3’s response to the physical state of their system as, “Pretty good, we will need some line replacements after this is complete.” Interviewee 4 also added: "Unfortunately, the distribution system was installed in the late 1980s and early 1990s and will need some fixes after this project."

The final theme emerged in the condition of the overall system of the participants was poor. Poor reflects a physical state of a water or sewer system reflecting immediate repairs in order to function properly. Multiple participants expressed, in addition to USDA RD funding, they still need additional funding to complete necessary improvements (6,9,10). participants did not use the exact word “poor” to express their physical condition of their system but was emerged with those systems of similar responses such as, “It's okay. It still needs a lot of repairs. We will have to almost immediately do something about our water lines” (6). Some expressed the physical state as poor. For example, interviewee 10, “The condition of the system as a whole is still in poor shape.”

Objective 2. Current and Future Needs of the Water or Wastewater System

In response to current and/or future needs of their system, participants reported a common response involving water loss from their distribution systems along with maintenance

help. The interviewees categorized as customers found difficulty in responding to additional needs of their system. Water loss proved importance based on the need mentioned in five out ten responses in results. As stated by interviewee 6, “all water districts need more water loss help. Water loss is a big issue for all of our water districts, and nobody really addresses it, not financially unless you can add it into an overall project. There are no specific programs for it.” Maintenance responses were similar to interviewee 7 “I can't see needing anything in the near future, but there is always the risk of a pump going out or something needing replaced.” Larger projects were mentioned similar to interviewee 8’s response, “looking into a 22-million-dollar water treatment plant along with replacing our existing 2-inch lines with larger lines to meet the need of our system and customers.” Although many systems responded with additional needs, some responses revealed none, “not at this time, I don't. We've accomplished almost everything on our bucket list. We've still got some things to do, but hopefully we'll get this contract completed. We'll be able to save enough money to do some of these on our own” (2).

Objective 3. Knowledge of USDA RD’s Role in Infrastructure Financing

Overall, the participants were aware of the programs offered by USDA RD because of their involvement, impact, or associating with funding their most recent projects. Many of the interviewees also have worked with RD on several projects to receive financing for infrastructure. Many of the interviewees are repeating customers to RD who have seen and experienced the process of financing through RD from the beginning and can account for change, as well as success. Interviewee 9 responded in reference to RD: “I’ve known RD, and I've worked with them for so long, which I know the Water Resources board too, but not like I do the Rural Development family.”

Objective 4. Additional Funding Sources Received

The results varied in response to this question. Overall, a few common responses are FEMA (Federal Emergency Management Assistance) (2,6,10), CBDG (Community Block Development Grant) (2), Oklahoma Drinking Water State Revolving Fund (ODWSRF) (4), IHS (Indian Health Services) (4,6,9), OWRB (Oklahoma Water Resources Board) (6,10), none (1,3,7); and unknown (5,8). Most of the interviewees were unaware of the exact dollar amounts of the assistance that was provided, and a few were unaware of the sources additional money could come from, while others did not know any other financial assistance received. The participants whose answers reflected none or unknown account for those systems only utilizing or able to utilize RD funds. participants with responses similar to, “the water resources board is a good thing, but we don’t qualify because we are an association. RD doesn’t have that restriction and have always been good to work with” (7), were included under the “none” theme. Other participants received multiple sources of funding responding similar to interviewee 6, “Mostly funding has been received from RD, in loans and grants; and some emergency money from Water Resources board to do a few tiny things, Water Resources board line, Choctaw’s IHS have recently started giving us money, and then FEMA money two different times.”

Objective 5. The Need for Potential Gap Financing for Infrastructure Improvements

Similarities in results reflected five overall themes in reference to financial and/or program needs, including: more grant money (1,2,4,5,6,10), streamline/gap financing (1, 5, 7), political recognition (8), issue specific programs (6, 9), and technical assistance (3, 6, 9).

Additional grant money was mentioned by seven out of ten of the interviewees. As stated by interviewee 3, “we need more grants, money affects everything. In the end, it affects us as customers.” Interviewee 10 expressed historically, “if somebody needed a 50% grant to make a

project happen and to make clean drinking water for their customers, then that would happen, and if somebody only needed 10% then that would happen, but now everybody's the same across the board and that's just not reality.”

The need for more funding was a common response amongst almost all systems, when questioned what the interviewee would like to see more of in the future. Gap financing for systems who can't afford conventional loans but are really too financially stable for RD funding and smaller scale loans with a streamline process for quicker turnaround time were common ideas mentioned. Interviewee 1 mentioned “there needs to be something in the middle offered to people like us who can't really afford conventional financing but manage our system well, so RD makes us go conventional.”

Additional programs targeting specific system issues and more marketing towards these programs, like water loss, was also of concern by interviewees (6,9). Interviewee 9 expressed, “it would be nice if there was more communication about special programs that come out with different administrations in office.”

Additional technical support, free of charge, from RD specialists or experts was also mentioned (3,6,9). As expressed by interviewee 3: “We would like to see more day-to-day help. When we need emergency operators or help with something, we need specialized people or a reference to call.” Responses declaring more agency assistance, additional communication, and management assistance were grouped into the technical support theme.

The final theme an interviewee mentioned was additional political recognition of the programs at hand (8). As expressed by interviewee 8, the systems do not need “necessarily more funding, but just more recognition for the importance of water funding in rural Oklahoma. I think

our politicians need to know the needs of these areas to fully grasp what the needs are in funding.”

Objective 6. Impact of the RD Funding from the People’s Viewpoint

Three major themes emerged through this interview question: User Rates/Income (1,2,3,7,9,10), Water Quality (2,3,4,5,6,7,8,10), Economic Development (2,3,6,7,8).

User rates and income reflect the comments reflecting the systems improved income or the effects on higher water rates. These two ideas are different in nature but are directly linked together. If the water rates are higher, the systems income is higher; therefore, the two mentioned ideas were grouped into one subtheme for analysis. When discussing RD project financing, repayment was mentioned through analysis of rates in comparison to similar systems. If RD reviewed the systems current rate structure, and found were lower than similar systems, then the rates would have to be raised, allowing more loan repayment ability, and in turn affect the system’s income, and ultimately the customers. The project financing “helped our system sustain and we haven’t needed many repairs since and we are finally making money, and not scraping by. This affects everyone, us as a system, our users because of their water rates, and our employees because we can hire more or pay more” (1). Results also reflected the higher rates directly affect customers like, “all the elderly on fixed incomes we have the most. They have medicines and expenses they can’t go without, and water is one of those, where they will go without somewhere else” (9).

Water Quality is another theme resulted from interviewees’ responses. Water Quality is a subtheme reflecting responses mentioning issues like water pressure, dirty water, not meeting ODEQ requirements, and boil water notices. One interviewee responded with, “My wife has recently started doing our white laundry at home, again, she had to drive to a laundry mat that

had a municipal water supply in order to wash her white clothes and keep them white. I ruined about \$250 worth of white shirts in one washing” (4). Quality water is reliable and clean water. If a system is providing water of this quality, the people are not receiving the necessary resources to live and are still paying for it. Interviewee 6 added, “RD has offered a great help to us by providing the funding we needed to make repairs necessary. If we didn’t have them, our people would suffer because we would have to let someone else take over or people would have to move out of their homes because we couldn’t give them what they needed to live.” Water quality in rural areas are significant for daily life practices and affect even further with ability to live. RD impact was mentioned through interviewee 7 as, “RD is why we have water today. Water is the one essential we can’t live without and it has made a difference in pressures for fire hydrants and safety, but also for everyone’s daily lives of not buying bottled water, not having to go to a washeteria, and not having to haul in water. We want that for people, because we were there once.”

Economic Development is the theme that reflects quality of life being threatened through current conditions, including new business prospects, growth, and adding numbers to their rural populations. Interviewee 3 expressed concerns with rural infrastructure, “in order for people to want to live and move to rural areas and for us to make more income, we have to provide water. It is the only thing people have to have to live, but it also affects us just as much as it affects them. If we don’t have their business, we are not able to provide and vice versa. It is a win-win for everyone if water is good.”

Discussion and Implications

Objective 1. Current Condition of Water or Sewer System

Conditions of the system is an opening question to provide the researcher with a rich background to a water or sewer system's historical state. Results of question 1 reflected various results with evenly distributed answers. The answers were categorized under three main themes: good, moderate, and poor. As found by Janeski (2012), infrastructure investments do not reveal an instant fix or return on investment. Literature simply explains these systems are old, outdated, and need significant repairs. For example, just as when an old house is leveled, cracks can form throughout the entire house; the same goes for an old water or sewer system. Infrastructure improvements are a process, and total rehabilitation takes time, and maintenance is ongoing. Literature also agrees with this finding as the range of responses on current condition of the system are dependent on the number of repairs needed, with the amount of funding received. Literature also found nearly 83% of all systems with reported funding needs are small communities explaining the range in responses (U.S. EPA, 2013). The range in responses also could reflect the different roles of interviewees. As a customer, management, or operator, the expertise of each level could dictate differences in opinions. Janeski (2012) also found without USDA, RD, many of these communities would have continued to have deteriorating water and wastewater disposal infrastructure.

Objective 2. Current and Future Needs of the Water or Wastewater System

Literature agrees with the responses provided from the interviewees in regard to needs. The more progressive systems, systems larger in size or maintaining a financially stable system, interviewed are looking at larger projects for their future needs. The researcher found based on the interviewees responses, those categorized as customers on the systems struggled to know the

additional repairs needed. Systems range in needs with some dealing with issues of an aging system and water loss, few are looking into larger projects to add capacity, while the remainder are trying to keep up with maintenance or have no further needs to address. As literature states, the largest contributors to water loss are most commonly friction, pipe bends, and valves related to the pump station (ODEQ, 2008). From the results, at least 70% were still needing some type of repairs made, as the U.S. Environmental Protection Agency report (2013) found that only 8% of the population are served by small systems, but small communities account for nearly 83% of all systems with reported funding needs. Even with the dedication of USDA RD's program activity supporting financial activity in rural areas, research reports rural areas funding needs for infrastructure are at \$88 billion or higher, reflecting a high demand (Cowan, 2016).

