YAZOO BACKWATER AREA REFORMULATION

APPENDIX 8
PROBLEM IDENTIFICATION/SOCIOECONOMIC PROFILE/
ENVIRONMENTAL JUSTICE

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YAZOO BACKWATER AREA REFORMULATION

APPENDIX 8
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SECTION 1 - PROBLEM IDENTIFICATION

INTRODUCTION

1. The objective of this socioeconomic base study is to identify socioeconomic impacts within the project-impacted area and to present an overview of the social as well as the economic environment as a result of flooding within the Yazoo Backwater Area, Mississippi. Historical and existing (base) conditions for the Yazoo Backwater economic base area (YBEBA) are reflected through a brief discussion of the flood history and previous flood control efforts and available natural, human, and economic resources.

2. Economic and demographic data for the following characteristics are among the parameters significant to economic development of the Yazoo Backwater Area: population, housing, labor force, employment, earnings, income, farm characteristics, industry, business, and finance. Based on Office of Business Economics and the Economic Research Service (OBERS) projections, future economic conditions within the Yazoo Backwater Area are expressed by projections of population, employment, and income. These values should be accepted only as indicators of the direction and relative magnitude of economic activity that may be expected during the next 50 years – not as precise projections. All monetary values in this study document have been converted to constant 1996 dollar equivalent values for comparative purposes.

GENERAL

3. The term "economic base area" (i.e., the YBEBA) will be utilized in this report to denote Sharkey and Issaquena Counties, Mississippi, the area that appropriately reflects the economic problems, needs, conditions, and opportunities indicative of the entire Yazoo Backwater Area. The term "study area" is defined as the area directly affected by the construction of water resources improvement plans. For this analysis, it will be utilized to represent the area encompassed by the 100-year frequency flood elevation delineation from existing/base or without-project conditions.

4. Flood control features of the completed Yazoo Backwater project have provided varying levels of flood protection to the Yazoo Backwater Project Area. Additional protection for some areas has been provided by local levee and drainage systems and by the Natural Resources Conservation Service (NRCS) projects. However, with the complex drainage system in the lower Yazoo Basin, large areas continue to be plagued by flooding problems, creating substantial losses to agricultural and nonagricultural development.

PROBLEMS

5. Major problems resulting from frequent flooding include (a) flood damage to residential and nonresidential property, agricultural crops, agricultural noncrop items, public roads and bridges, and other amenities; (b) a reluctance of farm operators to apply improved production inputs and techniques due to flood risk; and (c) flooding resulting from concentration of runoff from upstream areas combined with inadequacy of the existing water removal system to reduce floods from the delta area.

6. The total area subject to flooding by the 100-year frequency flood event (i.e., the Yazoo Backwater Study Area) is close to 630,000 acres. Approximately 50 percent of the total area inundated consists of cleared lands, 20 percent is woodlands, and 30 percent consists of other uses such as water bodies, urban development, and public lands. During the 1943-1997 study period, the maximum number of flooded acres occurred in the spring of 1973. Development affected by major floods includes unprotected or low-lying areas at Anguilla, Cary, Eagle Lake, Fitler, Holly Bluff, Mayersville, Rolling Fork, Valley Park, and other communities throughout the area.

7. Approximately 541,000 total acres are inundated on an average annual basis in the Yazoo Backwater Study Area for base (without-project) conditions. Approximately 27 percent of this flooded area (148,000 average annual acres) are cleared cropland acres.

8. Flood records indicate that the majority of the floods occur in the spring planting and summer growing months (January-June). The historical flood record entailed a 55-year period (1943-1997).

9. Development subject to flooding within the Yazoo Backwater Study Area consists of both agricultural and nonagricultural types. Nonagricultural development affected by flooding includes residential, commercial, professional, industrial, public, semipublic, recreational, and warehouse structures. Approximately 2,813 structures were identified to be located in the Yazoo Backwater Study Area. Of these, 1,576 are subject to flooding from a 100-year frequency flood event. In addition, substantial amounts of emergency costs are incurred by area residents, businesses, and others due to flood-fighting activities, evacuation expenses, cleanup operations, and other measures in combating flooding situations. Other flood damages in the area are incurred by various public roads and bridges, streets, private automobiles, and other amenities. Agricultural development affected by flooding includes crops produced on area farms (cotton, soybeans, rice, wheat, grain sorghum, etc.), noncrop farm development (farm drainage ditches, farm roads, land leveling, landforming, fences, farm supplies, etc.), and development associated with catfish farming operations.

ENVIRONMENTAL CONCERNS

10. Environmental concerns include the preservation of the hunting, fishing, and other natural values within the area. Scattered small woodlands tracts and a few large wooded areas remain. Preservation of these woodlands is one of the most significant concerns in the Yazoo Backwater Study Area. The remaining woodlands and lakes, both natural and manmade, are necessary for overall environmental balance. Therefore, any project construction must consider the interrelated needs of flood control, fish and wildlife, and other environmental factors. The proposed recommended alternative would add significantly to the environment of the region. The addition of up to 55,600 acres of woodlands in the area would provide a number of environmental enhancements.

NEEDS

11. The flood problems in the Yazoo Backwater Study Area defined above reflect a definite need for the alleviation or reduction of flooding. Flood protection, whether full or partial, would benefit all sectors within the region, thereby contributing to the total well-being of area residents and facilitating improvements to the national, regional, and local economies. There is also a need expressed by many groups for enhancement of the environment of the area.

SECTION 2 - SOCIOECONOMIC PROFILE

STUDY OBJECTIVE

12. The objective of this economic base study is to provide an updated, objective analysis of the relevant past and present economic conditions and develop a baseline of future economic conditions for the Yazoo Backwater Study Area. The purpose of this study is to provide a socioeconomic framework for the formulation and economic evaluation of proposed water resources improvements to the Yazoo Backwater Study Area. It is part of the overall study related to identifying problems, determining needs, formulating alternative improvement plans, and evaluating these plans in accordance with environmental policy, social well-being, and regional and national economic development.

13. In the comprehensive planning process, a consistent data base of socioeconomic growth and development parameters is essential. Economic and demographic data for the following characteristics are among the parameters examined for their historical significance to the Yazoo Backwater Study Area: population, housing, labor force, employment, earnings, income, farm characteristics, industry, business, and finance. Data are presented to furnish an analysis of the past, present, and projected future economic development based on historical growth patterns. These values should be accepted only as indicators of the general direction and relative magnitude of economic activity that may be expected during the next 50 years – not as precise projections.

14. Most data in this report, unless otherwise noted, were obtained from the Bureau of the Census, Bureau of Labor Statistics, and the Bureau of Economic Analysis (BEA). Other sources include the County and City Data Book; Mississippi Statistical Abstract; Census of Population and Housing; Census of Agriculture; Mississippi Manufactures Directory; and the Economic Base Study, Yazoo River Basin, Mississippi, Vicksburg District, 1977. All monetary values were converted to 1996 constant dollars based on data from the Survey of Current Business.

SECTION 3 - GENERAL INFORMATION

ECONOMIC BASE AREA

15. The YBEBA comprises Sharkey and Issaquena Counties which are located completely or primarily within the hydrological boundaries of the Yazoo Backwater Watershed and are considered to be economically representative of the Yazoo Backwater Study Area. Less than 13 percent of the Yazoo Backwater Study Area is located outside the YBEBA. Towns and communities in or adjacent to the YBEBA that are impacted by backwater flooding include Anguilla, Belzoni, Cary, Delta City, Eagle Lake, Fitler, Glen Allan, Hollandale, Holly Bluff, Louise, Mayersville, Midnight, Onward, Rolling Fork, Silver City, and Valley Park. The remaining population is sparse and is centered around older farming areas and communities. The largest population center located within the YBEBA is Rolling Fork with 2,486 people in 2000.

PROJECT AREA AND STUDY AREA

16. The Yazoo Backwater Project Area shown on Plate 4-1 of Appendix 4 is the area affected by the construction of water resources improvement plans. The greater Yazoo Backwater Project Area covers a drainage area of approximately 926,000 acres (or 1,447 square miles) extending from the Yazoo River a few miles north of Vicksburg northerly about 65 miles to the vicinity a few miles south of Greenville. It includes portions of seven counties in the Yazoo Basin--Humphreys, Issaquena, Sharkey, Warren, Washington, and Yazoo in Mississippi and Madison Parish in Louisiana. This predominantly agricultural area is part of the rich, deltaic region in west-central Mississippi containing fertile alluvial soil, and the cultivated area constitutes one of the more productive areas in the United States. The total estimated population located in the project area approximates 20,000 people, including census tract estimates for those portions of the Mississippi counties that are located within the Yazoo Backwater Project Area, including Humphreys, Issaquena, Sharkey, Warren, Washington, and Yazoo Counties. Madison Parish, Louisiana, was excluded since it comprises less than 0.5 percent of the total Yazoo Backwater Study Area.

17. The primary area affected by the proposed project and the subject of this analysis is only a portion of the total Yazoo Backwater Project Area. Hereafter referred to as the “study area,” the Yazoo Backwater Study Area is the area subject to flooding by the 100-year frequency flood event and is delineated to be approximately 630,000 acres. The Yazoo Backwater Study Area (shown on Plate 4-4) was divided into two hydrologic backwater-impacted reaches to facilitate the evaluation of flood damages and benefits. Reach 1 comprises the lower Yazoo Backwater ponding area consisting of 256,262 acres affected by operation of the Steele Bayou structure; and Reach 2 comprises the upper ponding area consisting of 373,725 acres affected by operation of the Little Sunflower structure.

PROBLEMS

18. Flooding and inadequate drainage are the principal problems prevalent in the Yazoo Backwater Study Area which result in significant agricultural, rural, and related flood damages. Flooding affects approximately 316,000 acres of cleared land at the 100-year frequency flood event. In addition, residential and nonresidential structures, public roads, streets, bridges, utilities, private automobiles, personal property, and other improvements are also impacted by flooding.

DESCRIPTION

LOCATION

19. The Yazoo Backwater Project Area is located in the lower half of the Yazoo River Basin in west-central Mississippi. The Yazoo River Basin consists of the entire drainage area of the Yazoo River and is part of the Lower Mississippi Valley region extending from the confluence of the Ohio and Mississippi Rivers to the Gulf of Mexico. The western boundary of the Yazoo River Basin is formed by the east bank of the Mississippi River levee from Memphis, Tennessee, to the vicinity of Vicksburg, Mississippi. The eastern boundary is formed by the loess bluffs that run from Memphis to Vicksburg. The Yazoo Backwater Study Area is located almost entirely within Issaquena and Sharkey Counties and partially within five additional counties in west-central Mississippi and east-central Louisiana (Humphreys, Warren, Washington, and Yazoo Counties in Mississippi and Madison Parish in Louisiana). It is bounded on the west by the east bank of the Mississippi River levee, on the north by State Highway 12, and on the east and south by the west levee of the Will M. Whittington channel and the Yazoo River.

PHYSIOGRAPHY

20. The region is characterized by Yazoo alluvium bottom lands with Yazoo uplands to the south and east of the project area. The Yazoo alluvium, or "delta" area, is in the alluvial valley of the Mississippi River. The topography is characterized by low elevation flatlands that range from approximately 80.0 to 120.0 feet, National Geodetic Vertical Datum (NGVD). Delta soils are extremely rich in vegetative supplemental nutrients and are highly productive.

21. The lower Yazoo River Basin, as a small representative segment of the lower Mississippi River flood plain, encompasses highly productive soils. However, the Yazoo Backwater Project Area is located within the lower reach of the Mississippi River Valley, which is subject to

inundation during periods of high river stages in this area. The valley was formed during the early Pleistocene epoch, or glacial period, a time when the Mississippi River became deeply incised in the coastal plains area. In the ages that followed, the valley was gradually filled with alluvium deposited by the river. The deposition of sand, silt, and gravel continued through the Pleistocene epoch and into the recent Holocene epoch. Beneath these Quaternary layers are marine and nonmarine deposits of unconsolidated sand, clay, gravel, silt, marl, and limestone created during the Jurassic, Cretaceous, and Tertiary periods. These extremely rich and highly productive delta soils have three characteristics that distinguish the area as most desirable for intensive cropland use (a) the nearly level slope enhances erosion control under current and projected mechanized farming methods, (b) these soils are favorably supplied with plant nutrients, (c) and these soils are highly retentive in moisture availability to plants.

