



STATE ASSOCIATION
OF KANSAS WATERSHEDS



The Kansas Watershed District Story

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Executive Summary

The Kansas Watershed District Act of 1953 allowed the formation of watershed districts. Since 1953, local citizens have developed 80 organized watershed districts¹ in Kansas. Watershed projects² reduce damage to croplands, pasturelands, and fences, and decrease the risks of floodplain scour and downstream erosion. These projects also inhibit flood damage to 32,390 miles of roads, 5,868 bridges, and 2,342 miles of railroads, and provide a range of benefits for farms and ranches, households, recreation opportunities, and environmental conservation.

In total, watershed projects potentially provide **\$115 million each year** in monetary and flood damage reduction benefits to the state of Kansas. Yet, despite providing significant benefits, Kansas watershed districts face several significant challenges, ranging from federal and state regulations, land rights acquisition issues, operation and maintenance requirements, and the ability to sustain a sufficient number of district board members. Many of these challenges increased substantially over the past 15 years and will only grow in the coming years.

A key challenge is securing sufficient funding to complete proposed structures and rehabilitate and maintain older structures. As each year passes, the cost of building new structures rises, making what seems infeasible today likely impossible for many watershed districts in just the next 10 years.

Today, only approximately 50% of over 3,000 total proposed watershed structures in Kansas are built, and only 10 of the 80 watershed districts in the state have completed all their proposed structures. Declining support from federal and state agencies is a key challenge. Since 2010, no federal funds have been allocated to watershed districts for new construction (NRCS 2015). New dam construction is now at nearly a complete halt.

Watershed districts also confront the related problem of rapidly aging structures, most of which were built during a period of strong federal and state support from the mid-1960s to the mid-1990s. Nearly 60% of dams in Kansas are more than 30 years old, and over one-third (34%) are over 40 years old. Life expectancy for watershed structures with an estimated 50 years of sediment storage is rapidly approaching. By 2025, 34% of existing dams in Kansas watershed districts will be over 50 years old. By then, many will have reached their estimated life expectancy based on the amount of sediment deposited in the principal spillway. Watershed districts are adapting to a changing funding climate by shifting from a focus on construction to maintenance and rehabilitation efforts. However, to continue reaping the multiple benefits of watershed projects, structures must be adequately maintained and rehabilitated.

¹ Several watershed districts have been proposed since 1953, however for the purposes of this research only the 80 current and active watershed districts in Kansas are included. A watershed district was not included, if the board was no longer active, if no structures were ever built, or if all structures in the watershed district had been decommissioned and were no longer being maintained by the watershed district board.

² Watershed project is used as an overarching term to include to all watershed conservation and flood control practices that are in place to reduce flood damage, including any of the practices that contribute to flood control but are not necessarily a dam (i.e., structure).

FORMATION AND CONSTRUCTION OF KANSAS WATERSHED DISTRICTS

The Flood Control Act of 1936 was the federal government's first effort to establish a national program for flood control. The reservoirs, levees, and channelization projects resulting from the Flood Act serve the needs of growing urban populations and protect rural farmlands and communities across the United States.

After the Flood Control Act of 1936, federal and state agencies developed a range of measures to extend the benefits of flood control. In Kansas, these measures focused especially on protecting and enhancing the state's natural resources. In 1953, the legislature passed the Kansas Watershed District Act (K.S.A. 24-1201 through 24-1237). The Kansas Watershed District Act allowed the formation of watershed districts, defined as an area comprising a watershed, or two or more adjoining watersheds, exclusive of lands within other organized watershed districts, for which organization is proposed or which has been organized under the provisions of the Act.

The Act gave watershed districts authority to "construct, operate and maintain works of improvement" needed to address water management problems resulting from erosion, floodwater, and/or sediment damage in the watershed. The Act stipulated that each district create a general plan of proposed works, estimate costs for installation, maintenance, and operation of the works, and identify areas within the district that would benefit from proposed structures (K.S.A. 24-1213). In order to build and maintain these structures, the Act gave watershed districts both the power of eminent domain (K.S.A. 24-1209) and the authority to levy annual taxes to create a "general fund for the payment of engineering, legal, clerical, land and interests in land, installation maintenance, operation and other administrative expenses and such tax may be against all of the taxable, tangible property of the district."

Since the Act was established 62 years ago, local citizens have developed 80 organized watershed districts in Kansas. With financial and technical support from a combination of federal, state, and local agencies, watershed districts proposed over 3,000 watershed structures. To date, districts have completed approximately one-half (1,539) of the proposed structures.

Two agencies are particularly important in the development of Kansas watershed districts: the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) and the Kansas Department of Agriculture-Division of Conservation (KDA-DOC). USDA-NRCS and KDA-DOC developed a series of programs that provide technical assistance to local organizations and share financial costs associated with the development and rehabilitation of watershed structures. Key among these programs are:

- P.L. 85-534 Flood Control Act of 1944
- Pilot Watersheds Program (1952-1954)
- P.L. 83-566 Watershed Protection and Flood Prevention Act
- Resource Conservation and Development Program (RC&D)
- KDA-DOC Watershed Dam Construction Program
- KDA-DOC Multipurpose Small Lakes Program

- Watershed and Flood Prevention Operations (WFPO)
- P.L. 106-472 Watershed Rehabilitation Program (Small Watershed Rehabilitation Amendments of 2000)
- KDA-DOC Watershed Dam Construction Program (Rehabilitation Component 2007)
- Agricultural Act of 2014 (Farm Bill 2014)

NRCS AND KANSAS WATERSHED DISTRICT

The USDA-NRCS Watershed Program was developed under the Flood Control Act of 1944 (P.L. 85-534) and the Watershed Protection and Flood Prevention Act of 1954 (P.L. 83-566). The Flood Control Act of 1944, also known as P.L. 534, authorized the construction of “public works on rivers and harbors for flood control,” while recognizing states’ rights to preserve and protect established and potential uses of the nation’s rivers. The Act authorized construction for new dams and allowed modifications to previously existing dams.

Today, both federal and state involvement has contributed to watershed districts efforts for more than 60 years. The historical transition of federal assistance began following the Soil Conservation Act of 1935. Under the Act, the Soil Conservation Service (SCS) was developed to implement soil erosion programs (Kansas Department of Agriculture 2015). This nation-wide effort put SCS offices in each state, and by 1942, Salina, KS had been selected as the location of the Kansas State Office (USDA-NRCS 2015). In 1953, the U.S. Secretary of Agriculture established the Pilot Watersheds Program, which formed the first five watersheds organized in Kansas under P.L.-566. The Pilot program was assigned to the federal soil conservation service (SCS) which is currently known as the Natural Resources Conservation Service (NRCS). State involvement, under Kansas legislature, relied on the renamed State Conservation Commission (SCC) to promote conservation efforts throughout Kansas. In 2011, the combination of the SCC and KDA resulted in a new board which is currently the Kansas Department of Agriculture-Division of Conservation (Kansas Department of Agriculture 2015).

The historical transition of this organizations name can be seen as general plans developed at different times over the past 60 years. General plans developed prior to 1994, will list the federal authority as either the SCC or SCS. Following the success of the Pilot Watershed Program, Congress enacted the Watershed Protection and Flood Prevention Act in 1954. The Watershed Protection and Flood Prevention Act, commonly referred to as P.L.-566, authorized a permanent nationwide program to assist flood control and watershed conservation. The Act aided local organizations in funding, planning, constructing, and rehabilitating structures in order to prevent loss of life and damage to property caused by erosion, floodwater, and/or sediment damages in watersheds. P.L.566 also authorized NRCS to work with state and local agencies to carry out works of improvement for soil conservation and for other purposes, including: flood prevention, conservation, utilization and disposal of water, and conservation and proper utilization of land. In addition to P.L.-566, other programs have contributed to the installation of proposed structures from the general plan, such as the Resource Conservation and Development Program (RC&D) which was introduced under the Food and Agriculture Act of 1962 and the Farm Security and Rural Investment Act of 2002 which included the Small Watershed Rehabilitation Program.

In Kansas, watershed districts are organized by a general plan. Every watershed district has a general plan outlining the proposed works of improvement. The most common works of improvement include floodwater retarding structures, detention dams, and stream channelization. If the watershed district

seeks federal assistance under PL-566, NRCS requires a work plan developed under the criteria in the NRCS National Watershed Manual (NWMP 2009). To receive funding under PL-566, the watershed district cannot exceed an area greater than 250,000 acres, nor include any single structure that provides more than 12,500 acre-feet of floodwater detention capacity and more than 25,000 acre-feet of total capacity. Because several Kansas watershed districts exceed the 250,000-acre limit, NRCS used work plans to create sub-watersheds within a larger watershed district.

Work plans are a subset of the general plan unique to NRCS. Each work plan includes the detailing of the proposed structures with associated costs and benefits to the local area. Under PL-566, the work plan must contain agriculture-related benefits that account for at least 20% of the total benefits of the project. Because work plans are a subset of the general plan, it is possible for the watershed work plan to complete the objective of the general plan or to have several watershed works plans within one organized watershed district.

In total, NRCS has approved 63 work plans across the 80 watershed districts in Kansas under the P.L.-566 program. Of the 63 approved work plans, 48 are complete and 15 are active, pending additional funding to complete the proposed structures.³

KDA-DOC AND KANSAS WATERSHED DISTRICT

In 1977, the Kansas legislature enacted the Watershed Dam Construction Program (K.A.R. 11-3-2), which appropriated annual funds to the Kansas Department of Agriculture, Division of Conservation for construction of flood detention and grade stabilization dams (Kansas Water Plan 2011). The program provides cost-share assistance to any organized watershed district, drainage district, or special purpose district to build flood control structures. Under the program, KDA-DOC has provided cost-share assistance for 557 watershed structures. Of these 557 structures, 552 have been completed across 53 watershed districts in Kansas. In addition to flood control structures, such as floodwater retarding structures and detention dams, KDA-DOC has developed a range of practices (listed in Table 1) that can be implemented by watershed districts. In a context of declining funding for new dam construction, these practices provide crucial, continued taxpayer investment in land treatment enhancements and soil and water conservation practices in Kansas watershed districts.