Objective 3. Knowledge of USDA RD's Role in Infrastructure Financing

Overall, participants were aware of the programs offered by USDA RD because of their involvement, impact, or association with financing their most recent projects. The common response involved money received to support their infrastructure project, as literature supports. The Water and Waste Disposal Direct Loan and Grant Program offers financing options for rural areas to remove health and sanitary issues for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage (U.S. EPA, 2013). According to Blanford et al. (2008), infrastructure development and poverty categorized programs make up over 90% of the funding provided through USDA.

Objective 4. Additional Funding Sources Received

The results varied in response to other funding sources received. Findings in literature reported seven federal agencies who provide funding assistance to rural communities including: USDA, RD, Environmental Protection Agency (EPA), Department of Housing and Urban

Development Community Development Block Grant (CBDG), Department of Health and Human Services Indian Health Service (IHS), Department of Commerce's Economic Development Administration (EDA), U.S. Army Corps of Engineers, and Department of Interior's Bureau of Reclamation (Copeland, 2014). Results agreed partly with literature in conjunction with funding sources offered for financing in rural areas. These responses included: FEMA, CBDG, ODWSRF, IHS, and OWRB. Most responses were unsure of exact dollar amounts received for assistance. Four out of the ten interviewees responded no other funds are utilized, and this could have in part due to their eligibility as an association, poverty requirements, or do not currently need additional funding. FEMA was not listed in literature as a funding source, which could be due to the emergency assistance funding is not for typical projects but rather for instances of severe drought, tornado, or some other declared disaster assistance. Of the agencies or funding listed, RD is the only agency dedicated to serving only rural areas, while other funding agencies are competitive in nature with urban and rural areas. Although in dollar terms, EPA has administered the most federal programs that exclusively assist water and waste disposal needs, EPA offers no programs solely dedicated to rural areas (Cowan, 2016).

Objective 5. The Need for Potential Gap Financing for Infrastructure Improvements

The results of this objective ranged in responses; however, most were still in need of some type of improvement. More grant money was of the top mentioned, as well as in-between financing or a simplified, smaller application for smaller items. Literature found infrastructure investments do not reveal an instant fix or return on investment (Janeski, 2012). The responses in this objective clearly state the constant need for improvements, even after RD funding has occurred.

Objective 6. Impact of the RD Funding from the People's Viewpoint

For the purpose of this objective, impact is defined as any change or effect on an economy, community, environment, quality of life, or lifestyle derived from the Research Excellence Framework (REF), *Assessment framework and guidance on submissions* (REF2014, 2011b). As Janeski and Whitacre (2014) suggest, improvements in infrastructure most likely will have impacts, but could be difficult to quantify. Impact, in particular to this portion of the interview, is the interviewee's opinion and interpretation of the word. Janeski and Whitacre (2014) found there are no doubt funding rural infrastructure projects is of great importance but performing a program evaluation to further assist in application modifications is also crucial to its existence. The intent of this measure of impact, is to better evaluate the program from the viewpoint of the people while providing policymakers with improvements to better serve the community.

Three major themes emerged through this interview question: User Rates/Income, Water Quality, and Economic Development. Within these three common themes, subthemes emerged for further investigation. User rates and income reflect the comments made about higher rates affecting customers, which in turn affect their income. Higher user rates also can affect the system's income, by improving their income and return on investment which leave the water or sewer system in a better state. This could improve the water quality, allow the system to keep up with repairs, and financially offer more to their users; but, could negatively impact the user's everyday life.

Water Quality is the overall common theme that included topics such as water pressure, dirty water, not meeting ODEQ requirements, and boil water notices emerged through. An interviewee mentioned a personal impact prior to RD's financing ruined loads of white clothes

during a laundry session, while others mentioned lengthy boil water notices being in effect. Boil water notices require electricity in order to use water as a resource, which in turn affects the income of the resident. If a resident is having to purchase bottled water, due to this notice, then this can also affect the resident who is paying for water to drink, and low-quality water to use. Bottled water also can pose a risk to the environment, because of its waste with the potential of not being recycled. This could be in turn more expensive than to have a higher water bill, instead of the alternative to having one clean, reliable drinking water source. Clean water is essential for daily life. Reliable water can be affected through the water pressure standards. Water pressure can affect day to day practices such as laundry or bathing, but also safety of the community member with its water hydrants. Literature found water pressure at 35 psi is preferred, but a minimum of 20 psi is required for safety (Salvato, 1992). Oklahoma Department of Environmental Quality (ODEQ) is governed through its Environmental Quality Board establishing Title 252: Chapter 631 *Public Water Supply Operation*. As noted in this document, the water pressure must remain to be at least twenty-five (25) psi within the water distribution system (ODEQ, 2018). If these systems fail to comply, they could be issued a consent order for safety reasons, in which several of these systems have received.

Economic Development is the theme that reflects quality of life being threatened through current conditions, including new business prospects, growth, and adding numbers to their rural populations. Amongst the interviewees' responses, business development is a common thread to the stability of these public systems. Literature agrees with the findings of this particular theme and further explains the impact the theme could have. As found in literature, the positive impact of the water and wastewater infrastructure investments include additional funding poured into the community, raise in employment, and additional investment from the private sector (Bagi, 2002).

Literature agrees with this finding through its finding of typically a positive economic development cycle reflects better infrastructure (Janeski, 2012). Other studies found infrastructure investments strengthened the possibility of economic growth (Fox & Porca, 2001; Deno, 1988; Janeski & Whitacre, 2014).

The intended goal of this summative evaluation was to measure qualitatively intended and unintended impact of the program. Through this goal, findings should be utilized to modify, improve, or alter the program for effective program delivery. In general, the evaluation should be feasible, useful, culturally competent, ethical and accurate (CDC, 1999). To conclude this study, these findings concur with literature, and should be further examined.

Recommendations

Recommendations for Future Research

The researcher recommends investigating the perceptions and attitudes of the employees involved with program delivery of USDA RD's Water and Waste Disposal Direct Loan and Grant Program. This study should be a qualitative collection of interviews with employees directing questions at program delivery. For example, program delivery questions do you have the resources needed to provide essential customer service? This investigation should be employees of all levels in government to assess program delivery.

The researcher also recommends performing a gap analysis using Strengths, Weaknesses, Opportunities, and Threats (SWOT). Qualitative interviews are recommended to offer observation during data collection, along with perceptions and attitudes. Four open-ended questions should be administered in reference to the Water and Waste Disposal Direct Loan and Grant Program: What are the strengths? Weaknesses? Opportunities? Threats? The target population for these interviews should be recipients of RD funding.

Recommendations for Practitioners

The researcher recommends USDA RD perform annual evaluations of programs, including Water and Waste Disposal Direct Loan and Grant Program. The evaluation should be a Utilization Focused Program Evaluation at the end of each FY.

CHAPTER IV

STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS (SWOT)

ANALYSIS: A TEMPLATE FOR IDENTIFYING GAPS OF USDA RD’S WATER AND

WASTE DISPOSAL DIRECT LOAN AND GRANT PROGRAM

Introduction

Former research performed on evaluating USDA RD’s Water and Waste Disposal Direct Loan and Grant Program in Oklahoma sought to find results in historical content analysis and later qualitative interviews from direct participants affected by funding disbursed in their area. A gap in research still exists in analyzing the program’s effectiveness through the needs and/or gaps of USDA RD’s Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma. The intent of this study was to identify gaps and rural population needs in Oklahoma that will allow the program to better serve rural Oklahoma in the future.

USDA Rural Development’s Water and Waste Disposal Direct Loan and Grant Program

USDA Rural Development (RD) is “committed to the future of rural communities” (U.S. EPA, 2013, p. 9). RD’s commitment to rural communities includes improving the quality of life and economy. RD offers technical assistance and financial assistance to rural individuals, businesses, tribal entities, nonprofits, and communities (USDA, 2020). Financial assistance includes numerous programs utilizing loans, grants, and loan guarantees for support in infrastructure, housing, business development, or economic stability. In 1994, the Agricultural Reorganization Act (P.L. 103-354) formed three sections within RD to cover the mission area including: The Rural Housing Service (RHS), the Rural Business-Cooperative Service (RBS), and the Rural Utilities Service (RUS). Each of the three sections offer a significant importance to

serving rural America. USDA RD offers over 40 programs for rural assistance within these sections (USDA, 2020).

Water and Environmental Programs (WEP)

Under the RUS section, there are three main subsections: Water and Environmental Programs, Electric Programs, and Telecommunication Programs (USDA, 2020). Each of these subsections offer several programs to assist rural communities through funding assistance. The WEP subsection aids rural communities of a population of 10,000 or less, which is the only federal program proven to provide this assistance solely for rural communities in this threshold (Copeland, 2014). Under the WEP subsection, programs helping include technical assistance grants, water and wastewater disposal loans and grants, emergency water grants, tribal loans and grants for water and wastewater disposal, and predevelopment planning grants (USDA, 2020).

Water and Waste Disposal Direct Loans and Grants

The Water and Waste Disposal Direct Loan and Grant Program offers direct financial assistance to rural municipalities, non-profits, or tribal entities to remove health and sanitary issues for rural water systems and rural waste disposal systems (U.S. EPA, 2013). Applicants must serve a population of 10,000 or less, be unable to obtain commercial credit, and show repayment ability under the program guidelines. The loan terms can be up to 40 years or the useful life of the facility, whichever is less (USDA, 2020).