CLIMATE

22. The climate in the YBEBA is generally mild. Summers are long, hot, and humid, and winters are short and moderate. During winter months, the prevailing wind is from the north or northwest. In other seasons, winds are from the south and southwest. The average annual temperature is 64 degrees F. Observed temperature extremes in the area range from -16 to 115 degrees F. The normal annual precipitation is 51 inches. The heaviest rainfall occurs most frequently during the months of December to April, while minimum rainfall occurs normally in September and October. Severe rainfall, producing locally intense runoff, can occur at any time of the year. The average length of the frost-free growing season is slightly over 7 months. Snowfall occurs approximately once each year, with an average annual amount of 2 inches.

HISTORY

23. The earliest known inhabitants of the Yazoo Basin were prehistoric American Indians, who lived at least 10,000 years before Hernando de Soto arrived in search of gold in 1540 in the area currently known as Mississippi. These Indians left considerable evidence in village sites and burial mounds scattered throughout the region. The first groups of white settlers, particularly Spanish and French explorers, had much influence on the tribes, spreading diseases that drastically reduced the Indian population. By the time the first European colonists arrived in the 1700s, the mound builders had practically vanished. The colonists discovered three principal tribes (Choctaw, Chickasaw, and Natchez) and many tribes of lesser size and significance. By the 1830s, most of the tribes had been removed from the State, although a remnant of the Choctaw tribe remains in the Neshoba County, Mississippi, area. The Indians released their lands in the Treaty of Pontotoc in 1832. This ceded much of the State of Mississippi to the U.S. Government. Settlers entered into the Mississippi Delta primarily from Virginia, South Carolina, Kentucky, and Tennessee in what has been called "the Great Migration."

24. The history of the Yazoo River Basin and Mississippi Delta corresponds to the history of the State of Mississippi since most of the growth of the State was primarily centered around the communities along the Mississippi River. The alluvial delta, with the Mississippi River to the west and the bluff hills to the east, is punctuated with history. Indian mounds are located along the river--ritual domes which served as lookout towers and retreats from advancing floods for those who arrived after the Indian occupation. A few old plantation mansions remain, serving as reminders of life in the recent past.

25. Agriculture, primarily cotton, was the principal economic base for the Mississippi Delta during the early 1800s. Land clearing began to occur at a very rapid rate due to the increased demand for high quality cotton and the advent of the steamboat for river transportation. This advancing cotton economy, as a result of fertile soil, and the availability of water transportation, supported the development of the unique Southern plantation system, with its fine homes, aristocratic social culture, and extensive slave holdings. In many instances, plantation owners maintained residences in the hills to the east to avoid the malarial epidemics often occurring in the overflow areas of the Delta. The Civil War brought an end to the South's plantation aristocracy, but a legacy of antebellum tradition and homesites remains.

SECTION 4 - EXISTING CONDITIONS

26. Existing conditions for the YBEBA are reflected in the following paragraphs through a brief discussion of the area's natural, human, and economic resources.

NATURAL RESOURCES

27. Highly productive agricultural lands, wildlife and fishery resources, forested areas, lakes, streams, and wetland areas are valuable physical resources in the Yazoo Backwater Project Area. Other valuable area resources include stream tributaries, abandoned channels, oxbow lakes, back swamps, and natural levees.

LAND USE

28. Existing land use for the Yazoo Backwater Project Area was based on computerized satellite surveys of the U.S. Army Corps of Engineers (USACE) Geographic Information System (GIS) in 2005. Based on the acreage delineations from these surveys, the total Yazoo Backwater Project Area covers over 926,000 acres, or approximately 1,447 square miles, in the Yazoo River Basin.

29. Existing acreages by type of land use are presented in Table 8-1 for the Yazoo Backwater Project Area. Agricultural lands comprise the majority of the total land use with approximately 593,000 acres. The remaining rural areas, including forest lands, water bodies, wetlands, and other lands, represent 36 percent of the rural areas and over 333,000 acres of the total land area.

30. Historically, favorable agricultural characteristics have been significant factors in the development of land-use patterns in the Yazoo Backwater Project Area. While the project area covers over 926,000 acres, the primary area affected by the proposed project is only a portion of the total area. The Yazoo Backwater Study Area (i.e., the area) subject to flooding by the 100-year frequency flood event) is estimated to be approximately 630,000 acres. Of this, approximately 50 percent consists of cleared land and 20 percent is forested. The remaining acreage (30 percent) includes water bodies, urban properties, and public lands. A small percentage of the area is devoted to catfish production. While soybeans and cotton are the major row crops in the region, other principal crops include wheat, rice, and corn. Historically, permanent pastureland has covered a relatively small portion of the area.

TABLE 8-1
EXISTING LAND USE a/
IN THE YAZOO BACKWATER PROJECT AREA
(2005)

Type of Use	Acreage (No. acres)	Percent of Use (%)	Percent of Total Area (%)
Agricultural Land	**592,400**	**100.0**	**64.0**
Crop	502,200	84.8	54.2
Noncrop	90,200	15.2	9.8
Forest Land c/	**274,900**	**100.0**	**29.7**
Water Bodies	**57,500**	**100.0**	**6.1**
Rivers and Lakes	26,400	45.9	2.7
Ponds	31,100	54.1	3.4
Other b/	**1,200**	**100.0**	**.01**
Total Yazoo Backwater Project Area	**926,000**	**100.0**	**100.0**

SOURCE: USACE GIS, 2005.

a/ Acreage was derived from satellite imagery and rounded to the nearest hundred; thus, totals may not add due to rounding..

b/ Includes urban development, open land, and other miscellaneous uses.

c/ Includes all public and private lands.

WATER RESOURCES

31. A major natural resource of the Yazoo Backwater Project Area is the abundance of water. In addition to the Yazoo River main stem system and its tributaries, underground aquifers provide significant water supplies. Also, numerous streams, lakes, ponds, and wetland areas scattered throughout the area provide habitat for wildlife and opportunities for outdoor recreation as well as esthetic enhancement of the area itself.

32. Major streams in the study area include Steele Bayou and Deer Creek, Yazoo, Big Sunflower, and Little Sunflower Rivers. The stream system consists of 69 miles of Steele Bayou, 30 miles of the Little Sunflower River, and the lower 60 miles of the Big Sunflower River. Most of the streamflow generated in the Yazoo Backwater Project Area originates from upper areas of the Delta, including Clarksdale, Marks, and Lambert areas. The principal alluvial valley streams are the Big Sunflower and Yazoo Rivers.

FORESTRY RESOURCES

33. Approximately 30 percent of the land area in the Yazoo Backwater Project Area is forest land and consists primarily of bottom-land hardwoods, mostly the oak-gum-cypress type (Table 8-1). Bottom-land hardwood areas support above average populations of deer, turkey, small game, and nongame species.

34. Many acres of bottom-land hardwoods have been cleared in the last 50 years as a result of agricultural commodity prices increasing significantly, resulting in unprecedented agricultural expansion. However, some of the reduction can also be attributed to forestry production/harvest.

35. U.S. Department of Agriculture programs, including the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP), and others programs are contributing to at least some reversal in the clearing of woodlands and increasing the number of acres of woodland in the Yazoo Backwater Project Area.

MINERAL RESOURCES

36. Principal mineral resources in the YBEBA include sand, gravel, and clay. Employment in the mining industry is very small in the area, accounting for less than 1 percent of total nonagricultural employment.

HUMAN AND CULTURAL RESOURCES

37. An almost direct correlation exists between the number of persons residing in a specific area and the economic opportunities (especially economic and industrial activity) available in that area. Consequently, economic and industrial activity is used as an indicator of labor requirements and of local demands for community facilities and public services.

POPULATION

38. Historical population trends by county for the YBEBA and the State of Mississippi are presented in Table 8-2. Issaquena and Sharkey Counties reported populations of 2,274 and 6,580, respectively, in 2000. Unlike the State, the population of the YBEBA has gradually declined over the last 50 years. The YBEBA share in the total population of the state has gradually decreased from 0.82 percent in 1950 to 0.32 percent in 2000.

TABLE 8-2
HISTORICAL POPULATION STATISTICS BY COUNTY
YAZOO BACKWATER ECONOMIC BASE AREA
(1950-2000)

County/Area	Total Population Statistics by Year (No.)					
	1950	1960	1970	1980	1990	2000
Issaquena	4,966	3,576	2,737	2,513	1,909	2,274
Mayersville	-	-	-	-	-	795
Sharkey	12,903	10,738	8,937	7,964	7,066	6,580
Rolling Fork	-	-	-	-	-	2,486
Anguilla	-	-	-	-	-	907
Cary	-	-	-	-	-	427
Total YBEBA	17,869	14,314	11,674	10,477	8,975	8,854
YBEBA Percent of State	0.82 %	0.66 %	0.53 %	0.42 %	0.35 %	0.32 %
State of Mississippi	2,178,914	2,178,141	2,216,912	2,520,638	2,573,216	2,844,658

SOURCE: Bureau of Census.

39. Overall, the population of the YBEBA has decreased from 17,869 in 1950 to approximately 8,854 in 2000, or a 50 percent decline. The most significant occurrence was the loss of 3,555 persons during the 1950 to 1960 period. Sharkey County experienced the majority of the loss with a total decline of 6,323 persons from 1950 to 2000. This includes losses of 2,165 persons from 1950 to 1960; 1,801 persons from 1960 to 1970; 973 persons from 1970 to 1980; 898 persons from 1980 to 1990; and 486 persons from 1990 to 2000.

Population Centers

40. The largest population center located in the YBEBA is Rolling Fork. Among the smaller communities to be found in the YBEBA are Anguilla, Cary, Eagle Lake, Fitler, Mayersville, Onward, and Valley Park, to name only a few. Available population statistics for the some of the communities and towns located in the YBEBA are shown in Table 8-2.

41. Based on data from the Bureau of the Census, Rolling Fork had the largest number of people in the YBEBA in 2000 with 2,486 while Anguilla, Mayersville, and Cary reported 2000 populations of 907, 795, and 427, respectively.

Density

42. The number of persons per square mile (population density) in the YBEBA has ranged from 21 persons per square mile of land area in 1950 to 10.5 persons in 2000. This is in contrast to the State, whose population density increased from 46.0 in 1950 to 60.6 in 2000. Historical population density statistics for the YBEBA and the State of Mississippi are presented in Table 8-3.

TABLE 8-3
HISTORICAL POPULATION DENSITY
YAZOO BACKWATER ECONOMIC BASE AREA
(1950-2000)

Area	2000 Land Area (square mile)	Population Per Square Mile by Year (No.)					
		1950	1960	1970	1980	1990	2000 (Actual)
Issaquena County	413	12.1	9.0	7.0	6.2	4.6	5.5
Sharkey County	428	30.0	25.0	20.0	18.3	16.5	15.4
Total YBEBA	841	21.0	17.0	13.5	12.3	10.7	10.5
State of Mississippi	46,907	46.0	46.0	46.9	53.4	56.0	60.6

SOURCE: County and City Data Book, 2000.

HOUSING

43. Data reported on housing units provide insight into significant social developments that influence the economic activity of an area. Analyses of housing characteristics for the YBEBA and for the State of Mississippi are presented in Table 8-4.

44. Following the same trends as total population patterns of the area, housing in the YBEBA has been decreasing. Conversely, housing in the State of Mississippi increased. The number of permanent housing units in the YBEBA has decreased from 5,506 in 1950 to 3,293 in 2000, or approximately a 40 percent decline, while estimated total housing in the state increased approximately 91 percent, from 609,329 units in 1950 to 1,161,953 units in 2000.