³ Currently, 46 of the completed 48 work plans exist within the 80 watershed districts, organized by the State of Kansas.

TABLE 1: KDA-DOC PRACTICES AND COMPONENTS

KDA-DOC Practices and Components	Code
Access Road	560
Animal Mortality Facility	316
Brush Control Management	314A
Brush Management	314
Channel Bank Vegetation	322
Closure Of Waste Impoundments	360
Composting Facility	317
Concentrated Non-Confined Livestock	390
Constructed Wetland	656
Contour Buffer Strips	332
Contour Buffer Strips Reseeding	332r
Critical Area Planting	342
Critical Area Planting Reseeding	342r
Dike	356
Diversion	362
Elimination Of Abandoned On-Site Wastewater System	110 A
Fencing	382
Fertilizer/Pesticide Containment Structure (Barriers, Operational Area/Loading/Rinsate Pads, Storage Buildings)	140
Field Border	386
Field Border Reseeding	386r
Filter Strip	393
Filter Strip Reseeding	393r
Forage And Biomass Planting	512
Forage And Biomass Reseeding	512r
Forest Stand Improvement	666
Grade Stabilization Structure	410
Grassed Waterway Or Outlet	412
Grassed Waterway Restoration	412r
Heavy Use Area Protection	561
Herbaceous Weed Control	315
Improvement Of Existing Water Wells	8
Irrigation System, Trickle	441
Irrigation Water Conveyance Pipeline	430DD
Irrigation Water Conveyance Pipeline	430EE
Irrigation Water Management	449
Land Smoothing	446
Lined Waterway Or Outlet	468
Livestock Waste System	312
Monitoring Well	353
Mulching	484

Nutrient Management	590
On-Site Wastewater System	110
Pipeline	516
Pond	378
Pond Restoration	378r
Pond Sealing Or Lining (Flexible Membrane, Soil Dispersant, Bentonite, Natural Clay)	521A-D
Precision Land Forming	462
Prescribed Grazing	528
Pumping Plant For Water Supply	533
Range Planting	550
Range Planting Reseeding	550r
Residue Management No Till/Strip Till/Direct Seed	329
Riparian Forest Buffer	391
Roof Runoff Structure	558
Sediment Basin	350
Spring Development	574
Stream Crossing	578
Streambank Protection	580
Streambank Protection Repair	580R
Streambank Riparian Buffer Incentive Payment	4
Streambank Signing Incentive Payment	1
Structure For Water Control	587
Subsurface Drain	606
Terrace	600
Terrace Restoration	600r
Tree/Shrub Establishment	612
Underground Outlet	620
Underground Outlet Restoration	620r
Unpermitted And Permitted Above Ground Fuel Storage Tank	700
Unpermitted Dump Site Remediation	120
Vegetated Treatment Area	635
Waste Storage Facility	313
Waste Transfer	634
Waste Treatment Lagoon	359
Water And Sediment Control Basin	638
Water Well	642
Watering Facility	614
Watering Facility Replacement	614r
Well Decommissioning	351
Wetland Creation	658
Wetland Enhancement	659
Wetland Restoration	657
Windbreak/Shelterbelt Establishment	380
Windbreak/Shelterbelt Renovation	650

A SHIFTING FOCUS: FROM CONSTRUCTION TO MAINTENANCE AND REHABILITATION

Today, there are 1,539 structures in the state’s 80 watershed districts. Since the formation of the first watershed district, Kansas has been at the forefront nationally in the construction of watershed structures. As Figure 1 shows, only Texas and Oklahoma lead Kansas in the total number of watershed structures.

Notably, Kansas has completed a higher percentage of its structures than either Texas or Oklahoma. In 2011, Kansas ranked 3rd nationally in the number of PL-566 dams (NRCS 2011). Figure 1 illustrates the trend in federally assisted dams under PL-566, nation-wide (NRCS 2011).

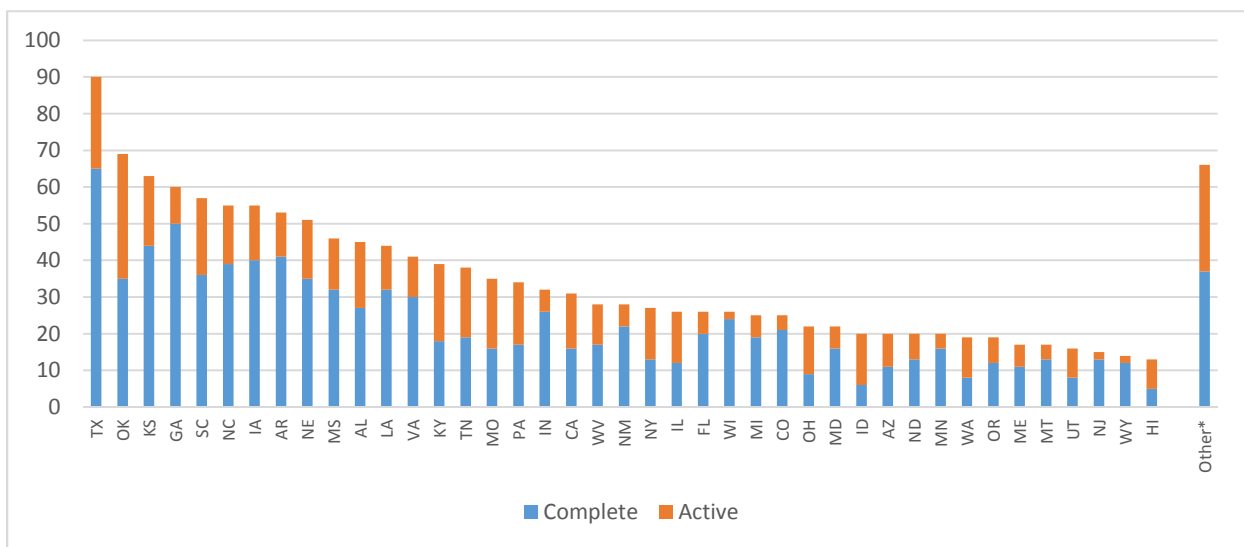


FIGURE 1: WATERSHED STRUCTURES BY STATE (SOURCE: NRCS 2011)

However, over 60 years since the creation of watershed districts in the state, Kansas watershed districts face a significant new challenge: aging infrastructures. Most of the state’s watershed structures were built in an extensive period of development from 1964 to 1980. The number of completed structures completed has declined every year since 1994, and in 2014, just two structures were completed. As a result, nearly 60% of dams in Kansas are now more than 30 years old, and over one-third of all dams (34%) are over 40 years old⁴. Figure 2 illustrates the number of all dams that were constructed in the organized watershed districts from 1954-2015.

⁴ Using the structure completion dates provided by DOC and NRCS, a total of 1,486 watershed structures were included in Figure 2, Figure 3 and Figure 4. The remaining 53 watershed structures were not included because a completion date was not listed. Structures that were built without federal or state assistance did not always have consistent data.

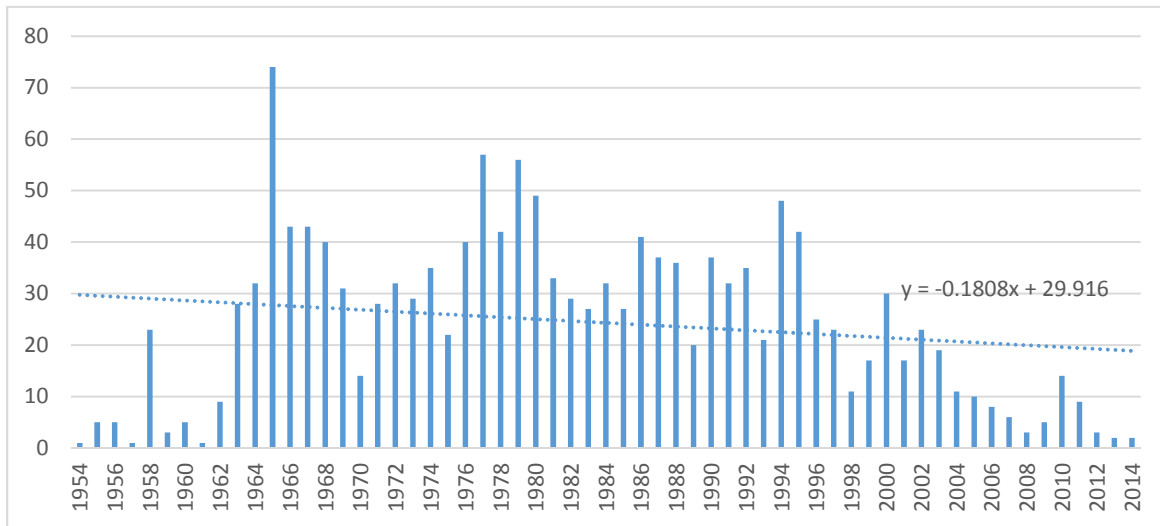


FIGURE 2: WATERSHED STRUCTURES COMPLETED BY YEAR (1954-2015)

The completed structures have been disaggregated into three assisting agencies consisting of state, federal and other funding. The number of structures that received assistance from each of the agencies are illustrated in Figure 3.