The loan is at a fixed interest rate dependent on the quarter of which the obligations of funds are complete, which is set by the economical state of the country. Three types of interest rates are utilized in Water and Wastewater Disposal Direct Loan and Grant Programs: Poverty, Intermediate, and Market. Appendix A reflects the historical interest rates by quarter. Historical interest rates are found in Appendix A. The comparable interest rates in the third quarter of 2008

reflected 4.5% poverty rate, 4.625% intermediate rate, and a 4.75% market rate (WEP, 2008a), while the interest rate of the third quarter of 2018 reflects a 2.5% poverty rate, 3.375% intermediate rate, and a 4.25% market rate (WEP, 2018a).

Loan underwriting involved with Water and Waste Disposal Direct Loans and Grants includes analysis of repayment ability based on financials, user rate comparisons of similar systems, and the established need of the project. During Fiscal Year 2018, funds distributed in the Water and Waste Disposal Direct Loan and Grant Program at an estimated total of \$264.4 million in grant dollars and \$4.1 billion in loan dollars but were originally proposed to include \$759.4 million in grant dollars and \$4.1 billion in loan dollars (U.S. OMB, 2017).

Literature reflects a gap in federal program evaluation research in USDA. According to the USDA Strategic Plan FY 2018-2022, objectives are established to better serve the American people, particularly Objective 1.4 “Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize the Return on Investment.” Within Objective 1.4 of the strategic plan, USDA dedicates its mission to determine “the outcomes and impacts of our work through accurate and reliable data” (USDA, 2018, p. 10). Using this information, USDA can make decisions, evaluate outcomes, improve programs, and share how we invest the public’s resources. The strategic plan also defines strategies to achieve and provide better customer service in Objective 1.3, “Reduce the Regulatory Burden and Streamline Process to resolve this issue” (USDA, 2018, p.8). Objective 1.3 further prioritizes effective customer series through simplified application processes and ease of regulatory burdens. The strategic plan clearly states the need for more evaluative research on USDA programs established by governing officials and leaders within USDA.

While minimal research exists in impact of USDA RD's Water and Waste Disposal Direct Loan and Grant Program, Janeski and Whitacre (2014) sought to measure "long-term economic impacts of USDA water and sewer infrastructure investments in Oklahoma" (p.1). Findings revealed infrastructure investments positively impact economic development, while establishing the need for assessing program impact to modify program delivery.

Strengths, Weaknesses, Opportunities, and Threats (SWOT)

A SWOT analysis is derived from its initials: strengths (S), weaknesses (W), opportunities (O), and threats (T). The themes from data analysis were created based on the criteria of SWOT analysis. The four elements of SWOT are the internal and external criteria for evaluation of a program. The strengths and weaknesses are the internal analysis, where the opportunities and threats are the external analysis. Strengths are factors in a program to assist in improving performance, while weaknesses offer insight to improvements needed to prevent barriers to achieve that performance. Opportunities are possible achievements, while threats are possible problematic situations (Paliwal, 2006). A SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis is a tool to assist in determining the program's standing in the current industry and market. In terms of SWOT, strengths refer to what the program is doing better than any other program. Weaknesses are the items the program needs to improve and the hindering resources causing these items. Opportunities are efforts in the program that offer advantages to better a situation. Threats reflect obstacles in the program implementation that could prohibit success.

SWOT analysis could provide a special outlook for the USDA RD Water and Waste Disposal Direct Loan and Grant Programs through examination of the program's strengths, weaknesses, opportunities, and threats. SWOT provides stakeholders with an evaluation of USDA RD's Water and Waste Disposal Direct Loan and Grant Program to assist in planning and

decision making through its findings of positive and negative direction, in accordance with the USDA Strategic Plan FY 2018-2022 under Objective 1.4.

Purpose and Objectives

The purpose of the study was to collaborate with funding recipients of USDA RD Water and Waste Disposal Direct Loan and Grant program to examine strengths, weaknesses, opportunities, and threats (SWOT) that exist in the current program; furthermore, providing the future of USDA RD Direct Loan and Grant Programs enhancing sustainability. The SWOT analysis of this research primarily concentrates on the state of Oklahoma involving stakeholders linked to the recipient of funding for the years between 2008 to 2018. The following objectives offered guidance to the SWOT analysis:

1. To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's strengths.
2. To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's weaknesses.
3. To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's opportunities.
4. To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's threats.

Methodology

Danca (2006) described SWOT as assessing an organization's strengths (what a program can do) and weaknesses (what a program cannot do) in addition to opportunities (potential positive conditions in the program) and threats (potential negative conditions in the program). SWOT can be used to evaluate program gaps in the business environment (Wheelan & Hunger,

1998). Dealtry (1992) found SWOT to assist in grouping themes or interactions. Throughout history SWOT has impacted business development starting with business policy; then business planning in the 1980's; and in regionalization and marketing of non-governmental organizations in the 1990's.

Population

The interviewees for this study were selected from the receipt of the Freedom of Information Act (FOIA) request from USDA RD in the Direct Water and Waste Disposal Loan and Grant Program from fiscal year 2008 to fiscal year 2018. Funded projects in this decade resulted in 145 in the Direct Water and Waste Disposal Loan and Grant Program.

Data Collection

A purposive heterogeneous sample of 10 semi structured in-depth interviews were conducted. The interviewees selected for this study were recipients of USDA RD Water and Waste Disposal Direct Loan and Grant Program funding. The researcher did not select interviewees located in the service area of the researcher's employment. The systems outside the researcher's jurisdiction were contact to participate in the study, and interviews were conducted at the convenience or desired location of the interviewee. Some participants desired to conduct interviews at the water districts' office locations while others preferred a teleconference. The participant characteristics are listed in the table below.

Table 4.1

Participant Characteristics

Interviewee	Type	Interview Type
1	Water Operator	Face-to-Face
2	Engineer	Telephone

Table 4.1 (continued)

Participant Characteristics

Interviewee	Type	Interview Type
3	Management	Telephone
4	Water Association Board Member	Face-to-Face
5	Customer	Telephone
6	Management	Telephone
7	Water Operator	Face-to-Face
8	Water District Board Member	Face-to-Face
9	Management	Telephone
10	Engineer	Face-to-Face

Note. Table 4.1 categorizes the characteristics of the participants' interviews.

The interview guide asked 4 open-ended questions (Appendix E). Patton (2002) found that when using open-ended questions in addition to probing and member checking, accuracy of findings was maximized. The four questions asked in reference to USDA RD's Water and Waste Disposal Direct Loan and Grant Program financing: What are the strengths, weaknesses, opportunities, or threats of the program? Furthermore, the interviewer offered definitions of each term as needed.

The researcher sought to protect the privacy of interviewees through assigned codes in a particular county. The interviewees were encouraged, unlimited, and allowed to decline to answer any questions in this interview they were not comfortable with. Each interview was conducted using various methods such as teleconference, in person at their home, or in person at their place of business, wherever they were most comfortable. Each interview ranged in duration from 45 minutes to two hours, depending upon the point at which saturation was achieved. Once a saturation point was met, no additional interviews were collected (Erlandson et al., 1993; Merriam, 2009).

Patton (2002) argued, “There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what will be useful, what will have credibility, and what can be done with available time and resources” (p. 244). Data collection for this particular study focused on the receipt of credible and dependable information as suggested by Merriam (2009) and Yin (2009). With the permission of all participants, each interview was recorded, transcribed, and evaluated with notes taken during the interviews prior to the SWOT analysis.

At the start of each interview, the researcher briefly introduced herself and explained the purpose of this study, thanked the participants for taking the time to provide their input, and expressed the motive behind the study so the participants had a clear picture and an opportunity to opt out of the study if they wished. A naturalistic qualitative interview approach was used for data collection using a comparative case study approach for analysis.

Case study design is utilized due to its holistic approach in nature, allowing multiple perspectives to unfold in a naturalistic setting to fully gain understanding in the program’s implementation from the external perspective (Lincoln & Guba, 1985; Merriam, 2009). The case study design offers strength in trustworthiness through collection of multiple sources of data encouraging the overall picture versus a picture in time. The holistic approach offers the fact in naturalistic inquiry that multiple perspectives exist with multiple reiteration of events (Lincoln & Guba, 1985). Perspectives of multiple stakeholders needed to complete research, as reflected in this study, case study research reflects the most suitable for data collection. A qualitative case study defined in research is “an in-depth description and analysis of a bounded system” (Merriam, 2009, p. 43). The case study method has been used for evaluation of other programs

including governmental and administrative historically offering helpful results for policy decision makers and program implementation (U.S. GAO, 1990).

In accordance with this definition, the research collected was limited to the state of Oklahoma, and in the areas where the researcher does not have established relationships through employee interaction. In regard to case study research, the researcher investigated a bounded system(s) utilizing data collection methods to collect data from single or multiple sources to provide the research with the most in-depth and heuristic data (Merriam, 2009; Yin, 2009).

Data Analysis

Due to the nature of this study, a SWOT analysis was utilized to ensure the perspectives and opinions of stakeholders are considered during policy changes and strategic program planning. The primary goal of the SWOT analysis method is to establish themes through dialogue collected, while evaluating the perceived attitudes, opinions, and feelings toward the USDA program. Interviews were collected, transcribed, and coded through a qualitative data analysis program Quirkos qualitative data analysis software (QDAS).

Boyatzis (1998) defined a unit of coding as, “the most basic segment or element that can be assessed in a meaningful way regarding the phenomenon” (p. 63). The units of coding are the individual participants who were given anonymous codes in order to protect their confidentiality. The codes used for each individual were created in a number system randomly selected to ensure their privacy is protected. After the coding process was complete, the researcher then compared, summarized, and reflected on the responses to better analyze the general responses. As the recorded interviews were transcribed, the interviewer also reiterated results and made known of the data being collected so the saturation point would be known (Merriam, 2009). The saturation point was reached at the moment the researcher did not receive any additional or different data.