45. The median 2000 value of housing, presented in 1996 price levels, was approximately $50,300 in the YBEBA as compared to $66,500 for the State of Mississippi.

Persons Per Household

46. The average number of persons per household in the YBEBA decreased from 4.0 in 1950 to 3.1 in 2000. This number parallels the trends for the State of Mississippi with an average number of persons per household of 3.9 in 1950, decreasing to an estimated 2.8 in 2000 (Table 8-4).

TRANSPORTATION

47. Almost the entire Yazoo Backwater Project Area has good transportation access facilities. Access is provided by Federal, state, and local highways, aircraft, and waterways via the Yazoo River.

48. Transportation resources available through Greenville and Vicksburg provide access to the Yazoo Backwater study area from the north and the south. Greenville and Vicksburg are accessed by two state highways that traverse the Yazoo Backwater study area. Access by air is made possible by the Mid-Delta Regional Airport in Greenville and the Vicksburg Airport.

TABLE 8-4
TOTAL HOUSING STATISTICS
YAZOO BACKWATER ECONOMIC BASE AREA AND STATE OF MISSISSIPPI
(1950-2000)

Year	Housing Units		Persons Per Household (No.) c/	Median Rent ($) d/	Median Value ($) d/
	Total a/ (No.)	Occupied b/ (No.)			
Total YBEBA					
1950	5,506	4,521	4.0	e/	e/
1960	4,248	3,431	4.1	165	34,600
1970	3,319	3,003	3.8	183	30,300
1980	3,419	3,062	3.4	263	42,800
1990	2,988	2,717	3.3	252	44,200
2000	3,293	2,889	3.1	236	50,300
State of Mississippi					
1950	609,329	554,765	3.9	e/	e/
1960	628,945	568,070	3.8	198	36,200
1970	699,178	636,767	3.5	232	40,600
1980	911,627	827,169	2.9	314	54,800
1990	1,010,423	911,374	2.8	357	52,700
2000	1,161,953	1,046,434	2.8	409	66,500

SOURCE: Bureau of Census.
a/ Includes both occupied and unoccupied housing at the time the census was conducted.
b/ Residential property that was occupied at the time the census was conducted.
c/ Population (number of persons) divided by the number of households.
d/ Monetary values are presented in 1996 dollars and rounded to the nearest hundred.
e/ Not available.

Highways

49. Numerous highway systems traverse the YBEBA. U.S. Highway 61 bisects the area and provides two-lane, north-south access through Valley Park, Rolling Fork, and Hollandale, Mississippi. Mississippi Highway 12 provides east-west access through Belzoni and Hollandale and Mississippi Highway 1 provides north-south access from Mayersville through Greenville. There are also many other highways and state and county roads (primarily two-lane roads) which provide adequate access throughout the region. U.S. Interstate 20 is located to the south of the YBEBA, and U.S. Interstate 55 is located to the east of the area-- both providing access to points throughout the United States and connections for access to neighboring countries.

Railroads

50. There are no major rail systems that provide access through the YBEBA. However, two major rail systems located outside the YBEBA provide adequate rail transportation. The Columbus and Greenville Railroad, located to the north of the area, operates 232 miles of rail system from Greenwood, Mississippi, to Greenville, Mississippi. The Canadian National-Illinois Central Railroad, located to the east of the area, provides north-south access from Memphis, Tennessee, through Greenwood to Jackson, Mississippi.

Airports

51. The YBEBA contains many scattered small airport facilities providing local transport and agricultural crop-dusting services. These airport facilities are located in Belzoni, Hollandale, Nitta Yuma, Anguilla, and Onward, Mississippi. The nearest large commercial airport is Jackson-Evers International located approximately 83 miles to the south. Additional commercial air transportation is located approximately 50 miles to the north in Greenville (Mid-Delta Regional Airport).

Water Transportation

52. The YBEBA is accessible by water via the Yazoo River. The navigation channel from Greenwood to Vicksburg is 9 feet deep approximately 46 percent of the time. Terminal port facilities serving the Yazoo Backwater Project Area are located in Greenwood, Belzoni, and

Yazoo City, Mississippi. These facilities provide barge transportation along the Yazoo River for industries in the area. In addition, access to the Mississippi River is gained through the Greenville Port and Port of Vicksburg.

COMMUNICATION

53. The BellSouth telephone system, which provides the major telephone services to Mississippi, is divided into seven districts to better serve its customers. The YBEBA is served by the Greenville District of BellSouth. Television or radio broadcasting facilities in the region are located primarily in Greenwood, Greenville, Belzoni, Jackson, and Vicksburg, Mississippi, as well as other facilities.

UTILITIES

54. Utilities located in the YBEBA include electrical power, natural gas, and municipal/community water treatment and supply systems. Most of the area communities and towns are served by both municipal wastewater treatment and water supply facilities.

Electricity and Gas

55. There are two primary sources of electrical power for the YBEBA—both are electrical cooperatives (Yazoo Valley Electric Power Association based in Yazoo City, Mississippi, and Twin County Electrical Power Association based in Hollandale, Mississippi). Neither of these associations produce electricity, but purchase power from power-generating facilities located outside the region.

56. Most of the natural gas is handled by three major companies--Entex Gas, Inc.; Mississippi Valley Gas Company; and Union Gas Company. There are also municipal systems in charge of local distribution to customers.

57. The majority of the towns and communities in the YBEBA are served by both municipal wastewater treatment and central water supply facilities. All of the water supplied is extracted from ground-water sources.

ECONOMIC RESOURCES

58. In the analysis of the existing (base) economic conditions of the YBEBA, various economic parameters were identified as positive indicators reflecting economic growth in the study area. Existing (base) economic conditions are discussed in terms of labor force and employment, earnings and income, agricultural activity, and industrial and business activity. These parameters were selected based on their impact on the existing development and future direction of economic activity in the region.

LABOR FORCE AND EMPLOYMENT

59. The labor force of an area is a subset of the total population. The labor force consists of the working-age population; i.e., those persons 16 years of age or older. Total labor force statistics for the YBEBA, including the civilian labor force, employment, and unemployment rates, are presented in Table 8-5.

Civilian Labor Force and Unemployment

60. The civilian labor force is defined as working-age population, who are not in the military and who are either employed or unemployed. According to statistics reported by the Bureau of Census, the size of the civilian labor force in the YBEBA increased from 3,268 in 1980 to 3,386 in 2000, reflecting an increase of approximately 4 percent (Table 8-5).

61. While labor force has only slightly increased in the study area, unemployment numbers have nearly doubled. Unemployment in the YBEBA rose from 8 to 14 percent from 1980 to 2000. This compares unfavorably to unemployment rates approximating 7 percent for the State of Mississippi for both 1980 and 2000.

TABLE 8-5
LABOR FORCE STATISTICS
YAZOO BACKWATER ECONOMIC BASE AREA
(1980-2000)

Year	Civilian Labor Force				
	Total (No.)	Employment		Unemployment	
		Total (No.)	Rate (%)	Total No.)	Rate (%)
Total YBEBA					
1980	3,268	3,017	92.3	251	7.7
1990	3,361	3,021	89.9	340	10.1
2000	3,386	2,902	85.7	484	14.3
State of Mississippi					
1980	1,009,374	937,206	92.9	72,168	7.1
1990	1,123,485	1,028,773	91.6	94,712	8.4
2000	1,267,092	1,173,314	92.6	93,778	7.4

SOURCE: Bureau of Census

Total Employment

62. Total employment represents the number of wage and salary employees and the number of proprietors in the YBEBA. Paralleling the civilian labor force, total employment decreased from 3,017 to 2,902 from 1980 to 2000, reflecting an overall decline of approximately 4 percent.

Employment by Industry

63. Employment statistics as reported by BEA for the YBEBA are presented in Table 8-6 by industrial sector and percent distribution to total employment. County distribution of total 2000 employment by industry is displayed in Table 8-7.

TABLE 8-6
TOTAL EMPLOYMENT BY INDUSTRIAL SECTOR
YAZOO BACKWATER ECONOMIC BASE AREA
(1969-2000)

Total Employment By Industry	Total Employment By Year											
	1969		1973		1978		1983		1990		2000 b/	
	Total (No.)	Percent a/	Total (No.)	Percent a/	Total (No.)	Percent a/	Total (No.)	Percent a/	Total (No.)	Percent a/	Total (No.)	Percent a/
Total Employment b/	3,909	100	4,100	100	4,093	100	3,794	100	3,998	100	2,902	100
Industry												
Farm	1,922	49.2	1,867	45.5	1,590	38.8	1,253	33.0	1,168	29.2	654	22.5
Agricultural Services, Forestry, Fisheries	34	0.9	71	1.7	63	1.5	133	3.5	177	4.4	475	16.4
Mining	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Construction	16	0.4	63	1.5	78	1.9	96	2.5	174	4.4	156	5.4
Manufacturing	340	8.7	442	10.8	465	11.4	478	12.6	547	13.7	344	11.9
Transportation and Public Utilities	52	1.3	104	2.5	75	1.8	136	3.6	139	3.5	211	7.3
Wholesale Trade	26	0.7	28	0.7	(D)	(N)	134	3.5	164	4.1	131	4.5
Retail Trade	291	7.4	320	7.8	286	7.0	290	7.6	293	7.3	264	9.1
Finance, Insurance, and Real Estate	(D)	(N)	36	0.9	38	0.9	44	1.2	57	1.4	67	2.3
Services	427	10.9	419	10.2	548	13.4	528	13.9	722	18.1	104 b/	3.6 b/
Government	615	15.7	621	15.1	625	15.3	585	15.4	553	13.8	616	21.2
Federal, Civilian	96	2.5	71	1.7	67	1.6	61	1.6	60	1.5	36	1.2
Federal, Military	115	2.9	95	2.3	76	1.9	63	1.7	63	1.6	56	1.9
State and Local	404	10.3	455	11.1	482	11.8	461	12.2	430	10.8	533	18.4

SOURCE: BEA.
NOTE: BEA and the Mississippi Employment Security Commission utilize different reporting periods; therefore, these statistics cannot be strictly compared.
a/ Percent of total employment.
b/ Totals may not add due to data not reported to avoid disclosure of confidential information.

TABLE 8-7
DISTRIBUTION OF TOTAL EMPLOYMENT BY INDUSTRY AND COUNTY
YAZOO BACKWATER ECONOMIC BASE AREA
(2000)

Total Employment By Industry	Total Employment Distribution by County				
	Issaquena		Sharkey		Total YBEBA
	No.	% of Total Employment	No.	% of Total Employment	
Total Employment	704	24	2,198	76	2,902
Industry					
Farm	249	8.6	405	14.0	654
Agricultural Services, Forestry, Fisheries	140	4.8	335	11.5	475
Mining	0	0	0	0	0
Construction	43	1.5	113	3.9	156
Manufacturing	66	2.3	278	9.6	344
Transportation and Public Utilities	58	2.0	153	5.3	211
Wholesale Trade	37	1.3	94	3.2	131
Retail Trade	60	2.1	204	7.0	264
Finance, Insurance, and Real Estate	20	0.7	47	1.6	67
Services	27	0.9	104	3.6	131
Government	118	4.1	498	17.2	616

SOURCE: BEA.

64. Most of the industry in the area is agribusiness oriented. Previously, agriculturally related employment dominated the area; however, activities of nonagricultural industries currently constitute a major portion of the total economy. In 2000, three major industry groups (manufacturing, retail trade, and government) accounted for almost one-half (42 percent) of the total employment in the YBEBA.

65. In the last decade, the farm sector accounted for the majority of the total employment in the YBEBA, with 49 percent in 1969 and 22 percent in 2000. Sharkey County represents the largest portion of farm employees in the YBEBA, comprising 14 percent of its total employment in 2000, while Issaquena County accounted for 8 percent of its total employment.

