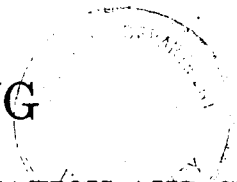
CAPE FEAR RIVER DEVELOPMENT



HEARING

BEFORE THE

SUBCOMMITTEE ON CONSERVATION AND CREDIT

OF THE

COMMITTEE ON AGRICULTURE

AND THE

SUBCOMMITTEE ON WATERSHED DEVELOPMENT

OF THE

COMMITTEE ON PUBLIC WORKS

HOUSE OF REPRESENTATIVES

EIGHTY-SEVENTH CONGRESS

SECOND SESSION

FEBRUARY 16, 1962

PITTSBORO, NORTH CAROLINA

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CAPE FEAR RIVER DEVELOPMENT

FRIDAY, FEBRUARY 16, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CONSERVATION AND CREDIT
OF THE COMMITTEE ON AGRICULTURE,
AND SUBCOMMITTEE ON WATERSHED DEVELOPMENT
OF THE COMMITTEE ON PUBLIC WORKS,
Pittsboro, N.C.

The subcommittee met, pursuant to notice, at 10 a.m., in the Chatham County Courthouse, Pittsboro, N.C., Hon. W. R. Poage (chairman of the Subcommittee on Conservation and Credit) presiding.

Present for Subcommittee on Conservation and Credit: Representatives Poage (presiding), Cooley, Gathings, Jones of Missouri, Breeding, Stubblefield, Hagan, Purcell, and McIntire.

Present for Subcommittee on Watershed Development: Representatives Frank Smith and Harvey of Michigan.

Also present: Christine S. Gallagher, clerk; and Hyde H. Murray, assistant clerk, on behalf of Committee on Agriculture; and Joe Brennan, staff member, Committee on Public Works.

Mr. POAGE. Ladies and gentlemen, the committee will come to order.

We will commence the hearings of the day, because I see that we have a rather extensive witness list. I hope that most of the witnesses are going to be relatively brief, and I hope that there will not be any unnecessary repetition, because we do find in hearings that most of the time so often is devoted to hearing the same thing after the first round of witnesses. We want to hear from everybody who has views on this matter. We want to hear all of the views. But it is not of much help to just say the same thing somebody else has said.

Unless we avoid a large part of the repetition, we really will not get the hearing conducted and disposed of as we should.

This group that is with you today represents both the Agricultural Committee of the House of Representatives and the Public Works Committee of the House of Representatives. Of course, I know that all of you folks here are familiar with the Committee on Agriculture, because your own Congressman has been chairman of that committee for so long that the memory of man hardly runneth to the contrary. [Applause.] And we hope that it will continue to be that way.

I am admonishing, of course, not only the people of the district, but my colleagues who represent a different party that we are still hoping that it will remain in the same hands that it presently is vested in. But, of course, we do not have complete unanimity on our committee, and we do not have complete unanimity an any committee or in any groups.

We have with us representatives of the Public Works Committee, the chairman of their Watershed Development Subcommittee, Mr. Frank Smith from Mississippi, who will be here and participate in conducting this hearing today. Mr. Harvey of Michigan, a member of the Public Works Committee, is here, too.

Will you gentlemen arise so that they can see you?

This is Mr. Smith. This is Mr. Harvey.

And we have, representing the Committee on Agriculture, Judge Purcell of Texas, who has been a member of our committee 9 days, I believe. Mr. Hagan of Georgia, who has been a member about 13 days. It is something on that order. We are delighted to have them with us. You people are going to break them in on this matter of control of water, because this is the first hearing of this kind they have attended.

Then of our old members we have Mr. Frank Stubblefield of Kentucky, a longtime member of the Flood Prevention Subcommittee of the Committee on Agriculture, the Conservation and Credit Subcommittee. Mr. Floyd Breeding of Kansas; Mr. Paul Jones of Missouri; Mr. "Took" Gathings of Arkansas; and Mr. Clifford McIntire of Maine. And your own Congressman, the Honorable Harold D. Cooley, the chairman of the committee. [Applause.]