After the interviews and transcripts were complete, the researcher read and evaluated each unit of analysis, or individual interview. A summary of the results was created and compared during analysis. Open codes with short phrases to group the similarities and results were then utilized to summarize patterns (Boyatzis, 1998; Merriam, 2009). The constant comparative method in data analysis examines unitized codes for emerging themes and abnormalities (Erlandson et al., 1993; Merriam, 2009). Triangulation of data sources was performed in order to ensure trustworthiness was achieved during the coding process (Merriam, 2009; Yin, 2009). A second analysis revealed the use of selective and axial codes as observations, notes, and interviews were analyzed.

Trustworthiness

Trustworthiness in qualitative data has four main categories: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility was achieved through triangulation, member checking, prolonged engagement, and referential adequacy. Triangulation can provide the researcher insight through the verification of multiple data sources in data analysis and offers additional levels of trustworthiness to the study at hand (Erlandson et al., 1993; Lincoln & Guba, 1985). Data collected from multiple sources such as documentation, artifacts, interviews, archival records, and direct observation offer links within actual experiences to better triangulate the data collected.

Member checking is known as the confirmability of data collected through interviews and interpretation of the researcher by the interviewees is correct (Merriam, 2009). The researcher is currently employed by USDA RD, showing an invested interest in the findings of this study, while also establishing the immersed setting of the situation prior and during interviews. Another technique utilized to ensure trustworthiness was prolonged engagement. Although the researcher

interviewed only interviewee's she did not have established relationships with no future or passed experiences of working in the assigned areas where interviews were gathered, the researcher has shown prolonged engagement within the program area for more than three years. The researcher's background knowledge of the programs offered valuable assistance in exploration of the participants' answers in the interviews offering an improved credibility to the findings (Holstein & Gubrium, 1995). Referential adequacy is achieved through recorded interviews for transcribing and ensuring trustworthiness.

Transferability was achieved through thick description. According to Denzin (1989), thick descriptions are detailed accounts of events or results, while thin descriptions are not. Thick description describes the setting for the audience to interpret and observe the results. (Creswell & Miller, 2000).

Confirmability is achieved through audit trail in this study. An audit trail was utilized in this study through field notes, recordings, journaling, summaries, and process notes, all of which develop trustworthiness (Creswell & Miller, 2000).

Findings

Themes revealed in examination of Strengths, Weaknesses, Opportunities, and Threats are revealed in RD's Water and Waste Disposal Direct Loan and Grant Program are illustrated in the figure below. Themes in strengths revealed history of customer service, 1926(b) protection, and affordable rates and terms. Weaknesses revealed time, less grant money, and lengthy paperwork and regulations. Opportunities revealed include affordable rates and terms for large projects, and essential for rural America. Themes revealed in threats were lack of personnel and technical assistance, and more assistance needed to fill a gap.

Figure 4.1

SWOT Analysis of Water and Waste Disposal Direct Loan and Grant Program

P o s i t i v e	Internal		N e g a t i v e
	Strengths History of Customer Service (1,2,3,4,7,8,9,10) 1926(b) Protection (1,2,3,4,7,8,9,10). Affordable Rates & Terms (1,2,4,5,7,8,10).	Weaknesses Processing Time (1,2,3,4,6,7,8,10) Less Grant Money, More Financial Burden (1,2,3,5,6,7,8,9,10). Lengthy Paperwork & Regulations (1,2,3,4,6,7,8,9,10).	
	External		
	Opportunities Affordable Rates & Terms for Large Projects (1,2,4,6,9) Essential to Rural America (2,3,4,5,6,7,8,9,10).	Threats Personnel & Technical Assistance (1,2,3,6,8,9,10). More Assistance (1,2,3,4,5,6,7,8,9,10).	

Note. The numbers listed represent interviewee codes mentioning the thematic response.

Strengths

Strengths reflected three common themes: History of Customer Service (1,2,3,4,7,8,9,10), 1926(b) Protection (1,4,6,7,8,9,10), and Affordable Rates and Terms (1,2,4,5,7,8,10). Each of the following elements are explained below.

History of Customer Service

Positive comments were made in regard to historical customer service (1,2,3,4,7,8,9,10). Data revealed 80% of the participants mentioned RD’s historical exceptional customer service. One interviewee expressed “Relationships have made a huge difference for us. The specialists always go above and beyond to make it work for us. From our simple questions on will this work, to all the fine print, they are always there. I think they are great people, and a great agency to work with. I appreciate them always taking care of us and being readily available when we

need them” (8). Another interviewee also provided historically, “the employees have been very hands on, very knowledgeable, always willing to help, organized, and were able to keep everything on track as much as they could” (10).

Protection

Many of the systems interviewed mentioned the protection RD loans offer to their system (1,4,6,7,8,9,10). Some did not note the exact U.S.C., but did allude to protection from other systems, banks, interest, and potential fraud. Many systems responded similar in nature to that of interviewee 7, “as a growing water corporation, we need RD to keep up with the times, but we also need it for protection from our surrounding water districts and tribes to protect our district and the water within.”

Affordable Rates and Terms

Interviewees also mentioned in their responses the affordability RD has to offer, particularly in rates and terms (1,2,4,5,7,8,10). The particular loan has a potential 40-year term and fixed reasonable interest rates making the loan desirable. Interviewee 5 expressed, “The affordable rates and terms help take the pressure off of the district as far as financials, any kind of benefit towards helping the district helps the customers too. It helps them to be able to have a bigger balance in their checkbook.”

Weaknesses

Weaknesses resulted in time (1,2,3,4,6,7,8,10), less grant money (1,2,3,5,6,7,8,9,10), and regulations (1,2,3,4,6,7,8,9,10).

Processing Time

Many participants also mentioned a weakness of program delivery, is the amount of time to receive funding, or approval for a project (1,2,3,4,6,7,8,10). Time is of great value and

importance for a borrower receiving financing, but also for a borrower who is under a consent order from ODEQ because of their healthy and sanitary threat to their community members from their dilapidated water or sewer system. As expressed through interview, “The amount of time to get this project done hurts the borrower because our cost estimates are now five years old. Materials continually go up, prices go up, and so a lot of times we've run into problems where we either have to go get more money, withdraw money or we have to cut out part of the project that the entity needed to do. We rarely ever see a rural development project come in under budget because of that reason because it takes so long. I will say I do believe that RD Apply has sped things up a little, but it's still not where it needs to be. It's still not an easy or quick process” (10).

Less Grant Money, More Financial Burden

The topic of grant dollars was mentioned more often than none. Less grant dollars were mentioned by eight out of ten of the funding recipients, also mentioning what financial burden this puts on their residents and systems (1,2,3,5,6,7,8,9,10). This was also mentioned in relation to the inability to fix all issues, because their repayment was limited and had to address necessary items first. Participants reflected findings similar to interviewee 8, “We used to be able to get a lot more grants, but now it seems tough to get hardly any which makes it harder on us to be able to pay for stuff that we need done.” An engineer interviewed in this process also mentioned, “currently, I have at least one town that we cannot help because we cannot get enough grant money to help them” (10).

Lengthy Paperwork and Regulations

Many of the interviewees mentioned RD’s extensive guidelines or regulations (1,2,3,4,6,7,8,9,10). Some mentioned servicing mandates to keep up with, while others

mentioned how RD regulations have changed over the years. The length of paperwork, headache of constant keeps up with servicing requirements, and the change in allocations were all mentioned, and all recorded under one theme. One interviewee commented, “long story short, the post loan servicing is a struggle” (3). Not all comments were negative in regard to regulation but were recognized and mentioned as a factor in program delivery like that of interviewee 8, “I honestly can’t say anything bad about Rural Development. There is typical red tape, but no different than any other agency.”

Opportunities

Opportunities reflected two major subthemes: affordable rates and terms for large projects (1,2,4,6,9) and essential to rural America (2,3,4,5,6,7,8,9,10).

Affordable Rates and Terms for Large Projects

Affordable rates and terms were mentioned in many of the interviewees’ responses when referencing the program’s opportunities (1,2,4,6,9). The affordable rates and terms revealed most of the interviewees were repeat customers, especially for the larger projects. The explanation for repeat customers revealed in data collection that loans at a 40-year term and a lower than market interest rate allows for more money to go toward repairs instead of towards the higher interest and payment amount at a 30-year term and market rate. Since grant money is a common topic revealed in data collection, the researcher found comments where grant money is less, interest rates are lower and assist in the difference of allocations throughout historical years. As expressed by interviewee 2, “Affordability will keep customers coming back, especially with lower interest rates, if more grant isn’t an option.”

Essential to Rural America

Many of the interviewees were very informative on the utilization, need, and role RD plays in their rural communities (2,3,4,5,6,7,8,9,10). The desire to see the program succeed and move forward to fill the gaps they need, but also to continue to establish the relationships with the RD employees was observed. Interviewee 2 said, “this program can offer essential services to rural areas all over the U.S., if it is managed a little differently and more efficiently. It is a new decade and era of technology it is time to look at efficient ways to make processes faster, and effective policies for employees to serve the program right.” Many of the interviewees expressed opinions of need for more assistance to the people, receive more hands-on help, additional face to face interaction in order to better serve rural areas.

Threats

Threats revealed personnel and technical assistance (1,2,3,6,8,9,10) and more overall assistance (1,2,3,4,5,6,7,8,9,10).