66. In 2000, employment in the Government sector comprises 21 percent of total employment, ranking second to farm employment. The number of employees in the Government sector increased from 615 employees in 1969 to 616 in 2000 or less than 1 percent. Sharkey County comprised 17 percent of its total employment in the Government sector in 2000, while Issaquena County accounted for 4 percent of its total employment for the YBEBA.

67. Manufacturing accounted for 12 percent of the YBEBA total employment in 2000. Within the YBEBA, manufacturing represented 10 percent of Sharkey County's total employment as compared to 2 percent for Issaquena County in 2000.

EARNINGS AND INCOME

68. The economy of the YBEBA is explained in terms of earnings and income in the following paragraphs. The sum of wages and salary disbursements, other labor income such as commissions and tips, and proprietor's income are classified as earnings. Income comprises earnings plus property income and government or business transfer payments. Total earnings by industry, expressed in 1996 dollars, are displayed in Table 8-8.

Total Area Earnings

69. Although farming has been the major enterprise in the history of the Mississippi Delta, industry has become increasingly important to the economy of the YBEBA in the past several decades. Due to increased efforts toward mechanization and industrialization, manufacturing, trade, and services sectors have emerged as major contributors to the area economy, whereas earnings from agriculture have declined. Farm earnings comprised only 17 percent of the total earnings in 2000, as compared to 39 percent in 1978. Government and services comprised 33 and 5 percent, respectively, of total earnings in 2000.

TABLE 8-8
TOTAL EARNINGS BY INDUSTRIAL SECTOR a/
YAZOO BACKWATER ECONOMIC BASE AREA
(1969-2000)

Total Earnings By Industry	Total Earnings By Year											
	1969		1973		1978		1983		1990		2000	
	Total ($000)	Percent b/	Total ($000)	Percent b/	Total ($000)	Percent b/	Total ($000)	Percent b/	Total ($000)	Percent b/	Total ($000)	Percent b/
Total Earnings c/	33,511	100	36,932	100	46,520	100	35,179	100	48,943	100	50,300	100.0
Industry												
Farm	14,086	42.0	13,535	36.6	17,999	38.7	5,534	15.7	9,810	20.0	8,748	17.4
Agricultural Services, Forestry, Fisheries	345	1.0	925	2.5	715	1.5	1,368	3.9	1,880	3.8	4,957	9.9
Mining	(N)	(N)	(N)	(N)	0	0.0	0	0.0	124	0.3	970	1.9
Construction	186	0.6	450	1.2	726	1.6	963	2.7	2,391	4.9	381	0.8
Manufacturing	4,053	12.1	4,661	12.6	5,528	11.9	6,806	19.3	9,675	19.8	95	0.2
Transportation and Public Utilities	1,002	3.0	1,743	4.7	1,381	3.0	2,672	7.6	3,314	6.8	1,497	3.0
Wholesale Trade	328	1.0	430	1.2	(D)	(N)	2,083	5.9	2,961	6.0	0	0
Retail Trade	3,858	11.5	4,079	11.0	3,214	6.9	2,884	8.2	2,982	6.1	4,365	8.7
Finance, Insurance, and Real Estate	(D)	(N)	619	1.7	886	1.9	741	2.1	1,062	2.2	2,472	4.9
Services	2,015	6.0	2,907	7.9	4,355	9.4	4,762	13.5	7,560	15.4	2,575	5.1
Government	5,699	17.0	6,166	16.7	6,757	14.5	6,564	18.7	7,183	14.7	16,606	33.0
Federal, Civilian	1,400	4.2	1,229	3.3	1,195	2.6	1,143	3.2	1,332	2.7	2,138	4.3
Federal, Military	283	0.8	302	0.8	255	0.5	285	0.8	313	0.6	914	1.8
State and Local	4,017	12.0	4,635	12.6	5,308	11.4	5,136	14.6	5,539	11.3	13,554	26.9

SOURCE: BEA.
a/ Earnings are presented in 1996 dollars.
b/ Percent of total earnings.
c/ Totals may not add due to data not reported to avoid disclosure of confidential information.
d/ Not available.

70. The government sector has also contributed significantly to the area's economy. Prior to 1990, government represented the majority of total nonfarm earnings and a significant portion of total earnings. The government sector has comprised approximately 15 percent or more of the total earnings in the YBEBA since 1969.

Earnings by County

71. The distribution by county of total earnings by industrial sector are presented in Table 8-9 for 2000. Sharkey County contributes the largest portion to the study area economy in total earnings, comprising 88 percent of the total in 2000. Issaquena County comprised 12 percent of total earnings within the YBEBA in 2000.

72. The majority of Sharkey County's earnings can be attributed to the farm industry, accounting for 11.2 percent of the total earnings in 2000. Farm earnings for Issaquena County contributed 6 percent to total earnings in 1990.

73. Government earnings represented the majority of total earnings in Sharkey County in 2000 with 28 percent. Government earnings for Issaquena County contributed 5 percent to total earnings in 2000.

74. Sharkey County has had the largest influence in the industrial and business growth of the YBEBA. Historically, Sharkey County has been the major contributor to the trade and services economies in the YBEBA.

Personal Income and
Per Capita Income (PCI)

75. Total personal income, the principal component of gross national product, is an excellent indicator of economic activity within an area. The total personal income of the YBEBA was estimated to be approximately $94.7 million in 1999, reflecting an increase of 14 percent from the 1979 income of $83.3 million. The personal income of the State of Mississippi in 1999 was estimated at over $43 billion. Personal income statistics are depicted in Table 8-10 for the YBEBA and for the State of Mississippi.

TABLE 8-9
DISTRIBUTION OF TOTAL EARNINGS BY INDUSTRY AND COUNTY a/
YAZOO BACKWATER ECONOMIC BASE AREA
(2000)

Total Earnings By Industry	Total Earnings Distribution by County				
	Issaquena		Sharkey		Total YBEBA ($000)
	($000)	% of Total Earnings	($000)	% of Total Earnings	
Total Earnings	6,200	12.3	44,100	87.7	50,300
Industry					
Farm	3,101	6.2	5,647	11.2	8,748
Agricultural Services, Forestry, Fisheries	b//	0.0	4,957	9.9	4,957
Mining	0	0.0	970	1.9	970
Construction	b/	0.0	381	0.8	381
Manufacturing	95	0.2	c/	0.0	95
Transportation and Public Utilities	836	1.7	661	1.3	1,497
Wholesale Trade	b/	0.0	b/	0.0	b/
Retail Trade	204	0.4	4,161	8.3	4,365
Finance, Insurance, and Real Estate	b/	0.0	2,472	4.9	2,472
Services	b/	0.0	2,575	5.1	2,575
Government	2,734	5.4	13,872	27.6	16,606

SOURCE: BEA.

a/ Earnings are presented in 1996 dollars.

b/ Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the total employment.

c/ Less than $50,000 but the estimates for this item are included in the totals.

TABLE 8-10
PERSONAL INCOME AND PCI a/
YAZOO BACKWATER ECONOMIC BASE AREA AND STATE OF MISSISSIPPI
(1979-1999)

Year	Total Personal Income		Total PCI	
	Total ($000)	Change from Previous Year (%)	Total ($)	Change from Previous Year (%)
Total YBEBA				
1979	83,282	-	7,949	-
1989	65,939	-21.0	7,347	-7.6
1999	94,689	43.6	10,695	45.6
Overall Change b/	-	13.7	-	34.5
State of Mississippi				
1979	24,999,688	-	9,918	-
1989	29,815,854	19.3	11,587	16.8
1999	43,112,123	44.6	15,155	30.8
Overall Change b/	-	72.5	-	52.8

SOURCE: Bureau of Census.
a/ Income is presented in 1996 dollars.
b/ Total change during 1979-1999 period.

76. PCI is a measure of the relative support the economy provides for the population of an area. During the 1979 to 1999 period, PCI in the YBEBA increased from $7,949 to $10,695, a 35 percent increase. This compares to the state's PCI growth of 53 percent, an increase from $9,918 in 1979 to 15,155 in 1999 (1996 dollars).

AGRICULTURAL ACTIVITY

77. Historically, agricultural resources have been important to the economy of the YBEBA. However, along with industrial expansion and the increased commercialization and mechanization of farms, farming operations have conformed to practices occurring elsewhere in the country, a trend toward fewer farms with larger acreages. The number of farms in the YBEBA has decreased significantly from 2,036 in 1954 to 192 in 2002, while the average size of farms has increased from 140 to 2,913 acres during the same period. Much of this increase can be attributed to rural and industrial expansion in the area. General farm characteristics are presented in Table 8-11

78. Agricultural land use is displayed by utilization category in Table 8-12 for the YBEBA. Cropland has been the major agricultural use category, comprising 84 percent of the total farmland in 2002. Harvested cropland historically accounted for 92 percent of the total cropland, with less than 7 percent of the total cropland fallow or idle. Historically, less than 1 percent of the total cropland was used for pastures from the period 1978 to 2002. Although land in farms has fluctuated since 1954, farmland has been on the increase over the analysis period. Land in farms comprised 250,000 acres in 1954 as compared to 281,000 in 2002 (Table 8-11).

TABLE 8-11
GENERAL FARM CHARACTERISTICS
YAZOO BACKWATER ECONOMIC BASE AREA
(1954-2000)

Year	Approximate Land Area			Total Number of Farms	Average Size of Farm (acres)
	Total County (acres)	Total in Farms (acres)	Proportion in Farms (%)		
1954	544,640	250,000	46.0	2,036	140
1959	544,000	253,812	46.6	695	386
1964	544,000	286,442	52.6	449	672
1969	544,000	297,155	54.6	419	689
1974	544,000	308,031	56.6	304	992
1978	538,240	330,574	61.4	321	1,007
1982	538,240	321,600	59.7	296	1,064
1987	538,240	298,982	55.5	234	2,532
1992	538,240	295,680	54.9	234	1,250
1997	538,240	295,965	55.0	214	2,753
2002	538,240	281,460	52.3	192	2,913

SOURCE: Census of Agriculture.

TABLE 8-12
AGRICULTURAL LAND USE BY YEAR
YAZOO BACKWATER ECONOMIC BASE AREA
(1978-2002)

Land Use Category	1978			1982			1987			1992			1997			2002		
	Total Acreage	Percentage		Total Acreage	Percentage		Total Acreage	Percentage		Total Acreage	Percentage		Total Acreage	Percentage		Total Acreage	Percentage	
		Land in Farms	Total Cropland		Land in Farms	Total Cropland		Land in Farms	Total Cropland		Land in Farms	Total Cropland		Land in Farms	Total Cropland		Land in Farms	Total Cropland
Total Land in Farms	330,574	100.0	N/A	321,600	100.0	N/A	298,982	100.0	N/A	295,680	100.0	N/A	295,965	100.0	N/A	281,460	100.0	N/A
Total Cropland	297,850	90.1	100.0	287,220	89.3	100.0	270,076	90.3	100.0	268,140	90.7	100.0	262,267	88.6	100.0	236,861	84.2	100.0
Harvested	285,646	86.4	95.9	274,305	35.3	95.5	218,485	73.1	80.9	242,299	81.9	90.4	253,141	85.5	96.5	217,484	77.3	91.8
Used for Pasture	762	0.2	0.3	1,886	0.6	0.7	190	0.1	0.1	b/	N/A	N/A	b/	N/A	N/A	417 b/	0.02 b/	0.2 b/
Other Cropland a/	7,601	2.3	2.6	11,029	3.4	3.8	19,151	6.4	7.1	b/	N/A	N/A	b/	N/A	N/A	7,421 b/	2.6 b/	3.1 b/
Total Wooded	18,225	5.5	N/A	13,461	4.2	N/A	11.387	3.8	N/A	9,500	3.2	N/A	14,792	5.0	N/A	28,777	10.2	N/A
Other Land	14,499	4.4	N/A	20,919	6.5	N/A	17,519	5.9	N/A	18,040	6.1	N/A	18,906	6.4	N/A	15,822	5.6	N/A

SOURCE: Census of Agriculture, 1978-2002.
NOTE: N/A - Not applicable.
a/ Cover crops, failed crops, idle cropland, and other uses.
b/ A portion of these data were withheld due to disclosure of confidential information.