Now, I come here, as do the other members of the subcommittee, as an impartial observer. And to prove it I have to confess that I do not even know any of the details of the dispute that we are to hear this morning. I know, of course, that you people, like the people in most parts of the United States, are concerned with flood prevention and flood control. We like to say that flood prevention consists of preventing floods in the upstream areas, keeping the water as close to the point where it falls as possible, and thereby never allowing the flood to develop.

We know, on the other hand, that floods do develop. And there is a necessity for controlling those floods after they have developed. And there is, indeed, a necessary place for flood control activity as distinguished from flood prevention.

So we are concerned with both of those activities, as is the other committee. In fact, the Public Works Committee has jurisdiction over the review of some of these flood prevention projects, those which involve storage structures in excess of 4,000 acre-feet. They go to that committee for review.

The smaller ones come to the Committee on Agriculture for review. And those that involve less than $250,000 expenditure of Federal money are authorized by the Department without being sent to the Congress at all.

I understand there have been projects proposed both of flood control and of flood prevention for the upper reaches of the Cape Fear River, and that each project, of course, has certain advantages that the other does not have. I suppose that each has certain burdens and detriments that the other does not have. Whether one of these undertakings should be approved or whether both of them should be approved, or whether parts of both of them should be approved seems to be the question, as I understand it. That is not going to be directly before this committee, because we canont make that decision.

I know, of course, that some of you folks, every one of you who is dissatisfied, will just say, "Why do we not have Harold Cooley do it this way or the other way?" Harold Cooley is a pretty important man in Washington, D.C., but he cannot go out and order that this dam be built or that this one not be built.

Fortunately, our Government does not work that way. No individual member has that kind of authority. It must be through the regularly established channels of review and determination. All that this group can do, of course, is to wield some influence on those final determinations which will not be made by any one individual. I think that makes for a whole lot better form of government than to assume that some one Congressman can do it all. He cannot.

But you do not want to hear me go on. I think we should get underway and hear this long list of witnesses. I thought, however, that possibly you should have a word of greeting from the Congressman from this district before we hear any witnesses. I am going to ask Mr. Cooley if he cares to have a word.

Mr. COOLEY. Mr. Poage, laides and gentlemen, I will just take one moment to thank my colleagues for coming here and meeting with us today about a matter that is of very vital importance to the welfare and happiness of the people of this area. All of these gentlemen are busy in Washington and would prefer, perhaps, to be spending the long weekend with their families at other places, so I do want to thank all of you for coming here and listening.

Mr. Poage has said that we have a question of jurisdiction between two of the big committees of Congress. Whether new legislation will be needed we will have to determine hereafter, but we want you to feel perfectly free to express your views. Everybody has been invited. The meeting is wide open. We will hear the proponents and the opponents as the witnesses are called.

I am glad to see so many of you here indicating your interest in the matter. I will just conclude by thanking my colleagues for coming down here. [Applause.]

Mr. POAGE. Mr. Smith says that he did not care to comment on the evidence until he hears it. So we will start hearing it. We will start this meeting with Mr. R. M. Dailey, State conservationist of the Soil Conservation Service.

I did not arrange this list of witnesses, but I think that somebody has done a very good job. I simply have a list of the witnesses who are to appear here. They are divided into groups, and I think that is rather proper, that they should be so divided, but if you want to testify in this matter, if you want to express a viewpoint on this, please come up here and speak to Mrs. Gallagher, the lady right here, who is keeping the record. She is the clerk of the Committee on Agriculture, and she will place your name on the list and we will try to hear you if you will come up and get your name on the list, but do not go away from here saying that "I did not get a chance to be heard," because this is an open meeting, as Chairman Cooley has said, and it does not make any difference what your views are, we want to hear from you.

Now, then, we will hear from Mr. Dailey.

STATEMENT OF R. M. DAILEY, STATE CONSERVATIONIST, SOIL CONSERVATION SERVICE; ACCOMPANIED BY GEORGE PHILLIPS, JOE HANNA, AND ELMER GRAHAM, SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. DAILEY. Mr. Chairman and members of the committee, at the request of the late Senator Kerr Scott the Corps of Engineers, the Soil Conservation Service, and the State of North Carolina initiated a joint survey of the Cape Fear River Basin late in 1957. The Soil Conservation Service carried out its phases of the joint investigation under the authority of section 6 of Public Law 566, 83d Congress, as amended.