Personnel and Technical Assistance

Interviewees expressed the need to add employees, or resources to the employees in order to make the program truly effective (1,2,3,6,8,9,10). Interviewees mentioned an instance an employee might not have the resources to be effective, and/or lack the personnel to move projects forward. Interviewees also mentioned what RD could offer to likely impact more communities, such as technical assistance and expertise. RD has shown a negative impact in recent years according to an interviewee who expressed “a drop in the number of employees and lack of technical assistance has affected RD’s face. I don't think that the current employees have enough time to really go out and see the different towns and the entities like they used to. I feel used to rural development; the face was out there all the time. Entities knew who rural

development was. They knew the people who worked for rural development and they knew that if they needed something, they could call them because they were always able to go out and visit and be very hands on, and I feel like it's not like that anymore” (10).

More Assistance Financially and Publicly

Every respondent interviewed mentioned a concern of additional needs RD didn't address in their recent project financing (1,2,3,4,5,6,7,8,9,10). Some are immediate financial needs, while others need more program area covered, smaller loans (7), “assistance for the smaller loans, like something streamlined” (1), a higher population threshold for well-maintained systems (8), or “some kind of loan forgiveness program” (3) to make up for the loss in grant funding. The threat mentioned when interviewing a respondent revealed, “if it stays the way it is right now, I think that it's a dying program. I think OWRB will continue to implement several programs for loan forgiveness because there's a void and it needs to be filled. It used to be filled by rural development and I feel like if it keeps going the way it is, rural development will no longer stand in the gap but some other agency like OWRB. I already see it slipping away” (10).

Discussion and Implications

To assess a program’s intended consequences, it is important to note the program’s strengths. Through this qualitative analysis, three strengths emerged. The three strengths are: history of customer service, 1926(b) protection, and affordable rates and terms. The next assessment step is to verify its weaknesses. These weaknesses are time, less grant money, and lengthy paperwork and regulations. Thirdly, opportunities for a program's future are to be assessed. Opportunities for this program include affordable rates and terms for large projects, and essential for rural America. Finally, the current programs' threats to its existence are of great

importance. The threats discovered in this study are lack of personnel and technical assistance, and more assistance needed to fill a gap.

The SWOT analysis of USDA RD's Water and Waste Disposal Direct Loan and Grant Program revealed common themes of success, improvement areas, and future enhancement. According to the findings of this study, success of the program is the historical dedication of employees and customer service in rural Oklahoma. The intention of the program and slogan coincides with this finding as USDA is "committed to the future of rural communities" (U.S. EPA, 2013, p. 9). An additional strength revealed is 1926(b) protection against encroachment, which are also outlined as intended outcomes. Title 7, U.S. Code, Section 1926(b)2 (7 U.S.C.§1926(b)) is a federal law established by the U.S. Congress to protect federally indebted water districts and associations. These intended program outcomes are defined in regulations to protect the borrowers in need of federal infrastructure financing. This also protects the government's investment, because if a system is encroached on and is not protected, this could affect the repayment of the financing provided.

Also, a strength revealed in data was RD's affordable rates and terms. Affordable rates and terms are noted as a strength and an opportunity, as it is of current strength to the program to offer low interest rates at a longer term than conventional loans, but it is also an opportunity for the program to assist rural communities with these affordable rates and terms with incentive to come through RD for financing rather than another source of funding. Historical interest rates are found in Appendix A representing the change in interest rate structure within a 10-year span. In fiscal year 2008, the allocation reflected a total of \$1,022,162,996 in loan and \$374,382,406 in grants, which reflected a 63% loan and 37% grant allocation year, much different from allocations in the most recent years (U.S. OMB, 2017). In fiscal year 2018, the allocation

reflected a total of \$4,141,176,471 in loan and \$264,410,200.00 in grant, which reflected a 94% loan and 6% grant allocation year (U.S. OMB, 2017). The comparable interest rates in the third quarter of 2008 reflected 4.5% poverty rate, 4.625% intermediate rate, and a 4.75% market rate (WEP, 2008a), while the interest rate of the third quarter of 2018 reflects a 2.5% poverty rate, 3.375% intermediate rate, and a 4.25% market rate (WEP, 2018a).

As mentioned, weaknesses are less grant money with more financial burden in conjunction with more paperwork and extensive regulation upkeep through the life of the loan. If the grant money isn't offered, this is where an incentive to offer to the people to fill the gap would be essential. This "fill the gap" could be a different form of financing under the same umbrella, a simplified application process under a certain dollar amount, an expert to offer technical assistance in times of need not just financially, or a lower interest rate offered with possible loan forgiveness involved. The Oklahoma population has increased from 3.7 million to 3.9 (U.S. Census Bureau, 2010). If the population is increasing, loan and grant funding should increase as well. While the loan dollars significantly increased, the grant dollars did not in recent years (U.S. OMB, 2017). These are all items that are not currently being offered in the program, which also in turn shows areas for future enhancement of the program and utilization of funds. Literature argues the importance of providing financing for rural infrastructure, but also assessing program impact to modify application requirements as needed also proves importance for program management (Janeski & Whitacre, 2014).

The weakness described as regulation upkeep is consistent with literature through *USDA's Strategic Plan FY 2018-2022* in Objective 1.3: "Reduce the Regulatory Burden and Streamline Process to resolve this issue" (USDA, 2018, p.8). USDA referenced their dedication

to customer service through Objective 1.3 further explaining easing regulatory burdens for simplified processes to encourage investment in rural America (USDA, 2018).

Areas of improvement revealed in the threats is the need for more technical assistance provided. The historical relationship of RD with rural Oklahoma reflected a strong impact, but the interpretation of the researcher was not the same today. Interviews of this study revealed expertise and knowledge of the customers were not as strong or well known as the direct relationship between RD and the system managers or operators as they most commonly work with RD to receive financing, not the customer.

Recommendations

Recommendations for Future Research

The researcher recommends a SWOT analysis for Water and Waste Disposal Direct Loan and Grant Program be performed in all other states. Then, a comparative analysis of findings be examined to comprehend program gaps overall.

Recommendations for Practitioners

The researcher recommends USDA RD offer a simplified, application process for RD Water and Waste Disposal Direct Loan and Grant Programs. The application process should have defined eligibility requirements, with little waiting times. The servicing regulations should also adhere to simplified requirements; however, protecting collateral as needed.

CHAPTER V

SUMMARY AND CONCLUSION

The purpose of this study is to evaluate the impact of the USDA RD Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma between FY 2008-2018. The structure of this study portrayed three main essays to fully evaluate USDA, RD's Water and Waste Disposal Direct Loan and Grant Program being offered to rural Oklahoma. First, the researcher performed a content analysis on the historic record of funding with a primary focus on rural Oklahoma projects during the decade expanding from 2008-2018 projects. Next, a utilization-focused program evaluation of USDA RD's Water and Waste Disposal Direct Loan and Grant Program through a recollection of interviews was conducted. Finally, a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was utilized to identify needs and/or gaps of USDA RD's Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma.

Statement of the Problem

The USDA RD's Water and Waste Disposal Loan and Grant program has not been evaluated to determine if it is reaching its primary goal in assisting rural communities. In this study, the evaluation of program effectiveness in quantitative and qualitative measures will provide a different outlook to current, and future policy makers, that existing policy makers did not have. USDA established a published strategic plan for the fiscal years 2018-2022. This strategic plan is important to note as it develops the history, purpose, and driven mission behind the purpose of this study. Within the *USDA Strategic Plan FY 2018-2022*, seven goals are established along with strategies to accomplish each goal (USDA, 2018).

Under the first goal, lies Objective 1.4 “Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize Return on Investment” (USDA, 2018, p.10). This objective establishes the need for more program evaluations within USDA as it strives to educate the tax paying citizens where their money is being most utilized. Through a measurement of program impacts, accurate information can provide guidance to stakeholders within USDA and outside of USDA when analyzing the program’s fate (USDA, 2018). By achieving this objective, improvement in program delivery can be achieved and USDA can strive to better meet intended outcomes (USDA, 2018).

Purpose and Objectives

The purpose of this study is to evaluate the impact of the USDA RD Water and Waste Disposal Direct Loan and Grant Program in rural Oklahoma between FY 2008-2018. The structure of this study portrayed three main articles to fully evaluate USDA, RD’s Water and Waste Disposal Direct Loan and Grant Program being offered to rural Oklahoma. Within each article, the following research objectives (RO) were examined:

Content Analysis of the Historical Record of USDA, Rural Development’s Water and Waste Disposal Direct Loan and Grant Program: 2008-2018

RO 1: To observe location of utilization of funding recipients by county of USDA RD’s Water and Waste Disposal Direct Loan and Grant Program.

RO 2: To examine project purpose of the recipients of USDA RD’s Water and Waste Disposal Direct Loan and Grant Program

RO 3: To investigate average loan dollars obligated to a project by threshold of USDA RD’s Water and Waste Disposal Direct Loan and Grant Program.

RO 4: To investigate average grant dollars obligated to a project by threshold of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 5: To investigate average population of project size of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 6: To assess overall population impact and monetary investment of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

RO 7: To examine impact of funding received from the agency perspective of USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

Utilization-Focused Evaluation of USDA Rural Development's Water and Waste Disposal Direct Loan and Grant Program

RO 1: To evaluate the current condition of the water/wastewater systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 2: To evaluate the current or future needs of the systems receiving financing from the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 3: To evaluate the overall knowledge of RD from recipients of the Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 4: To evaluate the additional funding sources received, besides RD, from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 5: To evaluate additional financial and program assistance needs from recipients of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

RO 6: To evaluate the impact of RD funding from the perspective of the recipient of Water and Waste Disposal Direct Loan and Grant Program between 2008-2018.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis: A Template for identifying gaps of USDA RD's Water and Waste Disposal Direct Loan and Grant Program serving rural Oklahoma

RO 1: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's strengths.

RO 2: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's weaknesses.

RO 3: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's opportunities.

RO 4: To determine the USDA RD Water and Waste Disposal Direct Loan and Grant Program's threats.