Value of Agricultural Products Sold

79. Table 8-13 presents sales from agricultural products in the YBEBA-- sales values that have fluctuated since 1954. The value of farm products sold was an estimated $55.7 million in 1954 (expressed in 1996 dollars), increasing to $88.1 million in 1964, and then decreasing to $62.2 million in 1969. From that point, the value of farm products sold increased steadily, reaching $132.1 million by 1992 before decreasing to $64.2 million in 2002. However, overall, the total value of agricultural products sold increased 15 percent from 1954 to 2002. Sales from crops were estimated to be $78.7 million in 1997, representing approximately 86 percent of the total value from agricultural products sold. Data on crop sales were unavailable for 2002. Prior to 1997, crop sales averaged 92 to 97 percent of total agricultural sales.

Principal Field Crops

80. Production statistics for the principal field crops reported in the YBEBA are presented in Table 8-14 by total harvested acreage, yield, and total production. The principal field crops reported were soybeans, cotton, wheat, rice, and corn. Soybeans have occupied the majority of the total harvested acreage, with 84,461 acres reported in 2000. Although soybeans are the major field crop, harvested soybean acreage allocated has decreased in the last 10 years from 68 percent in 1982 to 38 percent in 2000. Cotton is second in rank, comprising 29 percent of the total harvested acreage in 2000 while wheat, rice, and corn represented 4, 3, and 27 percent, respectively. Crop distribution percentages for the total harvested acres of all principal field crops reported are depicted in Table 8-14.

Catfish Production

81. The catfish industry has become a major factor in the economy of Mississippi. From 1967 to 1990, acreages increased significantly from approximately 13,000 to over 100,000 acres of food and bait fish. Total production of food fish processed has nearly tripled from 1990 to 2005, from an estimated 360.4 million pounds to over 1 billion pounds. Mississippi is also the No. 1 producer of catfish in the nation, comprising 62 percent in 2005.

82. An estimated 33,000 acres of farm-raised catfish are located within the Yazoo Backwater Study Area. Based on an average price of $0.75 per pound and an output of 4,000 pounds per acre in 2000, the annual gross value of production of these ponds is nearly $100 million. The catfish farming industry has become a dynamic growth industry in the area and is highly dependent upon demand. Although this presents difficulties in projecting future growth, the catfish industry is expected to continue to emerge as a major industry in the area.

TABLE 8-13
TOTAL VALUE OF AGRICULTURAL PRODUCTS SOLD
YAZOO BACKWATER ECONOMIC BASE AREA
(1954-2000)

Year	Total Value of Farm Products Sold ($000) a/			
	Total Sales by County		Total YBEBA	
	Issaquena	Sharkey	Total Sales ($)	Change from Previous Year b/ (%)
1954	20,838	34,853	55,691	-
1959	24,805	41,215	66,020	18.6
1964	27,034	61,100	88,134	33.6
1969	21,072	41,111	62,183	-29.5
1974	29,607	51,485	81,092	30.4
1978	29,805	62,066	91,871	13.3
1982	28,955	67,765	96,720	5.3
1987	35,114	68,740	103,854	7.4
1992 c/	42,175	89,973	132,148	27.3
1997	32,063	59,870	91,933	-30.4
2002	20,136	44,036	64,172	-30.0

SOURCE: Census of Agriculture.
a/ Sales are presented in 1996 dollars.
b/ Change from previous year.
c/ Total change during 1954-2000 period.

TABLE 8-14
PRODUCTION STATISTICS FOR THE PRINCIPAL FIELD CROPS
YAZOO BACKWATER ECONOMIC BASE AREA
(1982-2000)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Year	Principal Field Crop														
	Soybeans			Cotton			Wheat			Rice			Corn		
	Total Harvested Acres	Yield Per Acre (bu)	Total Production (bu)	Total Harvested Acres	Yield Per Acre (lb)	Total Production a/ (bales)	Total Harvested Acres	Yield Per Acre (bu)	Total Production (bu)	Total Harvested Acres	Yield Per Acre (bu)	Total Production (cwt)	Total Harvested Acres	Yield Per Acre (bu)	Total Production (bu)
1982	204,117	25.01	5,104,441	46,066	872.66	83,750	43,612	41.36	1,803,903	8,286	101.04	376,754	b/	b/	b/
1987	143,789	23.97	3,447,892	48,620	983.83	99,654	16,570	34.72	575,368	9,223	116.23	482,416	b/	b/	b/
1992	120,934	34.83	4,211,812	82,680	855.32	147,329	10,996	40.25	442,610	15,188	126.24	862,801	6,576	99.82	656,430
2000	84,461	31.70	2,677,666	62,772	853.10	111,564	7,980	37.88	302,262	6,466	83.77	376,968	58,503	124.0	7,254,243

A	Q	R	S	T	U	V
Year	Total Harvested Acreage, All Principal Field Crops Reported					
	Total Harvested Acreage (No.)	Percent Distribution to Total by Crop				
		Soybeans (%)	Cotton (%)	Wheat (%)	Rice (%)	Corn (%)
1982	302,081	67.6	15.2	14.4	2.7	b/
1987	218,202	65.9	22.3	7.6	4.2	b/
1992	231,819	65.9	22.3	7.6	4.2	b/
2002	220,182	38.0	29.0	4.0	3.0	27.0

SOURCE: Mississippi Statistical Abstract, 1984-2000, U.S. Department of Agriculture Statistical Crop Reporting Service;
a/ Cotton production in 480 net weight bales.
b/ Not available.

INDUSTRY AND BUSINESS

83. The "sunbelt movement" of the 1970s helped stimulate the economy of the area, creating more industry and demand for products, thereby increasing employment. This era resulted in the emergence of the services, government, manufacturing, and trade sectors. These four sectors, discussed in the following paragraphs, represent the economic indicators for industrial and business activity in the YBEBA. Table 8-15 includes the number of establishments and business sales volume for manufacturing retail and wholesale trade and selected services. Although these values indicate a favorable business climate, agriculture remains the major source of economic growth in the YBEBA.

Manufacturing

84. Manufacturing activity, as displayed in Table 8-15 by the number of manufacturing establishments, has significantly contributed to the well-diversified industrial base in the YBEBA. In 1987, there were 10 manufacturing establishments located in the area, an increase of 4 from 1963.

85. The manufacturing industry ranks third in total nonfarm employment percentages in the YBEBA, comprising 14 percent in 1990 and 12 percent in 2000. However, manufacturing earnings, which have ranked third in total earnings in the area since 1969, comprised the majority of total earnings in 1983 and 1990 with over 19 percent of total earnings. Manufacturing data for 1997 were not reported to avoid disclosure of confidential information.

86. Value added by manufacture, the principal measure reflecting the value of industrial production of an area, has increased almost 73 percent, from $7.5 million in 1972 to $13.0 million in 1982 within the YBEBA. Value added is derived by subtracting the cost of materials and services from the value of shipments, thereby constituting a measure of the economic value of the manufacturing activity based on production.

87. Although manufacturing values have fluctuated, these values have experienced an overall increase throughout the YBEBA. Sharkey County represented the majority of the value added by manufacture, comprising approximately 95 percent for the past 25 years.

TABLE 8-15
BUSINESS VOLUME BY INDUSTRY a/
YAZOO BACKWATER ECONOMIC BASE AREA
(1963-1997)

Year	Manufacturing			Retail Trade			Wholesale Trade			Selected Services		
	No. of Establishments	Value Added ($000)	Change from Previous Year (%)	No. of Establishments	Sales ($000)	Change from Previous Year (%)	No. of Establishments	Sales ($000)	Change from Previous Year (%)	No. of Establishments	Sales Receipts ($000)	Change from Previous Year (%)
1963	6	c/	-	112	43,363	-	15	22,809	-	26	1,962	-
1967	6	c/	c/	85	37,595	-13.3	14	12,220	-46.4	35	2,240	14.2
1972	8	7,531	c/	84	28,580	-24.0	16	34,660	183.6	31	2,278	1.7
1977	8	10,359	37.6	77	29,491	3.2	18	49,503	42.8	36	2,906	27.6
1982	7	12,981	25.3	70	27,321	-7.4	14	29,887	-39.6	23	4,226	45.5
1987	10	c/	c/	78	20,737	-24.1	18	22,693	-24.1	27	3,390	-19.8
1992	6	8.6	c/	65	21,645 b/	-37.0	17	21,322 b/	41.8 b/	25	3,439 b/	1.5 b/
1997	c/	c/	c/	35	24,924	91.0 b/	12	17,957	-48.3 b/	b/	b/	b/
Total Change b/	-	-	b/	-	-	-43.0	-	-	-21.3	-	-	75.0

SOURCE: U.S. Census Bureau, 1967-2000.
a/ Values are presented in 1996 dollars.
b/ Data not reported for Issaquena County to avoid disclosure of confidential information, thus total value or change may represent an incomplete estimate.
c/ Not available.

Retail and Wholesale Trade

88. Retail and wholesale trade represents the economic and business activity in the YBEBA based on the sales volume of merchandise. Retail and wholesale trade accounted for 8.5 percent of the total employment up until 1973, increasing to approximately 11.1 percent or greater thereafter until present. Earnings from retail and wholesale trade comprised over $5.9 million in 1990, accounting for 12.1 percent of total earnings. Data for 1997 were not reported for the trade sectors to avoid disclosure of confidential information.

89. Retail sales, defined as the total value of merchandise sold plus receipts from repairs and other services to customers, decreased in the YBEBA from $43.4 million in 1963 to $24.9 million in 2000. A modest increase occurred in retail sales from a 1972 value of $28.6 million to $29.5 million in 1977. However, an overall decrease of 52 percent was recorded from 1963 to 1997. The number of retail establishments has also decreased significantly, from 112 in 1963 to 35 in 2000.

90. Wholesale trade is defined as the sale of merchandise by establishments with one or more paid employees primarily engaged in selling merchandise to retailers; institutional, industrial, commercial, and professional users; or other wholesalers; or in negotiating as agents in buying merchandise for or selling merchandise to such persons or companies. Wholesale sales increased from $22.8 million in 1963 to $49.5 million in 1977 prior to a steady decline to $18.0 million in 2000, an overall decrease of 21 percent. The number of wholesale establishments increased slightly from 15 in 1963 to 18 in 1987 before declining to 12 in 1997.

Selected Services

91. Selected services, which represent service industries such as hotels and motels, repair services, and dental, medical, and legal services, are also indicators of business activity. Selected services in the YBEBA accounted for 14 and 18 percent of the total employment in 1983 and 1990, respectively, rising to 21 percent in 1997. Services also ranked second in total earnings in 1997, comprising $6.7 million, or 23 percent.

92. Based on the statistics in Table 8-15, sales receipts from selected services have steadily increased from $2.0 million in 1963 to $4.2 million in 1982, a 115 percent increase. The sales receipts declined to $3.4 million in 1992, a decrease of 19 percent. The number of establishments has also fluctuated, increasing from 26 in 1963 to 36 in 1977, and then dropping to 25 in 1992. Sharkey County was the major contributor, gaining one selected service establishment and experiencing a 73 percent increase in receipts from 1963 to 1987.

FINANCIAL STATISTICS

93. Financial statistics for local government and banking institutions are discussed in the following paragraphs, indicating the financial capabilities in the YBEBA.

Local Government Finance

94. The local government, which represented approximately 21 percent of the total employment and 33 percent of the total earnings in 2000, ranked second in total employment in the YBEBA in 2000.

95. Selected financial statistics for the local governments are presented in Table 8-16. Total revenues were $20.8 million in 1998, while general expenditures totaled $22.5 million. The general debt outstanding in 1998 was not disclosed, but this element accounted for $5.9 million in 1982.

Banking Statistics

96. In 1992, five banks were located in the YBEBA. Four banks were located in Sharkey County, and one bank was located in Issaquena County. Banking statistics are presented in Table 8-17.