Watershed Structures Completed by Funding Assistance (1954-2015)

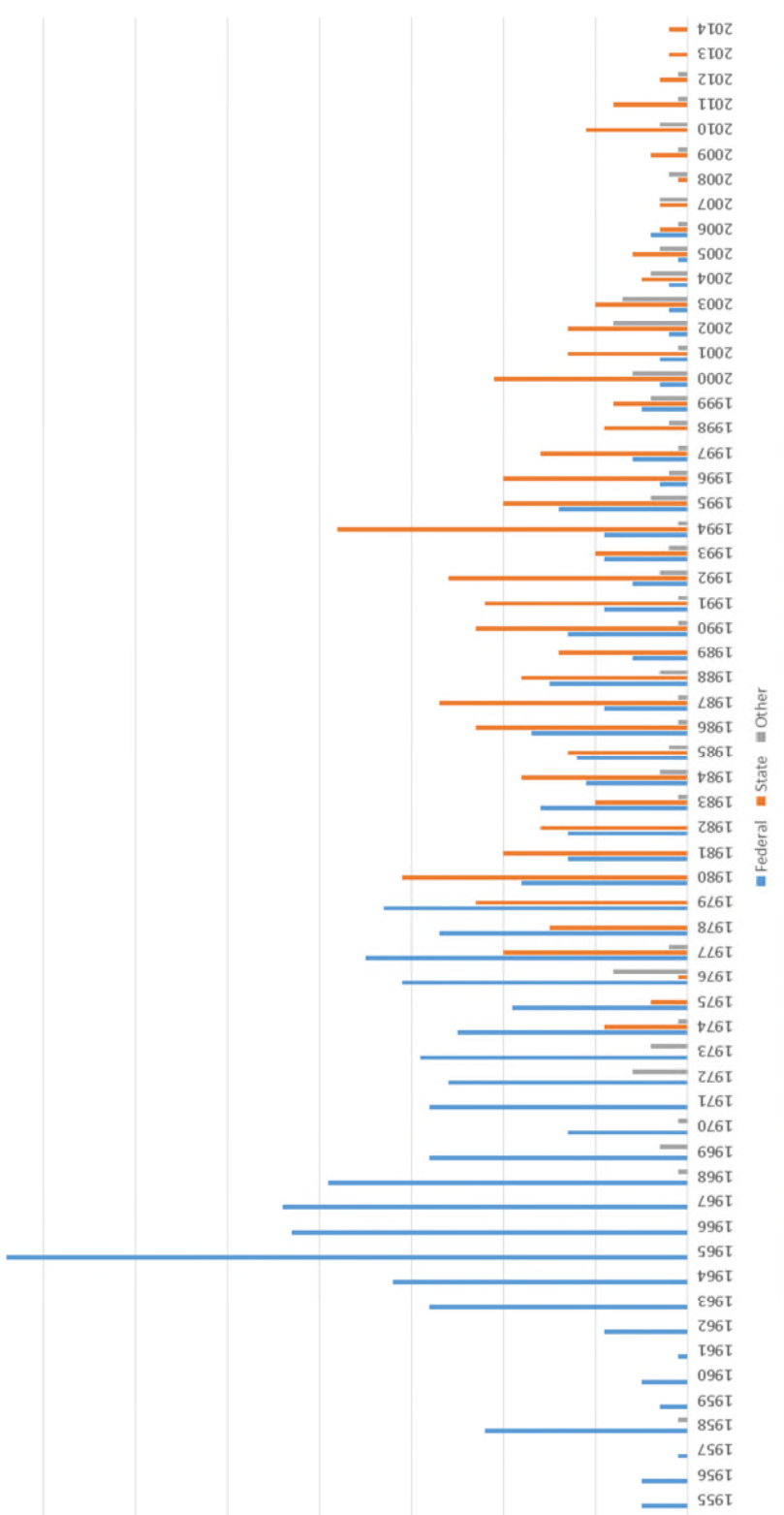


FIGURE 3: WATERSHED STRUCTURES BY FUNDING ASSISTANCE (1954-2015)

The U.S. Department of Agriculture projects design life for watershed structures at a maximum of 100 years after completion (NWMP 2009). Estimated structure life spans vary based on differences in design features and construction materials. However, USDA stipulates that the estimated sediment storage life for each structure must be no less than 50 years and no more than 100 years (NWMP 2009).

Life expectancy for watershed structures with an estimated 50 years of sediment storage is rapidly approaching. As Figure 4 shows, nearly 13% (n = 187) of all watershed structures in the state of Kansas are now over 50 years old. The number of 50-year-old structures will only increase going forward.

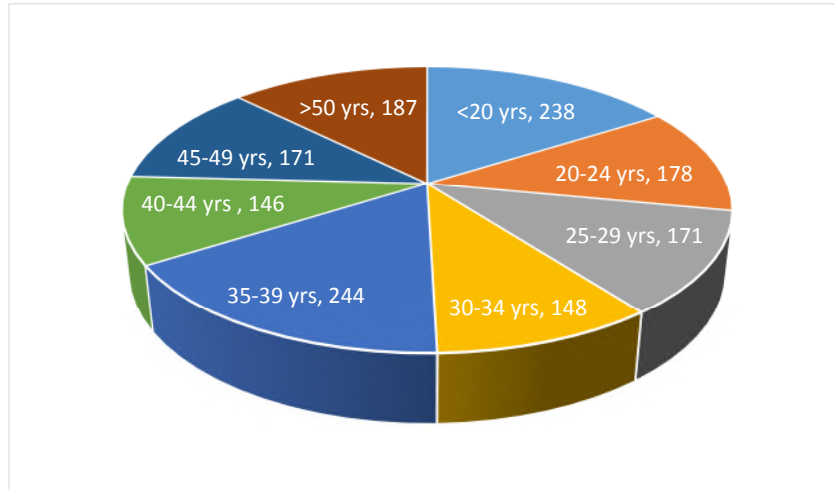


FIGURE 4: NUMBER OF KANSAS DAMS BY AGE (2015)

By 2025, 34% (n = 504) of currently existing dams will be over 50 years old (see Figure 5). By then, many will have reached their estimated life expectancy based on the amount of sediment deposited in the principal spillway.

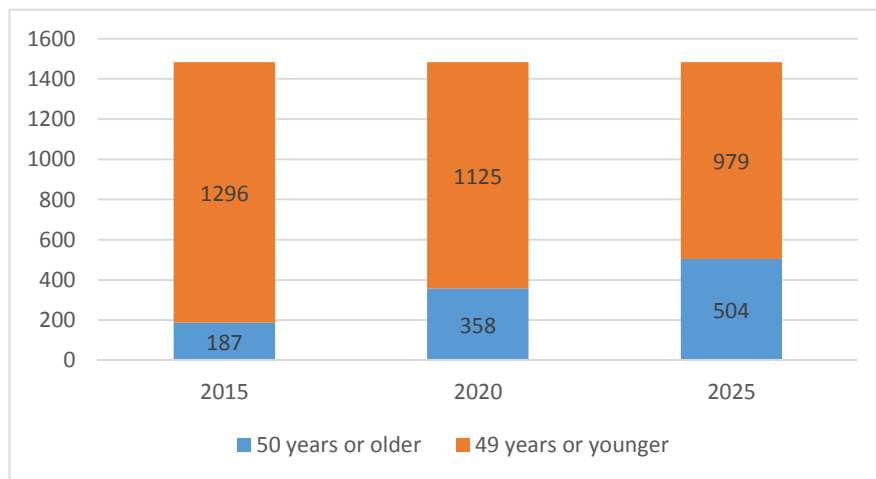


FIGURE 5: NUMBER OF WATERSHED STRUCTURES BY AGE OF STRUCTURES (2015-2025)

In order for Kansans to continue reaping the multiple benefits from flood damage reduction, especially during high rain events, watershed structures must be maintained and rehabilitated. Proper maintenance and rehabilitation can extend a dam’s design life. While the requirements of state and federal assistance vary, both USDA-NRCS and KDA-DOC continue to support watershed districts through the establishment of rehabilitation programs. However, federal appropriations for watershed programs have declined significantly. As shown in Figure 6, federal funding support peaked in year 1994 and has declined annually since 2003.

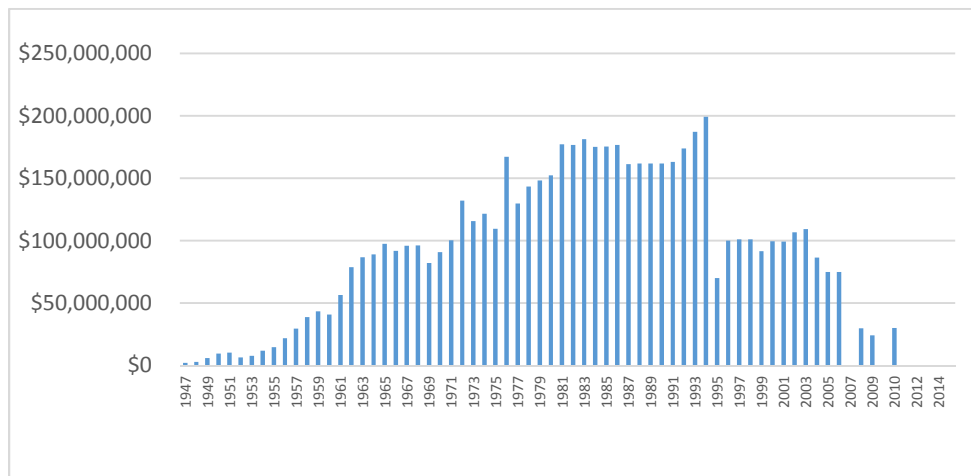


FIGURE 6: FEDERAL WATERSHED OPERATIONS FUNDING (1947-2015) (SOURCE: NRCS 2011)

Since 2010, the federal government has not authorized any appropriations. As a result of declining federal funding and aging infrastructures, the focus of watershed districts is shifting from new construction to what most watershed districts refer to as “maintenance mode.”