Conclusions, Discussion, and Implications

The following conclusions were drawn from this study. The conclusions are common in all three objectives from the 2008-2018 population of participants in USDA RD's Water and Waste Disposal Direct Loan and Grant Program.

First, findings reflected grant allocations in comparison to loan allocations have changed from 2008 to 2018. The Water and Waste Disposal Direct grant allocations have significantly decreased in the 10-year span, while loan allocations have increased. The researcher can conclude three main reasons behind this finding. The first conclusion is found in the change of political parties within the decade. A Democratic President began the term, while a Republican President concluded the examined decade. Political parties of different categories have different visions, priorities, and views on grant dollars. Next, the researcher can conclude this finding is revealed due to the trillion-dollar debt ceiling the federal government is facing today. The federal debt ceiling continues to rise and could also play a part in the reduction of federal grant allocations. Finally, the researcher can conclude that the reduction in grant allocations

throughout the decade are due to lack of evaluation of federal program dollars. Findings reflect the grant dollars are allocated in two ways: through a competitive evaluation of the systems need through emergency or through set percentage established similar to the federal allocation.

Assumptions could be made that due to the low percentage in grant dollars, the agency has to limit grant money obligated to one specific entity so more rural communities can benefit and thrive from the program, which in turn could negatively affect those communities who need more than what they are offered to make repairs. The average size of grant percentage throughout the ten-year span reflects 32% in combination where the average loan size accounts for 68% of the total project cost, which is much different that a 6% national allocation reserve that was set aside for program grants in 2018 (U.S. OMB, 2007; U.S. OMB, 2017).

Next, the researcher found ODEQ Consent Orders (CO) are found frequently in rural systems not meeting infrastructure regulations, particularly in RD infrastructure recipients. The finding of ODEQ CO's in RD projects revealed three major conclusions. RD recipients of infrastructure financing are dilapidated systems due to their lack of regular maintenance, extensive amount of time to receive RD financing, or due to their lack of repayment ability to address the issues needed.

Next, findings revealed economic development is affected by rural infrastructure. The researcher can conclude the rural recipients of USDA RD funding are not flourishing in economic development terms from the number of ODEQ CO's issued to these recipients. Furthermore, the researcher can conclude rural recipients of funding are not receiving the income needed to flourish and invest back into their infrastructure. Many of the findings in all three objectives mentioned a large water loss, whether this includes the project fixing the issue of water loss or if they still have a large water loss throughout the parts of the system that the

project did not correct. As findings reflected in the first objective, the majority of funding was obligated to water projects. This being said, water loss affects pressure, which affects water quality, which later affects the overall system with ODEQ Consent Orders being issued. This finding explains some of the responses who are still in need of corrections for their system, but it also establishes similarities within each paper and links between the reported issues. Of the systems receiving financing, Alleviate ODEQ CO, or Alleviate Oklahoma Department of Environmental Quality Consent Orders accounted for 50.7% of the total projects in agency responses in the first objective, but also reflected 25% of the mentioned impact in the second objective. Pipes for water systems installed around the 1960's was cast iron, which has proven to deteriorate over time (Lea, 2000). The largest contributors to water loss are most commonly friction, pipe bends, and valves related to the pump station (ODEQ, 2008). Both of these factors in literature can result in the ultimate impact of an ODEQ CO on a system. Based on literature and the findings of this study, an assumption could be made that USDA RD obligates over half its funding to struggling systems, proving the need for more grant because their financial security is limited for repayment in correlation with the issues they have within their system

Findings revealed infrastructure development has an effect of on economic growth. While the first objective gathered information and economic development was not directly mentioned, findings do reflect how the first objective receives an indirect impact in the next two objectives. The positive impact of the water and wastewater infrastructure investments include additional funding poured into the community, raise in employment, and additional investment from the private sector (Bagi, 2002). A lengthy argument exists in literature linking infrastructure and economic growth and development (Deno, 1988; Fox & Porca, 2001; Janeski, 2012; Janeski & Whitacre, 2014). The water pressure requirements of the distribution system must be at least

twenty-five (25) psi, and if this is not met, a consent order is issued under ODEQ, along with its effect on the safety of the community and not allowing fire code to be met for new businesses. Water affects all things, and directly impacts the sustainability of a town. If a rural water system is unable to provide pressures, or capacity for a rural town, this also affects development in housing. Development in housing will help a system's user rates to increase, affecting their income. Janeski (2012) found through the examination of economic impacts of the RD Water and Waste Disposal Programs, the rural communities receiving financing through RD for infrastructure improvements are losing populations and finding difficulty in meeting the criteria for commercial loans. A decline in population, also means a decline in tax base, and in turn a decline in income a rural town is receiving (Janeski, 2012). Janeski (2012) reported without USDA RD, many of these cities would have continued to have deteriorating water and wastewater disposal infrastructure which would in turn prove the necessary isn't always sufficient for economic growth in this case.

Next, findings revealed a gap in financing exists for rural water and sewer systems. The researcher can conclude this gap is in part due to the change in allocation percentage in loan and grant dollars; change in interest rates; and/or due to change in political party priorities. RD's Water and Waste Disposal Direct Loan and Grant Program needs more program money, particularly grant money, to impact all rural systems that need it based on the findings reflected in this study. The program is serving the purpose of providing financing for rural areas based on findings in this study; however, is showing the need for more resources to fulfill the needs of the people. Areas of improvement this program revealed things such as loan forgiveness, simplified application process for a lesser dollar amount needed. The systems not receiving financing were not analyzed in this study but could fall within the program's current gaps of financing. The

observation of grant allocated to each project could show the need for grant is more, but the projects are being funded because they are unable to offer the dollar amount needed to make the project successful. The rural communities applying for federal infrastructure assistance through RD have limited options for other financing avenues (Janeski & Whitacre, 2014). This offers guidance to resolve or rehabilitate the program to offer the services needed, that are not currently being met, and to also meet the desired objective of the USDA Strategic Plan to improve program delivery, meet intended outcomes, and inform decision-makers and/or stakeholders (USDA, 2018).

Finally, the researcher concludes from this study the knowledge in USDA programs is limited to existing recipients. The researcher can conclude this is due to the decrease in overall budget dollars for administrative purposes like travel, outreach, and marketing. While it is verified in the findings, the USDA RD Water and Waste Disposal Direct Loan and Grant Program is common knowledge to the interviewees. The findings question whether marketing of the program would affect the areas who have not received USDA RD funding. A need could exist in an area where knowledge of USDA RD programs does not exist, therefore impacting the findings of this study. For the purpose of this study, the marketing and outreach impact of the program are not measured. Marketing the program should be prioritized in the federal budget to ensure the program has the resources to outreach, market, and further educate the rural communities to meet the intended outcomes the leaders are establishing. *USDA Strategic Plan FY 2018-2022* establishes “continuity plans and elements will be integrated in all USDA activities to ensure viable delivery platform and programs continue to exist” (p. 6).

Recommendations

Recommendations for Future Research

The findings of this study offer a foundation for similar studies in the future. This study sought to address three major objectives, which in turn revealed posing questions for future research.

Customer service is an element to further investigate. Findings reflected strength in historical customer service within Oklahoma in USDA RD, but most participants also mentioned concerns in the future of customer service. A further investigation of customer service should be completed in order to better evaluate this portion of the program evaluation. Objective 1.2 of *USDA's Strategic Plan FY 2018-2022* strives to ensure performance of individual employees are contributing to USDA's strategic goals. USDA is dedicated to serving the people through their dedication in customer service and high performing employees by fostering a work environment encouraging these aspects (USDA, 2018). In order to meet this goal of *USDA's Strategic Plan*, and ensure a customer-centric workforce, a direct evaluation of employee involvement in the program is recommended. A study should include a purposive sample of interviews administered in a qualitative method to reflect the most relevant findings. A qualitative interview would offer insight to participants attitudes and perceptions of USDA RD customer service.

Another area to further investigate is the a comparison of other federal programs evaluations within USDA RD. This study could be a foundation to repeat this study in other program areas. Objective 1.4 of *USDA's Strategic Plan* also supports the importance of measuring the impact of USDA's programs (USDA, 2018). The Strategic Plan outlines the importance of evaluation in all programs throughout USDA to better serve the customers but also offer more insight to inform the policy leaders and stakeholders directly related to USDA

(USDA, 2018). Utilizing these measures and achieving this objective laid out by agency leaders, offers improvement methods in program delivery through revealing intended outcomes by policy makers and stakeholder and further expanding program needs (USDA, 2018). The study would prioritize evaluation in all federal programs in order to better educate policy and decision makers for budget allocations.

Next, a comparative analysis of each individual state's findings in the RD Water and Waste Disposal Direct Loan and Grant Program versus Oklahoma is recommended. The methods of this study offer an example for future state's evaluations for comparison. After these studies are performed in numerous states, a quantitative, historical, comparative content analysis of the same year span should be utilized. This comparative analysis would offer strength in reliability of findings offering the evaluation of the overall program instead of a particular case study. A Freedom of Information Act Request should be utilized to receive the information from the agency in accordance with each state's data. Different demographics of a state could affect this type of program evaluation, so the need for the program could vary by state.

Also, the researcher recommends including interviews with employees of USDA RD and agency leaders working directly with the Water and Waste Disposal Direct Loan and Grant Program to further extend another step in the program evaluation. This recommendation for future research should include a qualitative method of a purposive sample of voluntary employee interviews within each state to strengthen program evaluation from an internal viewpoint of the study. Empowerment evaluation strengthens program management by providing stakeholders with the necessary resources to evaluate the program (Fetterman, 2008). The findings could offer another insight for policy makers of program success or modification in delivery.