The purpose of this joint survey was to prepare a generalized comprehensive plan for the development of the water and related land resources of the basin. It was agreed at the beginning that the generalized comprehensive plan report would not in itself contain any recommendations for authorization of specific projects but would provide a framework within which any of the participating agencies could proceed to prepare plans for specific projects for authorization.

A joint report on the survey was completed in May 1961. Copies were provided to the House Committees on Agriculture and Public Works and to the Senate Committees on Agriculture and Forestry and Public Works. The report was also provided to the concerned members of the North Carolina congressional delegation and was made available to interested individuals and organizations in North Carolina.

The Cape Fear River Basin is one of the most intensively developed industrial areas within the State of North Carolina. Agriculture is important to the economy of the area particularly in the section along the main stem of the Cape Fear River. There has been relatively little development of the water resources in the basin. Portions of the flood plain along the main stem and tributaries throughout the entire basin are subject to flooding. Agricultural activity on the flood plains in frequently interrupted and there are substantial flood damages to agricultural lands and rural property. Because of the expanding economic development of the area the flood problem has become critical in some areas. Urban and industrial development along the main stems of the Haw, Deep, and Cape Fear Rivers have been subjected to damaging floods.

Preliminary investigations by the Corps of Engineers prior to the initiation of the joint studies indicated that a major part of the flood damages along the main stem of the Cape Fear River occurred to agricultural lands and rural improvements below Fayetteville. Significant damages also occurred to urban and industrial developments in the Fayetteville-Godwinton area. Consequently, a principal objective of the joint survey was to evaluate methods for providing an adequate level of flood protection to these areas.

The joint investigation by the Corps of Engineers and Soil Conservation Service showed that adequate flood protection on the Cape Fear River below the Haw River can be provided by alternate systems of economically justified reservoir storage. The reservoirs in each of the alternate systems can be developed for multipurpose use which will provide for some of the water needs for municipal and industrial use, water quality control, irrigation, and recreation.

The joint report presents two alternative plans for water resource development in the Cape Fear River Basin. Plan A consisting of a relatively large reservoir on the Haw River at the New Hope site was investigated by the Corps of Engineers. Plan B consisting of a system of 232 small- and intermediate-size reservoirs was investigated by the Soil Conservation Service.

The Corps of Engineers and the Soil Conservation Service worked together on a majority of the field surveys and exchanged data on many phases of the studies. Each agency agreed to accept primary responsibility for carrying out specific studies in which it followed its own practices and criteria. Accordingly, the estimates pertaining to functional requirements and costs associated with the small and intermediate reservoirs in plan B were prepared by the Soil Conservation Service. The estimates with respect to the New Hope Reservoir were prepared by the Corps of Engineers.

The pertinent data relative to the two plans, benefits to be derived and the estimated costs are:

	Plan A	Plan B
Number of reservoirs	1	232
Drainage area controlled, square miles	1,690	2,969
Storage capacity, acre-feet:		
Flood control	541,000	890,100
Low-flow regulation	72,000	
Irrigation		50,400
Sediment	47,000	41,600
Total storage capacity	660,000	982,100
Water surface area, acres (full flood pool)	30,000	72,000
Area of land required, acres	35,000	78,000
Area benefited by flood protection	219,000	313,000
Benefits:		
Flood control	$1,127,700	$1,403,500
Irrigation	(1)	324,800
Recreation	376,000	603,000
Fish and wildlife	150,000	(2)
Low-flow regulation	108,300	(1)
Total benefits	1,762,000	2,331,300
Total cost	23,975,000	34,800,000

[1] Not evaluated.
[2] Included with recreation.

The flood damage reduction benefits as presented in the report are based on the analysis of one storm runoff pattern, namely, the storm of tropical origin which resulted in the 1945 flood. The effectiveness of the two systems of reservoirs in reducing flood damages from this storm runoff pattern may be compared. However, the effectiveness of other features of the two systems are not entirely comparable.

For example, plan B provides for irrigation storage while this feature was not evaluated for plan A. Benefits for storage for water quality control are estimated for plan A but were not evaluated for plan B since quantitative needs for such storage in the upstream areas were not available. Storage for municipal and industrial water supply is not included in either plan. However, needed storage for this purpose could be provided in either plan.