Both USDA-NRCS and KDA-DOC have developed programs to assist with maintenance and rehabilitation. NRCS administers these programs under the Watershed Rehabilitation Program (P.L. 106-472), established in 2000. The purpose is to extend the service life of dams and to provide assistance for dams unable to meet safety and performance standards. NRCS regulations require that only structures constructed under P.L.-534, P.L.-566, Pilot Watershed Program, and RC&D programs are eligible to receive assistance from the rehabilitation program. Under this program, NRCS used funds to complete 88 dam assessments and provided up to 65% of the total cost of three rehabilitation projects in Wakarusa WJD No. 35, Switzler Creek WD No. 63, and Spring Creek WJD No. 16. In addition, the Agricultural Act of 2014, commonly referred to as 2014 Farm Bill, has provided funding for six future rehabilitation projects in Butler and Sedgwick Counties under P.L.-566 (NRCS 2015).

The State Rehabilitation Program is a component of the State Watershed Dam Construction Program under KDA-DOC. KDA-DOC defines rehabilitation as any work to extend the service life of a dam and to meet the applicable safety performance standards (K.A.R. 11-3-1). Dams found to have inadequate operation and maintenance are excluded. The state rehabilitation program offers assistance to any watershed district or structure by providing up to 70% cost-share and an additional 10% for engineering fees. Since the program’s inception in 2007, at least 76 structures have received over \$2.5 million in state cost-share assistance for rehabilitation.

BENEFITS OF WATERSHED PROJECTS

Watershed projects⁵ provide many benefits to industry, agriculture, transportation, and recreation in the state of Kansas. In total, watershed projects potentially provide \$115 million of monetary and flood damage reduction benefits to the state of Kansas each year, along with a range of non-monetary benefits for infrastructure (roads and bridges), farms and ranches, households, recreation opportunities, and environmental conservation. Below, the methodology used to determine benefits from watershed projects is described. There are two important notes regarding the methodology used to determine benefits figures.

First, benefits figures are only accurate when all of the structures in the watershed district are completed. Much work remains for Kansas watersheds. Today, approximately 50% of over 3,000 proposed watershed structures in Kansas are not yet built. Only 10 of the 80 watershed districts have fulfilled their general plans. As each year passes by, the costs of building new structures will grow, making what seems infeasible today impossible for many districts in the next 10 years. Continuing watershed efforts will be crucial to the livelihoods of more than 1.8 million Kansans (U.S. Census 2013) that live within the 80 organized watershed districts.

Second, flood damage reduction benefits and monetary benefits account for all the proposed structures listed in the general plan. Before the mid 1980's, general plans did not separate the benefits received per structure. The benefits calculated represented all completed structures within the entire watershed district. After the mid 1980's, general plans started to incorporate benefit/cost ratios per structure. These ratios were meant to determine if the benefit received by a new structure outweighed the cost of building it. The benefit/cost ratio for new construction requires that the ratio is greater than 1:1.1. However, there is no information in the general plan that details out the flood damage reduction benefits and monetary benefits received by each individual structure. Further analysis of the benefits from completed structures should be considered an option in the future.

DETERMINING BENEFITS

Benefits from watershed projects are categorized as non-monetary, monetary, or flood damage reduction.

Non-monetary benefits account for the number of direct beneficiaries in the watershed district, including farms and ranches, households, and areas of enhanced streams, lakes, and riparian habitats. Watershed districts benefit a very wide array of peoples, places, and infrastructures in Kansas. There are over 45,000 farms and 711,000 households within watershed districts in Kansas, and as shown in Figure 7, watershed districts protect 32,390 miles of state and non-state roads, 2,342 miles of railroads, 5,868 state and non-state bridges.

⁵ Watershed project is used as an overarching term to include to all watershed conservation and flood control practices that are in place to reduce flood damage, including any of the practices that contribute to flood control but are not necessarily a dam (i.e., structure).

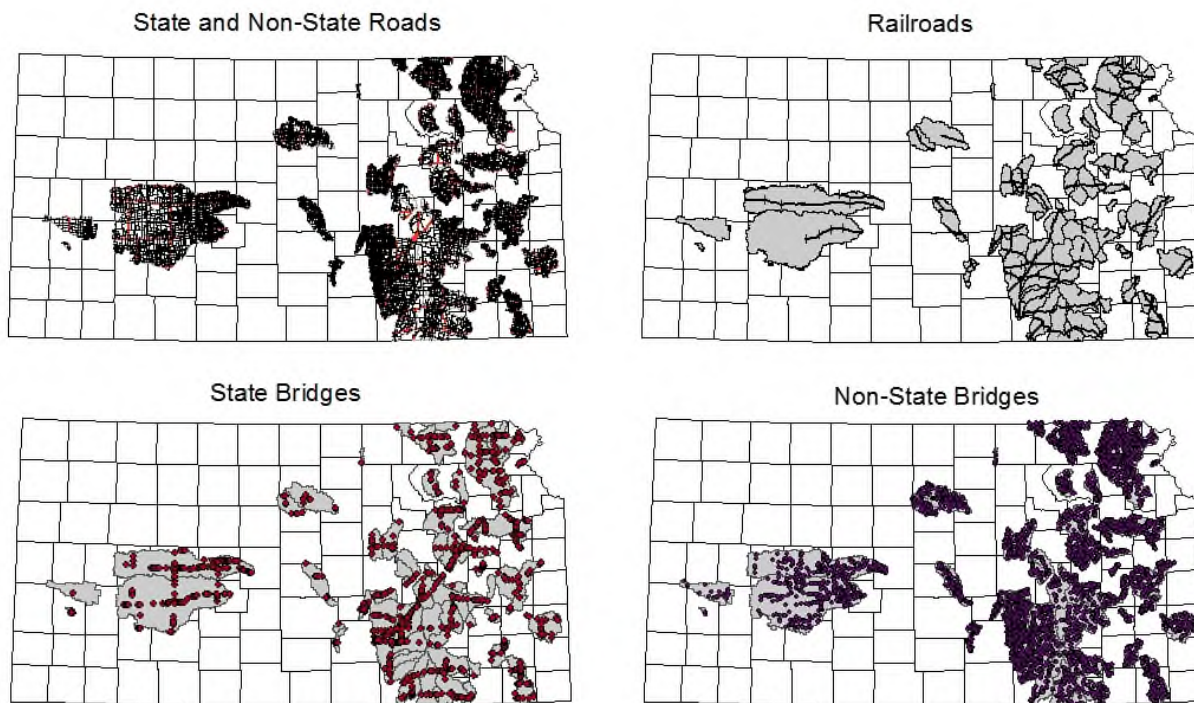


FIGURE 7: INFRASTRUCTURE WITHIN KANSAS WATERSHED DISTRICTS

Monetary and flood damage reduction benefits are listed in each watershed district’s general plan according to whether the benefit is deemed primary (direct) or secondary (indirect). Primary benefits include: (1) reduced flooding which affects crop and pastures, other agricultural areas, and transportation routes such as roads, railroads and bridges; and (2) reduced erosion in terms of sediment damage, gully, swamping, and floodplain scour. Landowners report that ability to decrease the frequencies of floods, lower floodplain scour, and reduce sediment damage translates into fewer losses to crops, livestock, farmsteads, and equipment:

“We have 150 acres of farm ground. When we were full tilling it, we plowed 8 inches deep, and I’ve seen that field washed off to the hardpan. How many tons of silt left that field, 2 or 3 times? We are no tilling now.”

Landowner

Watershed projects also have secondary benefits for transportation, processing, and marketing agricultural commodities. Flood control protections reduce damage and maintenance costs associated with transportation, and allows for additional processing and marketing of agricultural commodities. These benefits play a vital role in the livelihoods of farmers in the areas. Landowners repeatedly emphasize the importance of these benefits for maintaining the tax base in agricultural areas:

“It was going to flood all of Flush and a lot of the good farm ground which would have made the tax base – in other words, there would have been no taxes paid on all that ground so Pottawatomie County would have suffered greatly on taxes.”

Landowner

Watershed projects also support recreation in the form of fishing, hunting, boating, camping, picnicking and other outdoor activities, all of which can add value to properties:

“Flood control and flood defense is what these [structures] are [for]. But then you have incidental recreation. Now there is a pond in their own back yard. They can probably do a little bit of fishing. They can eat while the kids play. Your house will actually be more valuable with a little puddle of water, maybe 3 or 4 acres, instead of just sitting in the middle of the nowhere.”

KDA Representative

Often, watershed projects provide sanctuary as reliable water sources for fish and wildlife. Watershed districts may work with the Kansas Department of Wildlife, Parks, and Tourism to limit impacts from watershed structures on wildlife and improve habitat.

One such example is the Topeka Shiner (*Notropis Topeka*), an endangered species that requires high-quality fresh water and minimal disturbances to its habitat. In the Kansas River basin, Mill Creek

Watershed District No. 85, shares its waters with the Topeka Shiner. The Shiner was first considered for listing in 1991 and has been listed on the endangered species list since December 1998 (USFWS 2015). While this small minnow has had to face habitat destruction, fragmentation, reduced water quality, and dewatering, to name a few, its largest remaining complex of habitat exists within the Mill Creek Watershed (Fish and Wildlife Service 1998). In what might seem like an unfathomable task for many watershed districts, board members of Mill Creek WJD No. 85 recognized early on that reducing flood damage to the residents of Paxico and surrounding areas would make it necessary to work with the Kansas Department of Wildlife, Parks, and Tourism (KDWP&T) and the United States Fish and Wildlife Service (USFWS) to develop a conservation plan for the Topeka Shiner: A 5-year status review of the Topeka Shiner’s habitat conducted by the U.S. Fish and Wildlife Service removed three states including Kansas from the critical habitat areas (USFWS 2009).

“We are stewards of the properties that were given through our ancestors. We intend to remain stewards and carry that forward to our future generations. So, we are not interested in obliterating the Topeka Shiner or any other species. We want to figure out how we can work together.”