Furthermore, the researcher recommends a study to analyze the rural communities throughout Oklahoma not receiving RD financial assistance for infrastructure but do possess an ODEQ Consent Order. The study should utilize a mixed methods approach to first gather the systems under this category through the Oklahoma Department of Environmental Quality information request, followed by a purposive sample of interviews with these water or sewer systems with specific questions in relation to a water or sewer system's needs, financing, and reasoning behind their current physical state.

The researcher also recommends the exploration of calculation of the federal allocation in the Water and Waste Disposal Direct Loan and Grant Program. The formula used for calculation of federal programs allocation, specifically USDA, RD's Water and Waste Disposal Direct Loan and Grant Program could argue or strengthen the purpose behind program evaluation findings.

Finally, an economic impact study of RD's Water and Waste Disposal Direct Loan and Grant Program would also offer more insight. Literature indicates the linkage between infrastructure and impact is valid, which would need to be measured in rural areas receiving federal infrastructure investments to verify previous literature's results (Adelaja et al., 2009; Aschauer, 1989; Bagi, 2002; Borcharding & Deacon, 1972; Canning & Pedroni, 2004; Chandra & Thompson, 2000; Deno, 1988; Eberts, 1990; Evans & Karras, 1994; Ford & Koutsky, 2005; Fox & Porca, 2001; Gillett et al., 2006; Gabe & Abel, 2002; Gramlich, 1994; Holtz-Eakin, 1994; Holtz-Eakin & Lovely, 1996; Holtz-Eakin & Schwartz, 1995a; Holtz-Eakin & Schwartz, 1995b; Jiwattanakulpaisran et al., 2009; Mahasuweerachai et al., 2007; Whitacre & Shideler, 2010). This study should follow the quantitative content analysis of this study for the receipt of water and sewer systems in this category, further using a purposive sampling of direct systems and changes in the economic activity of those systems service areas.

Recommendations for Practitioners

According to the findings presented from this study, the researcher offers several recommendations for USDA leadership, Water and Waste Disposal program directors, and stakeholders. First, raising the 10,000 population to a larger population threshold could offer more financing options to rural water and sewer systems, while potentially reserving grant dollars for systems who need more than the average percentage. If a system can afford 100% loan in a project, then the 10% grant the system did not receive could potentially add to a rural system who needs 10% more grant. The 2019 Budget proposed to raise the population limit from 10,000 to 20,000 but did not receive approval (U.S. OMB, 2018). The raise in population would allow more communities to be eligible for the Water and Waste Disposal loans by not limited to rural communities under 10,000 population; but rather those under 20,000 as well. The agency could then have the opportunity to impact more communities in need of rural infrastructure financing who cannot afford commercial financing. If more applicants are able to utilize funding, this offers a more diverse population of funding recipients and could potentially add purpose and utilization of the program funding.

Another recommendation involves an annual evaluation of the program. In addition to an annual evaluation of the program, performing a comparative analysis every 10 years in conjunction with the U.S. Census Bureau. This additional evaluation would offer more insight to inform the policy leaders and stakeholders directly related to USDA (USDA, 2018). This would also offer a regular maintenance of the program, but also establish the allocation needs in the Water and Waste Disposal Program prior to the next year for decision makers. These evaluations would be better service to the agency if impact was documented through each office, state, and project. If impacts are measured, this can offer an easier justification for allocation changes or

service locations that need to be prioritized for equal opportunity. As set out within *USDA's Strategic Plan FY 2018-2022*, measuring outcomes and impacts through reliable data is a key piece to evaluating federal programs (USDA, 2018). Currently, these evaluations are not being performed.

Next, the researcher recommends performing a needs assessment for each state's infrastructure needs. This would assist in assessing the administrative program dollar needs based on program needs. As findings reflect, the needs of water and sewer systems vary. The same assumption can be made for the varying needs of water and sewer systems in other states. The documented needs could offer guidance to decision makers to move funding within the agency to serve programs and areas of most need, while offering insight to the program resources needed in those areas for program development. Findings revealed historically customer service is meeting the agency's mission in Oklahoma RD, but the negative comments involved with customer service or technical assistance were in fact due to lack of resources. Employee turnover, resources such as government cars, and even lack of employees in comparison to previous years were of some concerns mentioned. As directed in *USDA's Strategic Plan FY 2018-2022*, in efforts to foster an effective and efficient workforce, USDA strives to cultivate a work environment that boosts employee performance (USDA, 2018). In order to do this, employees must have the resources they need to be effective and efficient in their jobs.

Additionally, a recommendation for USDA is to provide professional development to ensure employees can provide essential customer service. This would also include a focus on technical assistance to address the findings and concern in this study. In addition to providing essential customer service, this will also address the change in customer service and technical

assistance voiced in these findings. The mission of the agency should align with the strategic plan.

Another recommendation is the focus on additional marketing and outreach. USDA should budget, allocate, and track marketing and outreach efforts by educating the rural communities on financing opportunities in RD, particularly in infrastructure.

Next, the researcher recommends is to offer loan forgiveness or offer lower than market interest rates on existing loans when less grant is administered. This would offer a service to the systems who need more money than they can repay, but also still give incentive to serve the program and the people. Rural communities receiving infrastructure financing through RD are losing population impacting their repayment ability on a loan (Janeski, 2012).

Additionally, the researcher recommends collaborating with external stakeholders, participants, and tribal entities to market and outreach programs as needed. Collaborating offers a technique to save federal spending on marketing materials, while building partnerships to make program delivery more effective.

Finally, the researcher recommends additional grant dollars be administered to the program to ensure all needs of the program are being met. Grant dollars reflected a need to fill a gap in the program based on these findings regardless of how the program is being delivered. Through evaluation of other utilization of federal program funds, the federal government could better allocate funding where the need is revealed. Rural infrastructure affects personal daily life like washing clothes, but also affects the rural communities' survival through income and health and safety of rural citizens.

Summary

Although the main justification for program evaluation is its role in rationalizing policy, program evaluation findings rarely have a direct impact on decision-making. This is because of the political nature of policy decision-making and because people are generally resistant to change. Most evaluations are clearly defined for purpose, further offering insight for this specific purpose. In this environment, evaluation findings cannot have a single and clear use, nor can the evaluator be sure how the findings will be interpreted or used.

While program evaluations may not directly affect decisions, evaluation does play a critical role offering a description of impacts through findings as displayed in this dissertation to better inform decision-makers and stakeholders invested within and outside the agency (USDA, 2018). The goal of this evaluation is to serve the rural people, but also serve the agency of USDA in accordance with its Strategic Plan.

Findings of this study reflect the mission of USDA RD's Water and Waste Disposal Direct Loan and Grant Program is being achieved through their financial assistance for infrastructure development to rural communities throughout Oklahoma. The findings of the program evaluation reveal that to improve the program to meet the needs of the rural communities in the future there must be more financing options, resources, and grant funding available. Findings also solidified the importance of water and sewer in rural communities' impact on economic development and the health and safety of the rural citizens.

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APPENDIX A

HISTORICAL INTEREST RATES OF THE WATER AND WASTE DISPOSAL DIRECT LOAN PROGRAM

Effective Date	FY	FY Quarter	Poverty Rate	Intermediate Rate	Market Rate	Citation
07/01/2018	2018	4	2.375%	3.125%	3.875%	(WEP, 2018a)
04/01/2018	2018	3	2.375%	3.125%	3.875%	
01/01/2018	2018	2	2.125%	2.750%	3.500%	
10/01/2017	2018	1	2.125%	2.750%	3.500%	
07/01/2017	2017	4	2.000%	2.625%	3.250%	
04/01/2017	2017	3	2.000%	2.750%	3.375%	
01/01/2017	2017	2	2.000%	2.750%	3.375%	
10/01/2016	2017	1	1.375%	1.875%	2.375%	
07/01/2016	2016	4	1.625%	2.250%	2.750%	
04/01/2016	2016	3	1.750%	2.250%	2.875%	
01/01/2016	2016	2	1.875%	2.500%	3.125%	
10/01/2015	2016	1	2.000%	2.625%	3.250%	
07/01/2015	2015	4	2.125%	2.875%	3.625%	
04/01/2015	2015	3	2.125%	2.750%	3.500%	
12/23/2014	2015	2	2.250%	3.000%	3.750%	
10/01/2014	2015	1	2.375%	3.250%	4.000%	
07/01/2014	2014	4	2.375%	3.250%	4.000%	
04/01/2014	2014	3	2.500%	3.250%	4.125%	
01/01/2014	2014	2	2.625%	3.500%	4.375%	
10/01/2013	2014	1	2.750%	3.750%	4.625%	
07/01/2013	2013	4	2.125%	2.750%	3.500%	
04/01/2013	2013	3	2.125%	2.750%	3.500%	
01/01/2013	2013	2	1.875%	2.500%	3.125%	
10/01/2012	2013	1	2.125%	2.750%	3.500%	
07/01/2012	2012	4	2.125%	2.750%	3.500%	
04/01/2012	2012	3	2.000%	2.750%	3.375%	
01/01/2012	2012	2	2.250%	3.000%	3.750%	
10/01/2011	2012	1	2.250%	3.000%	3.750%	
07/01/2011	2011	4	2.500%	3.375%	4.250%	
04/01/2011	2011	3	2.875%	3.750%	4.750%	
01/01/2011	2011	2	2.500%	3.375%	4.250%	
10/01/2010	2011	1	2.250%	3.000%	3.750%	
07/01/2010	2010	4	2.375%	3.250%	4.000%	
04/01/2010	2010	3	2.500%	3.250%	4.125%	
01/01/2010	2010	2	2.375%	3.250%	4.000%	
10/01/2009	2010	1	2.500%	3.375%	4.250%	
07/01/2009	2009	4	2.625%	3.500%	4.375%	
04/01/2009	2009	3	2.750%	3.750%	4.625%	
01/01/2009	2009	2	3.125%	4.125%	5.125%	
10/01/2008	2009	1	2.750%	3.625%	4.500%	
07/01/2008	2008	4	2.750%	3.625%	4.500%	(WEP,2008a)
05/23/2008	2008	3	2.875%	3.750%	4.750%	
04/01/2008	2008	3	4.500%	4.625%	4.750%	
01/01/2008	2008	2	4.500%	4.375%	4.375%	
10/01/2007	2008	1	4.500%	4.500%	4.625%	

APPENDIX B

OKLAHOMA MAP OF THREE RURAL DEFINITIONS

Oklahoma

Three rural definitions based on Census Urban Areas

Rural locations are those outside Census Urban Areas with a population...