97. Total bank deposits, expressed in 1996 dollars, increased over 132 percent for the YBEBA from $34.8 million in 1964 to $80.6 million in 2000. Sharkey County accounted for over 95 percent of the total bank deposits, while Issaquena County comprised 5 percent.

98. Other financial capabilities are ordinarily revealed through savings capital; however, savings capital for the YBEBA was not reported from 1964 to 1986.

TABLE 8-16
LOCAL GOVERNMENT FINANCE a/
YAZOO BACKWATER ECONOMIC BASE AREA
(1962-1998)

Year	Total Government Revenue					Total Government Expenditure			
	Total ($000)	Change from previous year (%)	Intergovernment Revenue ($000)	Taxes		Total Direct General Expenditures ($000)	Change from previous year (%)	General Debt Outstanding ($000)	Change from previous year (%)
				Total ($000)	Property ($000)				
1962	12,620		6,815	4,065	3,736	13,928		13,814	
1967	15,233	20.7	9,102	4,456	3,485	14,599	4.8	13,964	1.1
1972	18,623	22.2	11,762	3,392	4,219	16,172	10.8	14,213	1.8
1977	20,032	7.6	14,303	3,876	3,520	18,072	11.7	5,617	-60.5
1982	20,506	2.4	15,037	3,189	2,980	19,822	9.7	5,925	5.5
1987	21,547	5.1	13,783	4,465	4,177	21,159	6.7	c/	c/
1998	20,788	-3.6	c/	6,491	6,275	22,488	6.3	c/	c/
Total Change b/	-	64.7	-	-	-	-	61.5	-	-57.1

SOURCE: BEA; County and City Data Book, 1967-1998; U.S. Census Bureau, Governments Division, 2001.
a/ Values are presented in 1996 dollars.
b/ Total change during the 1962-1998 period.
c/ Not available.

TABLE 8-17
BANKING STATISTICS
YAZOO BACKWATER ECONOMIC BASE AREA

Year	Bank Deposits ($000) a/	Percent Change from Previous Year (%)
1964	34,780	
1970	44,611	28.3
1976	70,954	59.1
1981	74,657	5.2
1986	79,743	6.8
1992	76,918	-3.5
2000	80,604	4.8
Total Change b/	-	132.0

SOURCE: County and City Data Book, 1967-2000.
a/ Values are presented in 1996 dollars.
b/ Total change during the 1964-2000 period.

SECTION 5 - FUTURE CONDITIONS

99. Sections 1 and 2 provide a profile of the historical past and present existing economic conditions in the YBEBA. In this section, projections will be discussed for major parameters, including population, employment, earnings and income, value of farm products sold, and industry and business. Methodology and projections utilized in this analysis were obtained from the Economic Impact Forecast System (EIFS) and the Small Area Forecasting System (SAFS). The EIFS uses SAFS projection tools to disaggregate the large-area OBERS BEA regional projections into smaller component areas. These data were used to represent the expected future growth trends of the study area over the next 50 years. A socioeconomic profile summary is presented in Table 8-18 for historical (1980), existing (2000), and future conditions to the year 2050.

100. Not unlike many other projections, those presented in this report are conditional forecasts of the future based on extensions of past trends, adjusted as necessary to reflect the changing national, regional, and inter- and intraregional conditions. Projection methodologies are designed to provide reliability for short term; for periods beyond the year 2000, growth trends are extrapolations of conditions for national trends. Projections are based on long run or secular trends and are not affected by the cyclical fluctuations which characterize the short run path of the regional economy.

101. National assumptions on which the projections are based are as follows:

a. Reasonably full employment will prevail.

b. Technological progress and capital accumulation will continue the current long-term growth in private output.

c. The projection period will be free from the disrupting influence of wars, devastating epidemics, natural catastrophes, or shortage of vital natural resources.

d. Interregional migration will continue into the “sunbelt” states.

102. Regional assumptions applied in this study are as follows:

a. Trends toward industrialization and economic self-sufficiency will continue.

b. Regional earnings and PCI will continue to converge toward the national average.

c. Regional employment ratios will tend to move toward the national average.

d. Both natural and manmade transportation facilities will be available in the future, with the resulting locational advantages.

TABLE 8-18
SUMMARY OF SOCIOECONOMIC PROJECTIONS BY YEAR a/
YAZOO BACKWATER ECONOMIC BASE AREA
(1992-2050)

Item	Historical	Current Year		Projections										Total Change from Current Year c/ (%)
	1992	2000		2010		2020		2030		2040		2050		
	Total	Total	Change b/ (%)	Total	Change b/ (%)	Total	Change b/ (%)	Total	Change b/ (%)	Total	Change b/ (%)	Total	Change b/ (%)	
Population (No.)	8,800	8,900	1.0	8,600	-3.4	8,300	-3.5	8,000	-3.6	7,700	-3.8	7,400	-3.9	-17.0
Employment (No.)	3,021	2,902	-4.0	3,500	2.9	3,500	0.0	3,500	0.0	3,400	-2.9	3,400	0.0	17.2
Total Earnings (million dollars) d/	66.6	50.3	-24.0	59.4	16.5	68.9	12.7	78.5	11.3	83.2	5.1	83.2	0.0	65.5
Personal Income (million dollars) d/	105.9	94.7	-11.0	73.9	17.8	85.5	15.8	97.2	13.7	103.1	6.0	103.1	0.0	9.0
Per Capita Income (dollars) d/	12,034	10,700	-11.0	11,900	11.7	14,400	19.8	17,000	18.4	18,700	9.8	19,400	3.7	81.0
Value of Farm Products Sold (million dollars) d/	132.1	64.2	-51.4	64.8	1.0	67.5	4.2	71.0	5.2	74.6	5.0	78.1	4.7	21.7
Value Added by Manufacturing (million dollars) d/	8.6	(N)	(N)	18.5	(N)	21.1	14.1	23.7	12.3	26.3	11.0	29.0	10.3	(N)
Retail Sales (million dollars) d/	21.6	24.9	-15.3	26.9	7.9	28.8	6.9	30.6	6.4	32.5	6.1	34.2	5.2	37.3
Wholesale Sales (million dollars) d/	21.3	18.0	-15.9	22.2	23.6	25.8	16.0	29.2	13.3	32.6	11.8	36.0	10.5	100.0
Selected Services Receipts (million dollars) d/	3.4	(N)	(N)	7.0	(N)	8.3	18.2	9.8	18.0	10.9	11.7	12.5	14.8	(N)

SOURCE: BEA; Bureau of Census; Census of Agriculture; and County and City Data Book.
NOTE: All values are expressed in 1996 dollars. (N) Not available.

a/ Current data are displayed as year 2000. Actual year as reported is as follows: 2000 for population; 1997 for employment, earnings, agriculture, manufacturing, retail, wholesale trade, and selected services; and 1999 for earnings and income data. All numbers and values are rounded to the nearest hundred.
b/ Percentage change from previous year.
c/ Total percent change from current year (2000) to the year 2050.
d/ All values are expressed in 1996 dollars.

PROJECTIONS - ECONOMIC PARAMETERS

POPULATION

103. Population in the YBEBA is projected to decrease approximately 17 percent over the 50-year expected economic life of the project from 8,900 in 2000 to 7,400 in 2050.

EMPLOYMENT

104. Total employment in the YBEBA is expected to increase from 2,902 in 2000 to 3,500 in 2030, then decline to 3,400 by 2050. The respective categories of farm, services, manufacturing, and government are expected to remain the leading employment sectors.

EARNINGS

105. Total earnings are projected to increase 66 percent from $50.3 million in 2000 to $83.2 million by 2050 (expressed in 1996 dollars). Manufacturing, farm, and services sector will continue to emerge as the leading earnings categories in the YBEBA.

INCOME

106. Total personal income projections reflect an increase from $94.7 million in 2000 to $103.1 million in 2050 or approximately 9.0 percent. Based on the population projections, this results in a PCI growth from $10,700 in 2000 to $19,400 by 2050, an increase of 81 percent. Income values are presented in 1996 dollars.

VALUE OF FARM PRODUCTS SOLD

107. The value of farm products sold is expected to increase approximately 22 percent from $64.2 to $78.1 million from 2000 to 2050. As discussed in analyzing existing conditions, the economy in the YBEBA, although heavily influenced by the agricultural industry, is moving toward an industrial base.

INDUSTRY AND BUSINESS

Manufacturing

108. Value added by manufacturing projection reflects an increase of over 237 percent from $8.6 million in 1992 to $29.0 million in 2050. As presented in Table 8-18, projected value added by manufacture will increase almost 47 times the amount projected to accrue from farm product sales.

Retail and Wholesale Trade

109. Retail sales are expected to increase approximately 37 percent from $24.9 million in 2000 to $34.2 million by 2050, while wholesale sales are projected to increase 100 percent from $18.0 to $36.0 million during the same period. The trade sector, including retail and wholesale trade, is expected to continue to rank around fifth in employment and earnings in the YBEBA.

Selected Services

110. Selected services are projected to increase over 136 percent from $3.4 million in 1992 to $12.5 million by 2050 in the study area. Selected services is expected to rank second in employment throughout the study period.

LAND-USE PROJECTIONS

111. The existing land-use patterns in the Yazoo Backwater Project Area, which are presented in Table 8-1, are anticipated to continue in future years. Agricultural production is expected to continue as a major economical resource and should not be greatly affected by industrialization. Although agricultural land use is expected to remain constant, some shifts will occur in usage, such as in crop distribution patterns, as well as reforestation resulting from the CRP and WRP programs. According to USDA Farm Services Agency (FSA), Farm Bill policy caps WRP at 10 percent of the county total cropland acreage. The CRP caps at 25 percent of the total county cropland acreage; however, WRP acreage is included in the 25 percent. The ceiling for WRP enrollment in Sharkey and Issaquena Counties has been reached, according to the FSA National website. Since CRP enrollment is not perpetual and is subject to revision with each Farm Bill, enrollment in this program should not impact long-term land use. County governments have

expressed reservations on raising these ceilings due to the impact on the tax revenue. The conversion of agricultural land to forest land under these programs results in a significant reduction in property taxes for the counties. As the property taxes go down on this property, taxes on other property have to be raised to make up the shortfall. Based on local action to date and recent congressional actions, future expansion of these programs is not likely.

112. Housing is expected to decline as population declines over the 50-year period in the YBEBA. Urban structures that deteriorate or are otherwise removed are expected to be replaced by other structures, such that the projected number of structures is unchanged. Other land use; i.e., roads, miscellaneous uses, etc., is expected to maintain its present relationship to the total area.

SECTION 6 - ENVIRONMENTAL JUSTICE

113. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," directs Federal agencies to identify and address, as appropriate, "disproportionately high and adverse" human health or environmental effects of their programs, policies, and activities on minority and low-income populations and communities. The order states:

> "To the greatest extent practicable by law . . . each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations . . . . (Subsection 1-101)."

114. The purpose of this section is to identify and address any "disproportionately high and adverse" impacts on minority or low-income segments of the population as a result of the proposed Yazoo Backwater Project. In evaluating environmental justice in the Yazoo Backwater Study Area, various socioeconomic parameters were analyzed and compared utilizing historical growth patterns and current impacts of flooding. A brief summary of these findings is presented in the following paragraphs.

115. In addition, to ensure USACE has properly evaluated environmental justice in the Yazoo Backwater Study Area, an independent firm, Ken Weeden & Associates, Inc. (KWA), of Wilmington, North Carolina, was subcontracted through Neel-Schaffer Engineers of Jackson, Mississippi, to review the process, along with relevant documentation, in order to help determine and assure that sufficient environmental justice considerations were met. Documentation of their findings is presented in "Yazoo Backwater Area, Mississippi Reformulation Study – Analysis of Environmental Justice Considerations," October 2006, Attachment 8A of this Socioeconomic Appendix (Appendix 8).