Contracting Officer

Over a two-week period, biologists accessed 48 out of 50 landowner sites to determine where the species was most propagated and where it was the least propagated. This led to a conservation agreement between Mill Creek WJD No. 85, USFWS and KDWP&T to build dams where they would not infringe on the Shiner’s native habitat. Since 1997, the USFWS and KDWP&T returned every five years and have found an increase in the population of Topeka Shiner’s resulting from the efforts of Mill Creek WD No. 85 to create an environment with low predation that mimics a natural spring using slow dam releases:

“What was most unique about this process is that it was the first time a local, a state and a federal governmental entity came together and designed a plan for the propagation and benefit of the conservation agreement for an endangered species. That never has happened before.”

Contracting Officer

FLOOD DAMAGE REDUCTION BENEFITS

Each general plan proposes flood damage reduction benefits that indicate the potential dollar amount saved by Kansas taxpayers and local stakeholders in the event of a flood, if all of the proposed structures in the plan are completed. A general plan may have subsets if federal assistance was received. These subsets have separate work plans, which will also include flood damage reduction benefits for the structures listed in that work plan. For completed structures, flood damage reduction benefits reflect the current dollar value saved as a result of installed structures.

Watershed structures have agricultural and non-agricultural benefits. Table 2 shows the most common benefit categories listed in general plans. On the agricultural side, these benefits include reduced damage to croplands, pasturelands, and fences, and lower risks of floodplain scour and downstream erosion. Non-agricultural benefits include reductions in flood damage to roads, bridges, railroads, and urban environments.

TABLE 2: MOST COMMON FLOOD DAMAGE REDUCTION BENEFITS

Most Common Flood Damage Reduction Benefits	
Agriculture	Non-Agriculture
Crop and Pasture	Forestry
Erosion/grade stab.	Silt and Debris Deposition
Floodplain Land Damage	Oil Damage
Indirect Damage	Sediment Damage Overbank Deposition
Noxious weeds	Road, Railroad & Bridge
Other Agriculture	Urban and Indirect

With over 45,000 farms in Kansas (US Census 2013), agriculture is a key component of the state’s economy. Watershed districts play an important role in protecting the Kansas agricultural economy. Figure 8 illustrates the differences from flood damage reduction benefits between agricultural and non-agricultural flood damage reduction benefits if all of the proposed structures from general plans are completed. Of the total flood reduction benefits, nearly 80%, over \$50 million, accrues to agriculture.

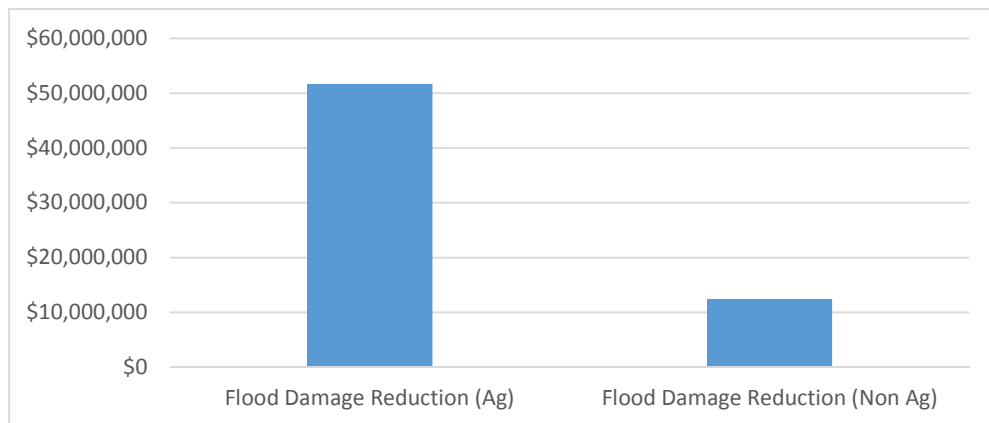


FIGURE 8: FLOOD DAMAGE REDUCTION BENEFITS, AGRICULTURAL AND NON-AGRICULTURAL

MONETARY BENEFITS

Monetary benefits from works of improvement include grade stabilization, floodwater retarding structures, stream channel improvement, and detention dams. Each general plan details these benefits in order to determine whether the benefit of the structures outweighs the cost of the entire project. These benefits, listed in Table 3, are categorized as agricultural or non-agricultural monetary benefits.

TABLE 3: TYPES OF MONETARY BENEFITS

Types of Monetary Benefits	
Agriculture	Non-Agriculture
Agriculture Water	Reservoirs
Changed Land Use	Municipal and Industrial Water Supply
Ephemeral Streams	Environmental Enhancement
More Intensive Land Use	Water-based Recreation
Off-Project/Outside Watershed	Redevelopment
Domestic and Livestock Water	Rural Fire Protection
Tributary	Misc., Incidental and Secondary Benefits
Stored Water Use	Water Quality
Recharge	Stream Fishery
Groundwater Recharge	
Conservation Benefits	

The installation of these structures is meant to improve the management of the benefited area by enhancing the land through conservation measures, such as terracing, while preventing further land damage to the area. In total, all proposed structures provide more than \$50 million of monetary benefits. As Figure 9 illustrates, nearly two-thirds (\$33 million) of these benefits accrues to agriculture.

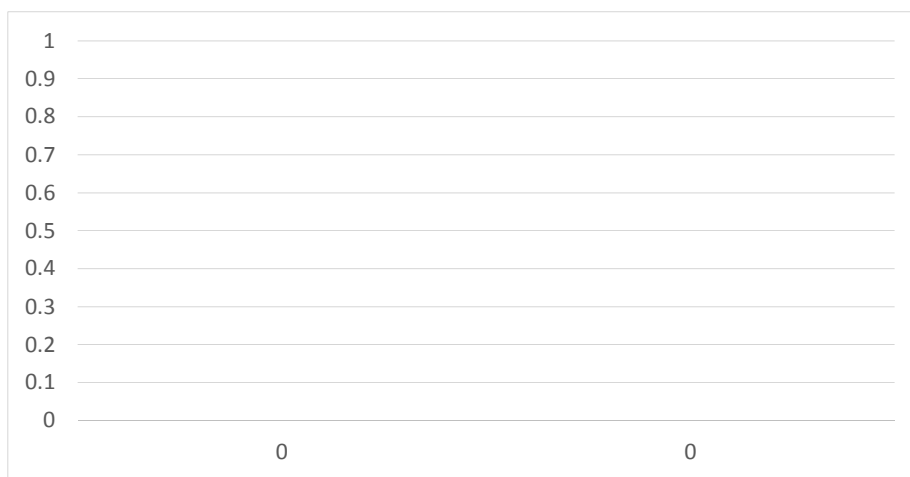


FIGURE 9: MONETARY BENEFITS, AGRICULTURAL AND NON-AGRICULTURAL

TOTAL AVERAGE ANNUAL BENEFITS

Combining average annual benefits from flood damage reduction and monetary benefits produces the total average annual benefits figure. Figure 10 details the total benefits to all watershed districts if all dams in the proposed general plan are completed. Nearly 73% of the benefits from watershed districts accrue to agriculture in the form of flood damage reduction (45% of all benefits) and monetary benefits (28% of all benefits). Non-agricultural benefits are also significant, accounting for over one-quarter (27%) of all benefits.

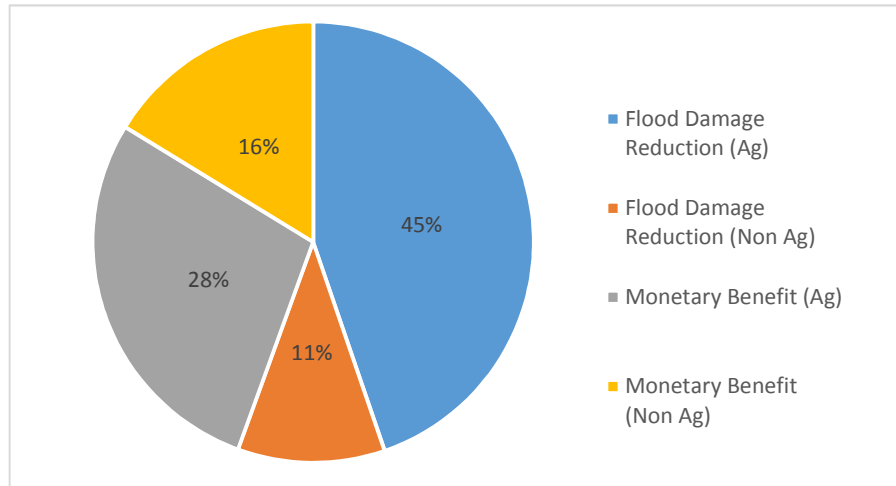


FIGURE 10: AVERAGE ANNUAL BENEFITS BY PERCENTAGE

Again, these average annual benefits are only recognized if every structure in the watershed district is complete. Determining the benefit of *each watershed structure* would provide the most accurate benefits figure. However, a change in the method used to determine benefits makes this a challenge. Watershed districts organized between 1950 and the mid-1980s only calculated the average annual benefit for each watershed district in its entirety, given the completion of each proposed watershed structure. Around 1985, there was a transition in the way watershed districts prepared their general plans. Since 1985, most general plans include a benefit/cost ratio *per structure*, which could allow calculation of a more accurate benefits figure. However, because a very large number of structures in Kansas were completed before the mid-1980s, it was not possible to determine per-structure benefits for the entire time frame of this study (1950-present).

The total average annual benefits include all State, Federal, Other and Combination watershed districts, (see Table 6)⁶. Figure 11 illustrates how the \$115 million average annual benefits are broken up between the watershed districts. The average of the state and federal average annual benefits is \$54 million each, while average annual benefits from proposed structures by watershed districts identified as either combination or other account for the remaining 5% (approximately \$5 million).