...greater than or equal to 2,500

Outside Census Urban Areas \geq 2,500

...greater than or equal to 10,000

Outside Census Urban Areas \geq 2,500

Census Urban Areas: 2,500 - 9,999

...greater than or equal to 50,000

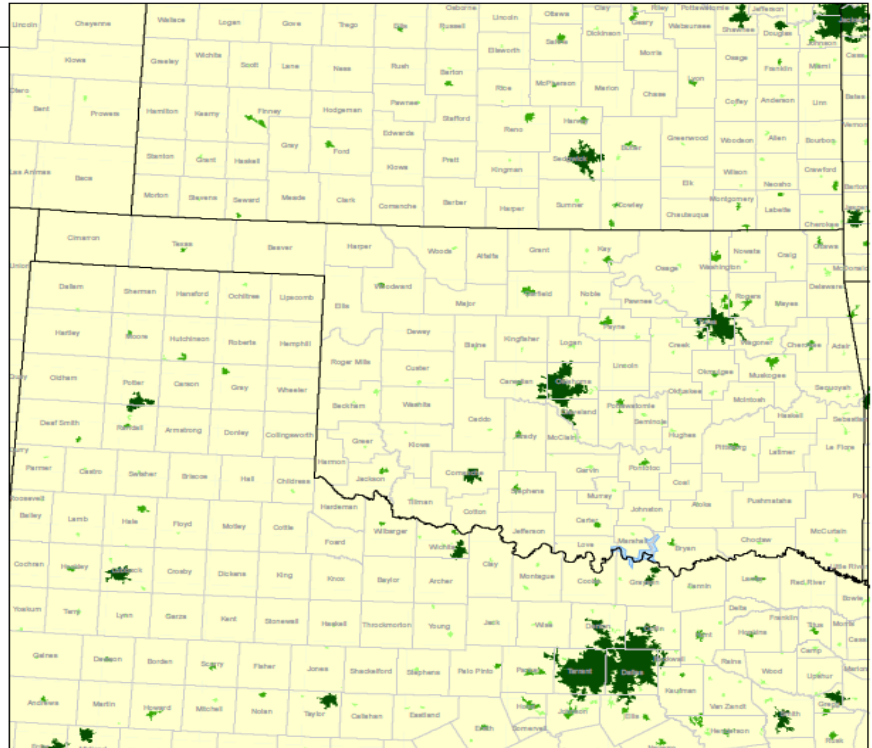
Outside Census Urban Areas \geq 2,500

Census Urban Areas: 2,500 - 9,999

Census Urban Areas: 10,000 - 49,999

Urban locations under all three definitions:

Census Urban Areas: \geq 50,000



Retrieved from:

https://www.ers.usda.gov/webdocs/DataFiles/53180/25591_OK.pdf?v=0

APPENDIX C

IRB APPROVAL FORM

DIVISION OF RESEARCH



NOT HUMAN RESEARCH DETERMINATION

August 16, 2019

Type of Review:	Submission Response for Initial Review Submission Form
Title:	THREE ESSAYS ON USDA'S DIRECT WATER AND WASTE DISPOSAL PROGRAM IN OKLAHOMA: AN EVALUATION
Investigator:	Robert Strong Jr, PhD
IRB ID:	IRB2019-0728
Reference Number:	093294
Funding:	Internal
Documents Reviewed:	<ul style="list-style-type: none">• IRB Application (Human Research) - (Version 1.2)• Anderson_ Amber Dissertation Proposal 3 Article Format - (Version 1.0)• Interview Protocol Revised - (Version 3.1)

Dear Robert Strong Jr, PhD:

The Institution determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

Further IRB review and approval by this organization is not required because this is not human research. This determination applies only to the activities described in this IRB submission and does not apply should any changes be made. If changes are made you must immediately contact the IRB about whether these activities are research involving humans in which the organization is engaged. You will also be required to submit a new request to the IRB for a determination.

Please be aware that receiving a 'Not Human Research Determination' is not the same as IRB review and approval of the activity. IRB consent forms or templates for the activities described in the determination are not to be used and references to TAMU IRB approval must be removed from study documents.

If you have any questions, please contact the IRB Administrative Office at 1-979-458-4067, toll free at 1-855-795-8636.

Sincerely,
IRB Administration

750 Agronomy Road, Suite 2701

1186 TAMU
College Station, TX 77843-1186

Tel. 979.458.1467 Fax. 979.862.3176
<http://rcb.tamu.edu>

APPENDIX D
FOIA REQUEST

J.L. Sims
USDA, Rural Development
100 USDA, Suite 108
Stillwater, OK 74074

Re: Freedom of Information Act Request

Dear Ms. Sims:

This is a request under the Freedom of Information Act.

I request that a copy of the following documents [or documents containing the following information] be provided to me:

1. USDA, Rural Development's Water & Environmental Program Objectives/Goals (more than one) on a National level and State level, as well as the Water and Waste Disposal Direct and Guaranteed Loan and Grant Programs;
2. Allocation numbers for total and for Oklahoma only for years 2008-2018 in Water and Waste Disposal Direct Loans
3. Allocation Numbers for total and for Oklahoma only years 2008-2018 in Water and Waste Disposal Guaranteed loans
4. Have each of the objectives been met in Oklahoma each year measuring 2008-2018?
5. Name of projects funded in Oklahoma including the loan/grant amounts, county located, program name under WEP, and population served.

In order to help to determine my status to assess fees, you should know that I am an individual seeking information for personal use and not for commercial use. I am currently requesting this data set for a Doctoral Dissertation in program evaluation.

Thank you for your consideration of this request.

Sincerely,

Amber L. Roundtree
100 Bois D Arc Cir
Trenton, Texas 75490
(903) 227-3601

APPENDIX E

INTERVIEW GUIDE

1. How would you best explain the condition of your water/sewer system?
2. What are the current needs of your system?
3. What do you know about the United States Department of Agriculture, Rural Development's Water and Waste Disposal Direct Loan and Grant Program?
4. What would you like to see more funding/ programs for?
5. What did you receive RD funding for?
6. Do you have any complaints about the process? What about compliments?
7. Is there anything in your needs that RD can't help with or that you would like to see more of?
8. What are some strengths of the United States Department of Agriculture, Rural Development's Water and Waste Disposal Direct Loan and Grant Program?
9. What are some weaknesses of the United States Department of Agriculture, Rural Development's Water and Waste Disposal Direct Loan and Grant Program?
10. What are some opportunities of the United States Department of Agriculture, Rural Development's Water and Waste Disposal Direct Loan and Grant Program?
11. What are some threats of the United States Department of Agriculture, Rural Development's Water and Waste Disposal Direct Loan and Grant Program?

APPENDIX F

USDA RD LETTER OF SUPPORT

May 9, 2019

To Whom it May Concern;

I am writing this letter in support of Amber Anderson Roundtree moving forward with her Doctoral Dissertation. I am aware of her work and her evaluation. I do not have any objections to her preceding. This project is not a government funded project and she is writing on her own time and not representing the government in any fashion. I look forward to Mrs. Roundtree finishing this project and the publication of her work. Thank you.

A handwritten signature in black ink that reads "Lee R. Denney". The signature is written in a cursive style with a large, stylized 'L' and 'D'.

Lee R. Denney

State Director, Oklahoma Rural Development

USDA

APPENDIX G

USDA OFFICE OF ETHICS SUPPORT LETTER

From: SM.OE.Ethics-RD
Sent: Tuesday, June 06, 2017 3:00 PM
To: Anderson, Amber - RD, Atoka, OK <Amber.Anderson@ok.usda.gov>
Subject: RE: Question for a Dissertation Study

Greetings Amber,

Thank you for your ethics inquiry.

In completing your dissertation, please be sure to avoid any use of non-public information. As you expressed, your method of data collection uses public reports and avoids using any official names. This is good, as the misuse of official position regulations at 5 CFR 2635, subpart G could be implicated if you stray from this strategy.

You can refer to your official title/position with RD on the condition that your USDA position is no more prominent than other biographical material (education, prior work experience, current work with CNH, past publications, etc.). This usually goes in an author abstract for publications.

If you refer to your official position at all in your dissertation or in your presentation to a committee in defending it, I would strongly recommend using a disclaimer, if appropriate. For example, if you refer to your official position you might place a footnote under your author name that states:

This thesis written by Amber Anderson was prepared in her personal capacity. The opinions expressed herein are her own and do not reflect the views of RD, the USDA, or the United States Government.

As of now, and on these facts, you are free to carry out this activity in your personal capacity. If you receive any compensation for your dissertation or honorarium for future talks, an OE-101 may be required.

If any of the facts change, you receive compensation on something that overlaps with your official duties, you are invited to speak at a conference, or if you have further questions, please reach out to the Office of Ethics or me directly.

NIH has some really great materials on these types of questions along with sample disclaimers. Here is a link: <https://ethics.od.nih.gov/topics/Disclaimer.htm>

Thanks so much and good luck with your dissertation!

Aaron

“Customer service matters to us, please take our short survey, [click here.](#)”



Aaron Levin
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Office of Ethics
US Department of Agriculture
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5913-S
Washington, DC 20250
☎ 202-205-6797 (Voice)
✉ aaron.levin@oe.usda.gov