116. The process and steps conducted by KWA included an extensive review of existing documents and conducting interviews with many principal participants from USACE, Mississippi Levee Board, and local citizens primarily from Issaquena and Sharkey Counties.

HISTORY OF THE PROJECT

117. A short history of the completed and uncompleted features of the Yazoo Backwater Project is provided below. Its purpose is to demonstrate the mindset of area residents when it comes to their need for the project to be completed.

118. In 1941, Congress adopted the Flood Control Act authorizing the Mississippi River and Tributaries (MR&T) Project and various features, including the Eudora Floodway in Arkansas and Louisiana and the Yazoo Backwater Project in Mississippi. The Floodway was proposed to carry floodwater from the Mississippi River from a point near the mouth of the Arkansas River across the States of Arkansas and Louisiana to the Gulf of Mexico, never reentering the main river. The Yazoo Backwater Project was proposed to provide protection to the backwater areas of the Yazoo Basin in Mississippi from floodwater due to higher stages on the Mississippi River. The Yazoo Backwater Project was to consist of constructing drainage structures, levees, and proposed pumps to remove rainwater from the interior of the Delta during a high-water event.

119. Although some of the elements of the 1941 Flood Control Act were accomplished, some others have not been completed. The most significant remaining uncompleted elements of the Yazoo Backwater Project consist of a structural feature including a pump station for surface water removal during high water on the Mississippi River, and the reforestation of up to 55,600 acres of agricultural land. The pump station has been a proposed feature of the Yazoo Backwater Project since its authorization in 1941.

120. It is estimated that the completion of these features would reduce interior flooding in the Yazoo Backwater Study Area when the gates of the Steele Bayou and Little Sunflower drainage structures are closed due to high stages on the Mississippi and/or Yazoo Rivers. Interior drainage has no outlet during these times and has caused significant amounts of acreage to be inundated. Operation of the drainage structure at Steele Bayou would also be modified to maintain a 70.0- to 73.0-foot, NGVD, elevation at the Steele Bayou structure during low-water periods.

121. In regard to the uncompleted works of the 1941 Flood Control Act, there are some significant points that should also be noted which are relevant to the attitudes of the local population relative to the completion of the proposed project. Feedback from KWA interviews led to some of the viewpoints listed below.

a. When the 1941 Flood Control Act was authorized, the Eudora Floodway and Yazoo Backwater project were key features of flood control along the lower Mississippi Valley to be implemented complementary of each other to reduce flooding. As land values increased in Arkansas and Louisiana, political interests from the State of Arkansas sponsored language in the 1941 Flood Control Act to remove the Floodway from the MR&T Project. Furthermore, while removal of the feature continues to benefit Arkansas and Louisiana, the resulting impacts east of the Mississippi River are less favorable as the already impoverished region continues to endure hardships from flooding, especially without the completion of the final part of the Project.

b. Many residents and local interests in the Mississippi Delta are very disturbed that the Yazoo Backwater feature of the Project has not been implemented since the Eudora Floodway was eliminated from the works. They are concerned that the failure to complete the Floodway has compromised the flood protection they were to be provided upon completion of the MR&T

Project.

c. In addition, eliminating the Eudora Floodway is estimated to increase stages on the Mississippi River by approximately 6 feet at Vicksburg. The Yazoo Backwater Project was authorized in the Act to keep the additional water from high stages on the Mississippi River from flooding the Mississippi Delta. The Mississippi River provides the outlet for water from approximately 41 percent of the continental United States. This includes drainage from 31 states and parts of 2 provinces in Canada. Thus, this water comes through the Mississippi River and its tributaries, which means when the stage increases at Vicksburg, it has a significant impact on the Yazoo Backwater Study Area.

d. To make up for the loss of the diversion of high water and backwater flooding in the area, local residents feel they are due their share of protection. Thus, the Yazoo Backwater feature is an essential component of flood reduction in the lower Mississippi Delta.

THE IMPACTED AREA

122. West-central Mississippi has a much higher minority population than the state as a whole--approximately 69 percent in the year 2000 compared to 39 percent for the state as a whole (Table 8-19). The two-county region also has a much higher level of poverty than the state. The poverty level for this area ranges from 31 percent for Sharkey County to 32 percent for Issaquena County in 2003, as compared to the entire state (18 percent). This indicates that income levels for minorities in these counties are significantly lower than the state averages for Mississippi. Poverty statistics are present in Table 8-20.

123. The potential for flooding in the Yazoo Backwater Study Area affects approximately 1,576 structures and an estimated 630,000 total acres of land within the 100-year flood plain. It should be noted that the majority of these structures are located outside the urban areas and towns within the Yazoo Backwater Study Area. Of the land, an estimated 316,000 acres are cleared agricultural land, the major attribute in the development of this region's economy. Flood events bring disruption to the lives and livelihood of the area citizens, whether they are located in small communities or in remote rural areas. Impacts, which range from homes to farms to businesses and interrupt everyday services and operations, can last for days at a time and take months to recover from. The mostly poor residents of this region, many of which are elderly, already struggle to make a living on a daily basis. This is compounded by disruptive, costly flood events that interrupt their everyday way of living, endanger their property, and threaten the means to provide for that way of living.

124. The most populated communities impacted by the proposed project in the Yazoo Backwater Study Area are Belzoni, Hollandale, and Rolling Fork, which include towns with populations greater than 1,000 persons. Among the smaller communities within the impacted area are Anguilla, Cary, Delta City, Eagle Lake, Fitler, Glen Allan, Holly Bluff, Mayersville, Onward, Silver City,

TABLE 8-19
TOTAL POPULATION AND DISTRIBUTION BY RACE,
YAZOO BACKWATER ECONOMIC BASE AREA

Area/ County	Total Population By Race								
	1980		1980-90 change (%)	1990		1990-2000 change (%)	2000		Overall change 1980-2000 (%)
	(no.)	(%) a/		(no.)	(%) a/		(no.)	(%) a/	
Majority Population b/									
Issaquena	1,103	43.9	-24.4	833	43.6	-0.9	826	36.3	-25.1
Sharkey	2,732	34.3	-14.4	2,339	33.1	-17.3	1,932	29.4	-29.2
Total YBEBA	3,835	36.0	-17.3	3,172	35.3	-13.0	2,758	31.2	-28.0
Mississippi	1,615,729	64.1	1.1	1,633,461	63.5	6.9	1,746,099	61.4	8.1
Minority Population c/									
Issaquena	1,410	56.1	-23.7	1,076	56.4	34.6	1,448	63.7	2.7
Sharkey	5,232	65.7	-9.7	4,727	66.9	-1.7	4,648	70.6	-11.2
Total YBEBA	6,642	63.4	-12.6	5,803	64.7	5.1	6,096	68.9	-8.2
Mississippi	904,909	35.9	9.8	993,166	38.6	10.6	1,098,559	38.6	21.4
Total Population									
Issaquena	2,513	-	-23.6	1,909	-	19.1	2,274	-	-9.0
Sharkey	7,964	-	-11.3	7,066	-	-6.9	6,580	-	-17.4
Total YBEBA	10,477	-	-14.2	8,975	-	-1.3	8,854	-	-15.4
Mississippi	2,520,638	-	-2.1	2,573,216	-	10.6	2,844,658	-	12.9

SOURCE: U.S. Bureau of the Census.
a/ Percent of the total population.
b/ Persons of Caucasian descent.
c/ Persons of African-American, Hispanic, Asian, Indian, and other descents.

TABLE 8-20
TOTAL POPULATION BELOW POVERTY LEVELS
YAZOO BACKWATER ECONOMIC BASE AREA

Area/ County	Total Population Below Poverty Levels								
	1979			1999			2003		
	Total Population	Total Population Below Poverty Levels		Total Population	Total Population Below Poverty Levels		Total Population	Total Population Below Poverty Levels	
	(no.)	(no.)	(%) a/	(no.)	(no.)	(%) a/	(no.)	(no.)	(%) a/
Issaquena	2,513	920	36.6	2,274	666	29.3	2,062	659	32.0
Sharkey	7,964	3,504	44.0	6,580	2,492	37.9	6,234	1,935	31.0
Total YBEBA	10,477	4,424	42.2	8,854	3,158	35.7	8,296	2,594	31.3
Mississippi	2,520,638	602,432	23.9	2,844,658	548,079	19.3	2,882,594	514,663	17.9

SOURCE: U.S. Bureau of the Census.

Louise, Midnight, Valley Park, and many more. Although many socioeconomic statistics were not available for the smaller areas, it should be noted that the lives of the residents of even the smallest communities are disrupted during flood events. Because they are small and poor, the hardships they endure from flooding are inconceivable to most people and are often given less priority.

ENVIRONMENTAL JUSTICE IMPACTS

PHYSICAL LOSSES

125. Flooding that would continue at current frequencies and duration has a direct "disproportionate" effect on the entire impacted area, but especially on minorities and low-income persons located in this area. This segment of the population is the most adversely impacted group located in the flood-prone area. Not only are their homes subjected to backwater flooding, which creates them hardship and stress, but they must attempt to recover from the physical property losses from flood damages to their homes, businesses, automobiles, contents to their homes, and other personal property.

POTENTIAL ECONOMIC LOSS

126. The potential for loss of economic opportunity also results from flood events. This would have a greater impact on minorities and low-income persons in the Yazoo Backwater Study Area, as fewer opportunities would exist for employment because businesses are reluctant to locate facilities in flood-prone areas. Given the fact that the two counties that make the majority of the study area, Issaquena and Sharkey, contain predominantly poor African American populations, the impact from backwater flooding has a greater effect on minorities and low-income residents in the area than on the rest of the population.

127. Based on the socioeconomic comparison provided in the KWA Report (Attachment 8A, Table 18, page 36), the Yazoo Backwater communities lag behind other Delta communities in terms of having the lowest PCIs, the highest unemployment rates, the fewest opportunities for better employment, and the highest poverty levels. In terms of economic opportunities, the Yazoo Backwater Study Area is already disadvantaged based on its location being somewhat more isolated from the opportunities of bigger cities. Also, there are no major commercial developments, industries, or public institutions nearby to supplement the economy as some of the other Delta communities have.

128. Its history of flooding is a detriment in attracting new business and industry. Thus, any effort to alleviate the flood burden in the area would not only reduce physical flood damages, but also could be a potential economic boost in the impoverished lower Delta region capitalizing on some of the same opportunities for economic emergence that the north Delta has recently experienced. The Yazoo Backwater Study Area needs to eliminate this "flood" threat so they can benefit from future development prospects and take advantage of the new I-69 and U.S. 61 highway systems, the gaming industry, tourism, and any other spinoffs in the region that can enhance their economy. For the Yazoo Backwater Study Area, not implementing the Project would almost inevitably limit it to minimal participation in the positive aspects of these regional developments according to the KWA Report.

HEALTH, SAFETY, AND WELFARE

129. Based on the KWA Report, the result of not building or completing the proposed project will pose an adverse impact on the minority and low-income population in the Yazoo Backwater Study Area. Flood damage reduction in this segment of the Mississippi Delta will contribute to the overall health, safety, and welfare of the citizens by helping sustain and stimulate economic growth in the area**.** Project completion would allow residents to take their children safely to school, attend to normal daily needs, and continue their lives without interference or hazard from floodwaters. Overall, this equates to a positive benefit to the minority and low-income populations in the region.

OTHER SOCIAL IMPACTS – ROADS, UTILITIES, SERVICES, AND INFRASTRUCTURE

130. Several other indirect social impacts have been identified to have "disproportionate" impacts as a result of flooding in the Yazoo Backwater Study Area. These include the loss of some public services, the inability to use flooded roads and bridges, the temporary loss of utilities, the inability to get to work, the inability to obtain daily necessities, and the mental stress of dealing with the flood.

131. Roads are closed during flood events, adding detours of as much as 50 to 60 miles to already long trips. These closures affect many segments of the community. In addition, daily public services such as school bus routes and garbage pickup are disrupted, as well as law enforcement and other emergency services. Sanitation facilities in rural areas, which consist primarily of septic systems, can also become inoperable when the water table gets too high, even if the primary building (home, business, etc.) does not flood.