⁶ The district total includes \$27,210 in land treatment measures that would contribute to the average annual benefits

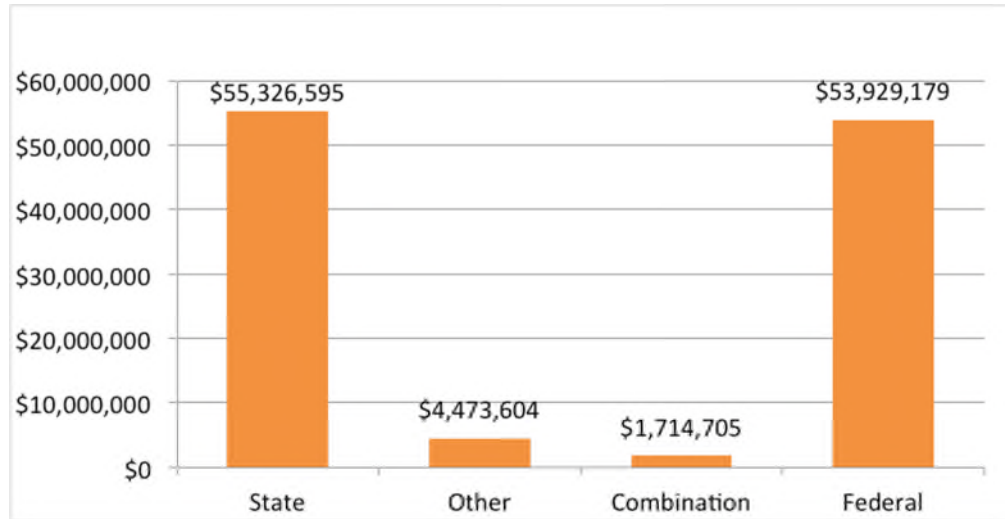


FIGURE 11: AVERAGE ANNUAL BENEFITS BY FUNDING ASSISTANCE

PRICE/COST INDICES

Because structures within watershed districts were constructed in different years, it is necessary to adjust cost and price figures to current values using price/cost indices. The following sources were used for these calculations:

- Project Benefit Analysis, KLA Environmental Services
- USDA-National Agricultural Statistic Service, Quick Stats Ad-hoc Query Tool
- Engineering News Record, Construction Cost Index History
- Consumer Price Index-All Urban Consumers
-

Benefits listed in the general plan are based on a price base prior to the approval of the plan. If the plan includes amendments, the benefit allocation may be changed as structures were removed or added. In the case of plans with amendments, the price base from the last documented change in the general plan was used to determine the value of the benefits. The economic indices listed in Table 4 were used to calculate the original price base from each watershed district's general plan to the 2014 price base.

TABLE 4: PRICE BASE 2014

Price Base 2014	
Prices received by farmers	173.00
Prices paid by farmers	225.00
ENR Construction Cost	9936.44
Land Value	1300.00
Consumer Price Index	236.15

Monetary benefits from all planned structural and land treatment measures are in the general plan or work plan for each district. For this report, flood damage reduction benefits allocated to each general plan are indexed to reflect current values using the price and cost indices described in Table 4.

Using the aforementioned references and discussion with representatives from KDA-DOC, KDA-DWR and NRCS, monetary and flood damage reduction benefits were categorized into one of the economic indices listed in Table 4. A further breakdown of the monetary benefits and flood damage reduction benefits listed by economic indices are noted in Table 5.

TABLE 5: AVERAGE ANNUAL BENEFITS BY ECONOMIC INDEX

Benefit Item	Index	2014 Price Base
Crop and Pasture	Prices received by farmers	173.00
Other Agricultural	Prices paid by farmers	225.00
Sediment	ENR Construction Cost	9936.44
Sediment Control	ENR Construction Cost	9936.44
Sediment Damage Swamping	ENR Construction Cost	9936.44
Sediment Overbank Deposition	ENR Construction Cost	9936.44
Sediment Storage	ENR Construction Cost	9936.44
Siltation Reduction	ENR Construction Cost	9936.44
Road, Bridge and Railroad	ENR Construction Cost	9936.44
Private Recreation	ENR Construction Cost	9936.44
Comb Grade Stabilization and FRS	ENR Construction Cost	9936.44
Deposition	ENR Construction Cost	9936.44
Grade Stabilization	ENR Construction Cost	9936.44
Swamping	Land Value ¹	1300.00
Changed Land Use	Land Value ¹	1300.00
Erosion	Land Value ¹	1300.00
More Intensive Land Use	Land Value ¹	1300.00
Forestry Land Treatment	Land Value ¹	1300.00
Gullies	Land Value ¹	1300.00
Indirect Land Use Change	Land Value ¹	1300.00
City of Madison	Consumer Price Index	236.15
Indirect	Consumer Price Index	236.15
Misc., Incidental and Secondary Benefits	Consumer Price Index	236.15
Local Secondary	Consumer Price Index	236.15
Municipal and Industrial Water Supply	Consumer Price Index	236.15
Structural Measures	Consumer Price Index	236.15
Secondary Benefits	Consumer Price Index	236.15
Rural Fire Protection	Consumer Price Index	236.15
Recreational, Environment Enhancement	Consumer Price Index	236.15
Reservoir	Consumer Price Index	236.15
Stock water	Consumer Price Index	236.15
Stream Fishery	Consumer Price Index	236.15
Towanda Reservoir	Consumer Price Index	236.15
Traffic Interruption	Consumer Price Index	236.15
Transportation	Consumer Price Index	236.15
Tribe Benefits	Consumer Price Index	236.15
Urban	Consumer Price Index	236.15
Water Conservation	Consumer Price Index	236.15
Water Quality	Consumer Price Index	236.15
Benefits Outside Watershed	Consumer Price Index	236.15
Oil Installations	Consumer Price Index	236.15
Groundwater Recharge	Consumer Price Index	236.15
Outside Watershed Boundaries	Consumer Price Index	236.15

Using these economic indices, the current (2014) value of average annual benefits would be \$115 million if all proposed structures are complete. As Figure 11 illustrates, most of the benefits from watershed district projects accrue to agriculture, which receives nearly \$50 million of flood reduction benefits and over \$30 million in monetary benefits, annually. There are also significant benefits for non-agricultural entities, which receive over \$30 million in total average annual benefits from watershed districts.

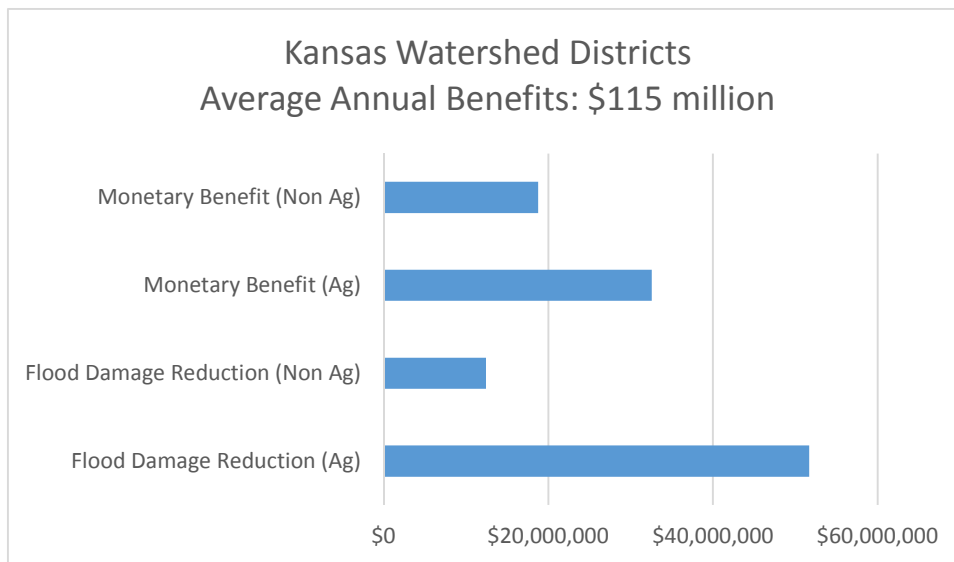


FIGURE 12: KANSAS WATERSHED DISTRICTS AVERAGE ANNUAL BENEFITS: \$115 MILLION

CLASSIFYING BENEFITS BY FEDERAL AND STATE SUPPORT

It is possible to classify benefits according to the amount of federal and state support for watershed districts. To do this, watershed districts must be classified based on the agency funding the majority of the completed structures within each watershed district. Using this definition, the following categories are used to classify benefits by agency support: State, Federal, Combination, or Other.

A district is considered to be “federal” if the majority of the completed structures received federal assistance.⁷ A district is considered to be “state” if the majority of the completed structures received state support.⁸ A district with an equal number of structures completed by two or more agencies is considered to be a “Combination” district. A district with a majority of structures funded by agencies other than the state or federal government is considered to be “Other.” Table 6 lists watershed districts using this method of classification.

⁷ Federal structures that were completed under PL-566 or RC&D, which are not part of the 80 organized watershed districts, are not included in this report.

⁸ Although all state funding is available for any watershed structure in Kansas, this is not the case for federally funded dams. In order for a federal dam to receive rehabilitation assistance, which is now a major focus of watershed districts, the dam must have originally been a federally assisted structure.

TABLE 6: WATERSHED DISTRICTS SEPARATED BY HIGHEST PERCENTAGE OF FUNDED SITES

Watershed Districts Separated by Highest Percentage of Funded Sites	
Federal	State
Andale WJD No. 9	Allen Creek WD No. 89
Bee Creek WJD No. 15	Cedar Creek WJD No. 56
Big Caney WJD No. 31	Deer Creek WJD No. 55
Cimarron WD No. 3	Delaware WJD No. 10
Cross Creek WJD No. 42	Diamond Creek WJD No. 61
Dry Creek WJD No. 57	Doyle Creek WJD No. 86
Duck Creek WJD No. 59	Eagle Creek WD No. 77
Elk River WJD No. 47	Grouse-Silver Creeks WJD No. 92
Fall River WJD No. 21	Horseshoe Creek WJD No. 110
Frog Creek WJD No. 19	James Draw WJD No. 87
Grant-Shanghai WD No. 14	Labette-Hackberry Creek WJD No. 96
Jacobs-Phenis Creeks WJD No. 94	Marais Des Cygnes DD 1
Lakin WD No. 49	Marmaton WJD No. 102
Little Delaware-Mission Creeks WJD No. 5	Mill Creek WD No. 98
Little Walnut-Hickory WJD No. 18	Mill Creek WJD No. 85
Lyons Creek WJD No. 41	Mount Hope WJD No. 54
Middle Creek WJD No. 62	Nemaha-Brown WJD No. 7
Mission Creek WD No. 51	Otter Creek WJD No. 83
Muddy Creek WJD No. 27	Pony Creek WJD No. 78
Rock Creek WJD No. 28	Pottawatomie Creek WJD No. 90
Salt Creek WJD No. 46	Rock Creek WD No. 45
Silver Creek WD No. 25	Rock Creek WJD No. 84
Snipe Creek WD No. 69	Roy's Creek WD No. 75
South Fork WJD No. 76	Salt Creek WJD No. 104
Spillman Creek WJD No. 43	Tauy Creek WJD No. 82
Spring Creek WJD No. 16	Tri-Creek WJD No. 100
Switzler Creek WD No. 63	Upper Little Arkansas WJD No. 95
Thompsonville WD No. 6	Upper Marais des Cygnes WJD No. 101
Timber Creek WJD No. 38	Walnut-West Creeks WD No. 72
Turkey Creek WJD No. 32	Wolf River WJD No. 66
Twin Caney WJD No. 34	
Upper Black Vermillion WJD No. 37	Other
Upper Verdigris WJD No. 24	Cedar Creek WJD No. 56
Upper Walnut WJD No. 33	Cherry-Plum Creeks WJD No. 17
Vermillion Creek WJD No. 70	Middle Walnut WJD No. 60
Wakarusa WJD No. 35	Pawnee WJD No. 81
Walnut Creek WD No. 1	Sand Creek WJD No. 68
Wet Walnut Creek WJD No. 58	Turkey Creek WJD No. 109
White Clay Brewery, Whiskey Creeks WJD No. 26	
Whitewater River WJD No 22	
Combination	
Long-Scott Creeks WD No. 93 (State/Other)	Big Creek WJD No. 48 (State/Fed)
Turkey Creek WJD No. 103 (State/Other)	Peyton Creek WD No. 71 (State/Fed)

Based upon this classification, Figure 13 presents average annual benefits for the four types of watershed districts identified in Table 6: State, Federal, Combination, and Other. Again, these average annual benefits are based on the completion of all proposed structures from each watershed districts general plan.

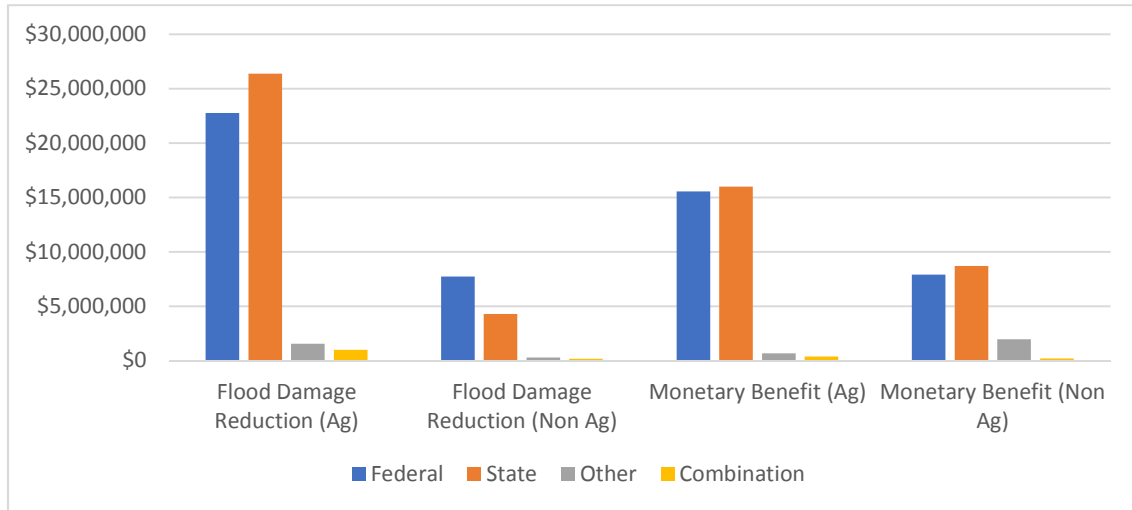


FIGURE 13: AVERAGE ANNUAL BENEFITS BY TYPE OF WATERSHED DISTRICT

LOOKING AHEAD: CHALLENGES

Despite generating significant benefits to citizens, Kansas Watershed Districts have faced challenges since their inception. These challenges increased significantly over the past 15 years, ranging from aging structures and securing sufficient financial support, to increased federal and state regulations, land rights acquisition issues, operation and maintenance requirements, and the ability to sustain an ample number of local watershed board members.

These challenges are described in more detail below, drawing on in-person interviews with 20 stakeholders representing over 30 Kansas watershed districts. The overall objective of the interviews was to learn more about stakeholder perceptions of a range of issues related to watershed districts and watershed management issues, past, present, and future. In an attempt to gain feedback from as wide a range of stakeholders as possible, interviews were held with landowners, contracting officers, district managers, district board members, as well as representatives from KDA-DOC, KDA-DWR, and USDA-NRCS. Interviews ranged between 10 minutes and 2 hours in length, with an average of 30 minutes. Interviewees were guaranteed anonymity to encourage them to speak more candidly. As a result, only general titles are used below to attribute quotations.

FINANCIAL CHALLENGES

Watershed districts faced growing financial challenges, culminating recently with the loss of federal or state funding for new construction in 2010. Since 2010, watershed dam construction has come to almost at a complete halt, with only an average of 1-3 dams constructed annually since 2012. Watershed districts now must fund structures either internally through local mil levies or with federal and/or state agencies funding allocated prior to 2010.

Rising project costs present another financial challenge. For the past decade, KDA-DOC provided watershed districts up to \$120,000 per site for new dam construction. However, watershed districts continue to struggle to keep up with rising costs:

“We had one built in 73. It cost \$9,000 to build that structure. It’s a small structure but it’s still good and it’s still doing what it is supposed to do. And if we were to build that structure today, you are talking about \$90,000, plus. So the cost has just gotten tremendous, counting engineering. They run close to \$200,000, plus. The state, bless their heart, they give us \$120,000 if we qualify. But then you’re looking the engineering- maybe it cost \$50-60,000. And the cost of the contractors has gone up considerably. They went from building a structure from \$1.25 a yard to \$5.00 for a quarter for a yard... So \$120,000, I mean that’s good. But when a site now costs \$250,000 and a mil of watershed districts that maybe take in \$30,000 a year. They’d have to wait 6 or 7 years to build one structure. It just has been very frustrating and consequently, my job with the little watersheds I work with, aren’t doing anything because they take care of their own structures and that’s about all they can do. The Corps [of Engineers] [has] got them shut down. And the State. I mean, it isn’t there fault either. There’s not money available for us. There just isn’t money.”

Contracting Officer

The Kansas Watershed District Act gives watershed districts the power to levy taxes to support construction and operations to maintain structures. Since each watershed district has the power to levy their own taxes, the mil levy is at the discretion of the watershed district board. Tax levies vary considerably across watershed districts in Kansas. Among watershed districts that do levy taxes, most

only generate revenue sufficient to maintain current structures, not build new structures. Some watershed district boards have refrained from implementing a mil levy because of a general resistance to taxation:

“The other idea, the state says to raise your taxes. Well, we have raised the taxes several times, but you start to raise the taxes on 40 of your neighbors, they’re starting to say you know “when is enough?”

Board Member

In addition to their limited ability to raise revenues internally through mil levies, watershed districts also face a more difficult external funding climate, as evidenced by much lower dam construction figures. Figure 14 illustrates the trend in dam construction from PL-566, Pilot program, and PL-534 funding over the period, 1948-2008 (P.L. – 566, Fiscal Year 2011 Update, NRCS).

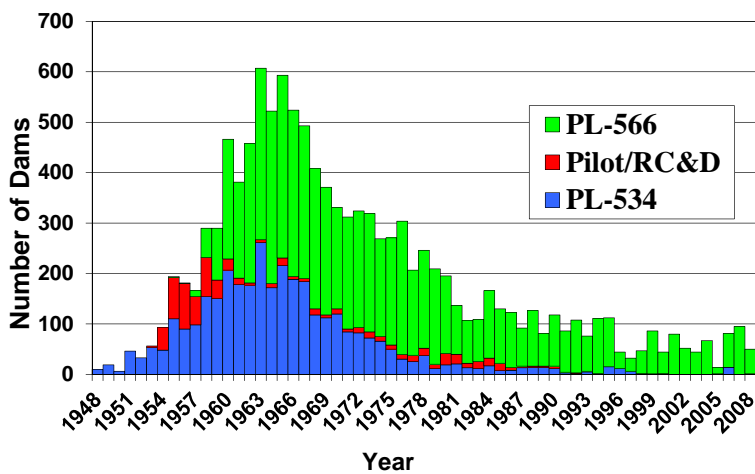


FIGURE 14: FEDERAL WATERSHED DAMS CONSTRUCTED BY YEAR (SOURCE: NRCS 2011)

According to the Congressional Research Service, no funding was appropriated in fiscal year 2010 for the NRCS Watershed and Flood Prevention Operations, also referred to as the Small Watershed Program. Figure 15 demonstrates how the decline in funding has corresponded to the reduced number of watershed structures being built across Kansas.