INSURANCE

132. Floods, like other natural or man-influenced disasters, always seem to most severely impact the poor. Those without accumulated wealth have fewer resources or options for dealing with the resulting disruption in their lives. Flood insurance is often prohibitively expensive for many residents in the area so, many times, flood loss to poor or low-income residents is total loss.

133. Many of the people in this region have no insurance; thus, all flood costs must be borne by the individual. As mentioned earlier, incomes in this area are significantly below state and national levels, with many persons below the poverty level. When floods occur, there are no funds available for repairs to homes, automobiles, appliances, etc. In addition, according to the Mississippi Emergency Management Agency (MEMA), if a building is below the 100-year flood frequency elevation and incurs damages greater than 51 percent of the value of the structure, it must be removed or elevated above the 100-year frequency flood plain. To participate in the Program, counties must pass a flood ordinance with these provisions. A permit cannot be issued by a county to repair any structure in the 100-year flood plain that incurs damages greater than 51 percent (insured or not) without the entire county being removed from the Federal Flood Insurance Program. Many of the residents in the area do not have the financial means to implement these options on their own.

134. Based on data collected from MEMA and the Federal Emergency Management Agency (FEMA), only 17 percent of the 1,294 residential properties impacted by flooding in the 100-year flood plain of Issaquena and Sharkey Counties have flood insurance (Table 8-21). Much of the reason that there are not more participants in the National Flood Insurance Program (NFIP) is that the majority of the population in this region is low income. Based on the 2004 Bureau of the Census statistics, 31 percent of the residents in Issaquena and Sharkey Counties were below poverty level in 2003.

TABLE 8-21
TOTAL FLOOD LOSSES FOR RESIDENTIAL PROPERTIES
BASED ON NFIP POLICIES AND CLAIMS FROM 1978 TO 2004 a/
YAZOO BACKWATER ECONOMIC BASE AREA

Area	Total Residences in the 100-Year Flood Plain (no.) b/	Total Properties Reporting Claims (no.) c/	Total Flood Insurance Policies (no.)	Total Coverage of Policies ($000) d/	Average Amount of Policies ($) d/	Total Number of Losses Claimed (no.)	Total Amount of Losses Claimed ($000) d/
Issaquena County	--	92	120	7,580	63,200	657	3,717
Sharkey County	--	19	103	8,950	86,900	160	925
Total YBEBA	1,294	111	223	16,530	74,100	817	4,642

a/ FEMA database of NFIP claims by county for Mississippi obtained from MEMA Mitigation Bureau Floodplain Management Branch, September 2004.
b/ Based on damage impact assessment from the Yazoo Backwater Reformulation Study, 2006.
c/ Includes structures with multiple or repetitive losses (i.e., structures with occurrences of flooding more than once a year and/or occurrences in multiple years).
d/ Actual values expressed in constant 2004 dollars as obtained from the FEMA database.

135. A summary of flood losses for residential properties located in Issaquena and Sharkey Counties is presented in Table 8-21 based on NFIP policies and claims reported from 1978 to 2004. This includes only those structures that have participated in NFIP at some point in time (i.e., structures that have had flood insurance with NFIP at least once during the 24-year period). These structures may or may not have insurance currently, but this does not mean they are not impacted by flooding. According to FEMA sources, there are also structures located in the project impact area that are subject to flooding and have never had flood insurance or been involved with NFIP. Not all impacted properties participate in the flood insurance program. Thus, the FEMA/MEMA statistics do not include all of the structures that have received flood damages or losses in the Yazoo Backwater Study Area over the last 25 years.

136. All properties in the FEMA database were evaluated to determine if they fell within the bounds of the Yazoo Backwater Study Area. Each property was tabulated by county, zip code, and available latitude/longitude coordinates utilizing GIS technology. According to these reports, only 17 percent of the 1,294 residential structures impacted by flooding have had flood insurance policies through NFIP over the last 25 years. In addition, the summary presented in Table 8-21 indicates that a total of 111 properties with flood insurance reported 817 flood losses from 1978 to 2004 cumulating approximately $4.6 million in claims (expressed in constant 2004 dollars). However, some of these properties included structures with multiple, or repetitive, losses (i.e., occurrences of flooding more than once in a year and/or occurrences in multiple years). For example, in Sharkey County, only 19 residences filed losses, but a total of 160 claims were filed over the period.

EMOTIONAL TRAUMA

137. Emotional trauma is increased by the experiences of being flooded out or having to constantly battle to keep homes or businesses from flooding. Flood events bring disruption to the lives and livelihood of the area citizens, whether they are located in small communities or in remote rural areas. Impacts, which range from homes to farms to businesses and interrupt everyday services and operations, can last for days at a time and take months to recover. In 1973 (the flood of record), flooding lasted for approximately 153 days. In 1991 and 1997, flooding lasted for 96 and 46 days, respectively. It should be noted that days of flooding are based on the number of days water was above elevation 87.0 feet, NGVD, at the Steele Bayou structure. The mostly poor residents of this region already struggle to work on a daily basis. Many of these people are too poor to move, many are elderly, and many rely on Government aid. The financial, physical, and emotional hardship of relocating is not an option. This is compounded by disruptive, costly flood events that interrupt their lives, endanger their property, and potentially threaten their means to earn a living. These financial burdens add to the stress of the flood event.

THE 1941 ACT –
COMPLETION OF THE PROJECT

138. Implementation of this project would complete a promise made by the U.S. Government over 50 years ago. An agreement was made in the 1940s to close the Eudora Floodway, which provided additional flood protection to the people in southeast Arkansas and northeast Louisiana. The people in the Yazoo Backwater Study Area were told that a pump station would be installed in that area to compensate for the additional flooding that would be caused by the closure of the Floodway. Today, the people of southeast Arkansas and northeast Louisiana have their protection, but the people in the Yazoo Backwater Area are still waiting for their promised protection.

ENVIRONMENTAL JUSTICE IMPACTS BY ALTERNATIVE

THE NO ACTION ALTERNATIVE -
ALTERNATIVE 1

139. Since no action would be taken, it would have direct “disproportionate” impacts on the total population, including minorities and low-income persons in the region. However, it is likely that the loss of economic opportunity would have a greater impact on minorities and low-income persons, as fewer opportunities would exist for employment because of the flooding. In

addition, the flooding affects residents by damaging residences, businesses, schools, and infrastructure such as roads. In addition, the region is heavily dependent on farming, and the loss of crops due to flooding is a significant hardship in a region with such a high poverty level.

NONSTRUCTURAL ALTERNATIVES 2, 2A , 2B, AND 2C

140. The nonstructural alternatives evaluated were determined to have no direct "disproportionate" impacts on minorities or low-income persons in comparison to the rest of the population. All residents would continue to experience hardships from flooding since flood damages would only be reduced, not eliminated. However, the minorities or low-income persons of the area would probably feel a greater loss since they do not have the means to recover from their losses.

STRUCTURAL ALTERNATIVE 3

141. Alternative 3 is the only totally structural alternative and consists of a 14,000-cfs pump station with a beginning pumping elevation of 80.0 feet, NGVD, between 1 March and 31 October. Pumping elevation would decrease to 85.0 feet, NGVD, between 1 November and 28 February. Alternative 3 was determined to have no direct "disproportionate" impacts on minorities or low-income persons in comparison to the rest of the population.

COMBINATION ALTERNATIVES 4, 5, 6, AND 7

142. All of the combination alternatives evaluated were based on a 14,000-cfs pumping station located near the existing Steele Bayou structure with pump operations ranging from elevation 85.0 to 91.0 feet, NGVD; acquisition and reestablishment of forests; modified operation of the Steele Bayou structure; and conservation easements from willing sellers. These alternatives would offer varying degrees of relief from the backwater flooding and should help low-income and minority residents of the area. The structural alternatives evaluated were determined to have no direct "disproportionate" impacts on minorities or low-income persons in comparison to the rest of the population..

THE RECOMMENDED PLAN - ALTERNATIVE 5

143. Alternative 5 consists of a 14,000-cfs pump station with an 87-foot, NGVD, year-round pump elevation and the purchase perpetual easements for reforestation on up to 55,600 acres of cleared cropland reestablished in hardwoods. Operation of the Steele Bayou structure would maintain water elevations between 70.0 and 73.0 feet, NGVD, during the low-water periods. This alternative would offer a 75 percent degree of total flood damage reduction in the Yazoo Backwater Study Area. Alternative 5 would to have no direct "disproportionate" impacts on minorities or low-income persons in the region in comparison to the rest of the population, and many residents would experience relief from past flood problems.

SOCIOECONOMIC IMPACT OF PROJECT COMPLETION

144. Even though legislation intended to reduce backwater flooding problems within the Yazoo Backwater Area has been in place for many years, the final component of the 1941 Flood Control Act, the pumping system, is incomplete. When the Eudora Floodway was removed as a feature of the MR&T Project, this compounded the flood problems on the east side of the Mississippi River. Since that time, the States of Arkansas and Louisiana have enjoyed the benefits provided by the Act while the residents of the south Delta area of Mississippi continue to flood without the completion of the final part of this project.

145. In 1973, the lower Mississippi Delta experienced another major flood, a benchmark 100-year flood event. Residents of the area are aware that, due to the topography of the land and the climatic conditions prevalent in the Yazoo Backwater Region, flooding remains a constant threat to their physical, emotional, and economic welfare and**,** with or without additional protective measures, they may or may not be prepared or protected if another major flood occurs. The Corps is working with the local citizenry and local organizations to identify, design, and provide a feasible solution. The proposed Yazoo Backwater Project is designed to reduce, as much as possible, future damage from major flood events.

146. The installation of the pump improvements is one of the last major elements in the MR&T Project for the Yazoo Backwater Area. The proposed project would reduce the flood stages by 4 to 4.5 feet in the Yazoo Backwater Study Area for the 100-year frequency flood and provide flood damage reduction to many residents, homes, businesses, agricultural lands, roads, bridges, and other impacted resources. The nonstructural feature of the recommended alternative would reforest up to 55,600 acres of bottom-land hardwoods in the Yazoo Backwater Study Area. Project completion would allow residents to take their children safely to school and attend to normal daily needs and activities without the threat of interference or hazard from floodwaters.

147. Completion of the Yazoo Backwater Project will also infuse the local economy with the sense of "security" that will support local investment – in business and real estate. Residents formerly victimized by flooding would also be more likely to rebuild or upgrade homes if flooding were less likely to occur.

CONCLUSION

148. Environmental Justice is intended to review, document, and mitigate, if necessary, any "disproportionately high or adverse" impacts of the Federal project on minority and low-income populations. Because minority and low-income populations are predominant within the Yazoo Backwater Study Area, the overall impacts of the Project outlined in the KWA Report (Attachment 8A) were reviewed in the context of how the proposed project would affect those populations. After reviewing recorded historic flood data within the study area, as well as conducting one-on-one interviews with residents, KWA concluded that the greatest harm--environmentally or economically--to the Yazoo Backwater Study Area would be caused by not building the project. Residents that were interviewed indicated that completion of the Project would significantly improve the quality of their lives.

149. In addition, although other parties have been identified to be impacted by the implementation of the Project, such as environmental groups and hunting clubs, the main purpose of this document is to identify and mitigate any "disproportionately high or adverse" impacts of the Federal project on minority and low-income residents of the area. Based on the KWA analysis, the groups that suffer the most from not building the Yazoo Backwater Project are the poor and the elderly, which make up the majority of the population in the Yazoo Backwater Study Area. They cannot afford to renovate, rebuild, or move. For them, it is a matter of livelihood and, based on the results of this environmental justice evaluation, indications of all records and interviews show the majority of the local residents are in favor of the Project. It should also be noted that much of the opposition for this project comes from environmental groups and, although their concerns are worthy of equal consideration, the main emphasis of the environmental justice study is the "disproportionate" impact on the impoverished segment of the population in the Yazoo Backwater Study Area.