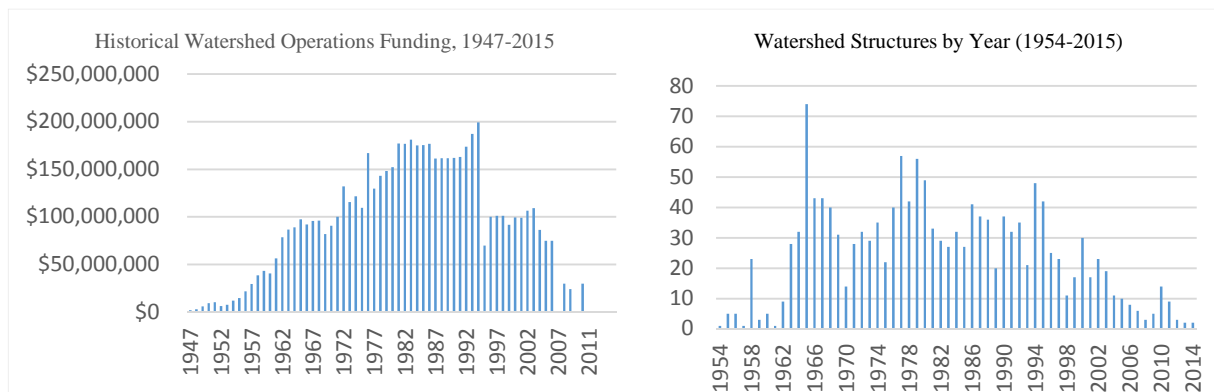


FIGURE 15: COMPARISON OF FEDERAL FUNDING AND ALL WATERSHED CONSTRUCTION IN KANSAS

FEDERAL AND STATE REGULATIONS

State and federal regulations can also be a challenge for watershed districts. As watershed structures meet their intended life expectancy, operation and maintenance agreements with NRCS are satisfied and the structures are turned back over from NRCS to the watershed districts. In some watershed districts, the transition from working with NRCS has become an important challenge, as district members must form new working relationships in a context of reduced technical support. Part of the transition requires watershed district boards to take on new responsibilities such as the funding required to pay for dam inspections and engineering cost:

“Our biggest problem right now, in my opinion is when the federal government turned it over to the state. Now all of a sudden, we generated all of these big costs, now we have to have dam inspections, we have to have engineering’s and those were costs that the federal government took on when they were doing it that we never had to pay.”

Board Member

In order to better understand the challenges facing watershed districts, the SAKW surveyed all organized 80 watershed districts in 2015. As of this writing, 60 watershed districts responded. Respondents were asked to rate each of 30 issues as a significant challenge, a manageable challenge or no challenge at all. Nearly one-half (49%) of respondents⁹ emphasized that the most significant challenges are state and federal regulations:

“Well right now, our biggest challenge is not being able to build any more dams because of the governmental red tape.”

Board Member

The most common federal and state regulation challenges cited by respondents include:

- Third party easements
- Endangered species
- Corps of Engineers (COE) 404 permits and Mitigations

THIRD PARTY EASEMENTS

In 2008, the U.S. Army Corps of Engineers authorized the Compensatory Mitigation for Losses of Aquatic Resources (Mitigation Rule, 33 CFR Parts 325 and 332). Under the Mitigation Rule, a conservation easement is to be established by a third party, defined as a governmental or non-profit resource management agency, to ensure long-term protection and regulation of all aquatic habitats, riparian areas, buffers, and uplands of mitigation projects on private lands (USACE 2008). These conservation easements, commonly referred to as third party easements, are required by regulations for lands used for compensatory mitigation and must be permitted through the Kansas City District, Corps of Engineers

⁹ Of the 55 districts that responded to a question about whether state and federal regulations were a challenge to the district, 27 reported that state and federal regulations were a significant challenge.

(USACE). This federal regulation is raising a number of new challenges for watershed districts, and many have opted out of new dam construction since 2012:

"Well there is always the governmental problems through permitting."

District Manager

"I've been on this board in excess of 20 years and when we first started the paper trail use to be very short. Now the paper trail has just got longer and longer with more permits. The thing that I see that has been the biggest detriment to the watersheds period in Kansas, is the third party easement. I was opposed to building any watersheds with the way the Corps [of Engineers] had it in place. We were saddling the taxpayers of the watershed with something that could last forever and there was no end to it. The people they were [introducing] as a third party easement, there was no control over, they were just like a private entity. There was no legislation or nothing. Whatever they said you better do. Something like that, that's opening your pocket book and putting a hole in the bottom of it."

Board Member

ENDANGERED SPECIES

From the Lesser Prairie Chicken, currently listed as 'vulnerable' (IUCN 2015), to nearly 16 different types of minnows in the natural streams and waters of Kansas, endangered and threatened species are another component of the challenges watershed districts face when proposing new dams. Before construction, a watershed district is required to contact the Kansas Department of Wildlife, Parks, and Tourism when a proposed watershed structure may impact a species' habitat within its probable range. Currently, 50 species are listed on the Kansas Threatened and Endangered Species, and most of these species are within the boundaries of existing watershed districts.

"The biggest issue now is the Topeka Shiner. Endangered Species is a major, major foothold. If we want to build a dam here, we can't because there is an endangered species here."

Board Member

"They say that from basically mid-Ness county all the way west is natural habitat for prairie chicken...That's a definite challenge right now... "

Board Member

COE 404 PERMITS AND MITIGATION

Section 404 of the U.S. EPA Clean Water Act states that the Secretary may issue permits for construction or dredging in U.S. navigable waters. The Corps of Engineers implements Section 404 of the Clean Water Act, which requires that watershed districts use a third party to serve as legal protection for proposed mitigation sites. Currently the Watershed Land Trust, the Sunflower Land Trust, Midwest Mitigation Oversight Association, the Platte Land Trust and the Kansas Alliance for Wetlands and Streams can serve as a third party (Testimony on HB 2061, March 2015). KDA-DOC through passage of HB 2061, KDA DOC can now serve as a third party agent to hold mitigation conservation easements. It is hoped this will reduce the costs of permitting and constructing new watershed dams. These permits add to the regulatory challenges that watershed districts confront:

“We’re getting over-regulated really quick. I do want clean water but I also want to save our water too. When it goes down the river, it’s gone forever.”

Board Member

“To address the permitting, the challenges that we have on the federal and state sites are going to take a political move. And those kind of moves can sometimes be costly.”

District Manager

“Well the mitigation situation with the corps of engineers having to take the lead on that from the EPA, is our greatest challenge. We are still trying to work out some common ground there, that we can live with. We are getting closer.”

Board Member

COE mitigation regulations can make dam construction less feasible in some districts. Districts must obtain an easement from the landowner and the easement requires fencing around the dam and surrounding spillway in order to maintain integrity to the site. Because the fencing limits use of the land for landowners, many landowners decide against dam construction:

“Because we have to go out and we try and get easements from the private landowners with - - he would be able to use some of the water in the dam, as far as livestock water and all of that. The Corps of Engineer comes along and says you have to fence it out, so the landowner says ‘to hell with it, I don’t want it’”

Board Member

LAND RIGHTS ACQUISITION

“Sure, we have eminent domain, but these people are our neighbors. That’s just not a way to do business, in my opinion”

Board Member

Watershed districts have the authority of eminent domain, but most districts rely mainly on cooperation from local landowners to obtain property. At times, cooperation between landowners and watershed districts can be difficult. A landowner may not want to sacrifice productive crop or pasture land to install a watershed dam on their property. One watershed district representative mentioned that the greatest challenge for the district was working with landowners to approve easements because many landowners perceive the easement as increased government intervention on their private property. Another challenge related to land rights acquisition is the potential financial sacrifice asked of landowners for dam construction. Landowners are typically asked to donate the easement, but they can also be asked to donate money to the watershed district in order to finance the new structure. The financial costs can be non-trivial. In Allen Creek Watershed District, for example, the cost to the landowner for a new site was 10% of the construction cost, up to a maximum of \$5,000.

FINDING THE NEXT GENERATION OF WATERSHED DISTRICT LEADERS

Along with the challenge of aging infrastructures comes the challenge of replacing watershed district board members who have volunteered their time and energy into making Kansas watershed districts a success. Many board members have over a decade's worth of experience in their districts. Some board members even followed in the footsteps of their parents who were part of the steering committee that originally organized the watershed district. Many of these board members are now approaching, or are well into, retirement ages, leading to a significant new challenge for districts: from where will the next generation of watershed district leaders come?

"We don't know what's going to happen in the future. You got to keep a board together somehow to take care of the stuff that is there. We just hope we can keep finding people that are interested in it. It's been tough finding people to do it."

Board Member

To some degree, watershed districts are a victim of their own success in this regard. As the general public reaps the downstream benefits of watershed structures, many of today's board members fear that the public will lose sight of the historical, and ongoing, importance of the watershed districts; quite simply, it is likely that current residents will never experience the floods that led to the formation of the watershed districts, and this may create apathy or indifference in the younger generations. Younger generations that never experience floods may easily avoid acknowledging the importance of the upstream dams that have protected some areas for over 50 years:

"I would say it gets greater the younger they get. They are blind to what's happened in the past. They want this country like it was when it was settled, but it ain't going to be that way"

Board Member

"It's an issue now. It's an issue with young farmer's period, you know? There is not very many young farmers out there."

Landowner

Many board members express concern about the need to educate younger generations about the importance of watershed districts and their structures. Without proper education and awareness, it is likely that boards will struggle to keep a sustainable number of members to maintain and continue working towards the goals originally proposed in the general plans:

"It's getting harder to find board members. And that goes back into the education, and getting people more involved."

District Manager

Ultimately, connections to the history of watershed efforts, and the peoples and places they have served, may need to be nurtured through education if watershed districts are to continue their long history of providing benefits to Kansas:

"I think people have to feel that connection and that desire to honor what was given to them and what they are going to pass on. And I think that is what really motivates people to do things."

Board Member

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