Each of the two plans presented in the joint report is economically justified as an alternative plan of development. Although either plan would make a substantial contribution toward the development, neither plan would provide for all of the water needs throughout the entire basin.

Some consideration was given to a plan which would provide for a combination of the New Hope Reservoir with small and intermediate reservoirs in the upstream area. However, the largest part of the flood reduction benefits are downstream from the site of the New Hope Reservoir. Consequently, if this reservoir is included in any plan of development, only a few of the upstream reservoirs in plan B could be justified on the basis of the remaining flood reduction benefits which would accrue within the subwatershed area within which the small reservoirs are located.

In other words, the principal justification for either plan A or plan B as evaluated in the joint report stems from benefits from flood damage reductions along the main stem of the Cape Fear River below the New Hope site.

Federal participation in either plan A or plan B will require specific congressional action. Plan B, which contains some 232 small and intermediate-size reservoirs, was formulated to provide the widest distribution of flood damage reduction and other benefits throughout the basin while at the same time providing an adequate level of flood control at and below Fayetteville. The provisions and restrictions of existing legislation which provides for Federal assistance in water resource development were not considered in formulating this plan. Plan B cannot be carried out under the existing provisions of the Watershed Protection and Flood Prevention Act, Public Law 566, because approximately 45 of the 232 reservoirs contain more than 5,000 acre-feet of floodwater detention capacity. This is the maximum floodwater detention capacity permitted in any single reservoir constructed under the provisions of Public Law 566.

Other provisions of Public Law 566 would create obstacles which although not necessarily insurmountable, would cause great difficulty in carrying out the basinwide program included in plan B under this authority within a reasonable time period.

For example, applications which must be submitted by local organizations, are limited to watersheds not exceeding 250,000 acres. It would require some 25 separate applications to cover the entire area included in plan B. Moreover, under the provisions of Public Law 566 land, easements, and rights-of-way must be furnished by local organizations which must also guarantee the operation and maintenance of the reservoirs after they are completed. Furthermore, local organizations must assure the application of conservation practices on at least 50 percent of all the lands above each reservoir structure.

In contrast, under the Flood Control Acts the Congress customarily authorizes the Corps of Engineers to acquire all lands, easements, and rights-of-way with Federal funds, to construct the reservoir, and to operate and maintain it as a Federal project at Federal cost.

Of course, there is no reason why the Congress, if it chose to do so, could not authorize a program of the type included in plan B to be

carried out under the same conditions as the program included in plan A. However, it should be clearly understood that the Soil Conservation Service is not making such a recommendation. As of this date neither the Service nor the Department of Agriculture has taken a position for or against either plan A or plan B. They are feasible alternative plans. It is our belief that the people of the Cape Fear River Basin and of the State of North Carolina through their organizations and duly constituted units of local and State government should arrive at their own decisions and should make their recommendations known to the Congress and the concerned agencies of the Federal Government.

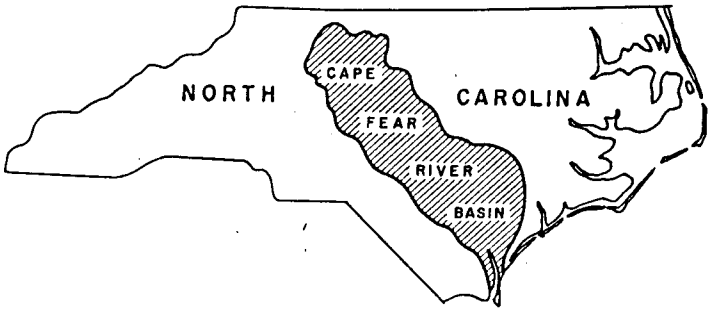
(The report on the Cape Fear River, N.C., follows:)

CAPE FEAR RIVER, N.C.

JOINT REPORT OF LAND AND WATER RESOURCES STUDY

PART I

REPORT



COOPERATING AGENCIES

SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE

U.S. ARMY ENGINEER DISTRICT, WILMINGTON - CORPS OF ENGINEERS

NORTH CAROLINA DEPARTMENT OF WATER RESOURCES

1961

SYLLABUS

The Corps of Engineers was authorized by Resolution of the Committee on Flood Control, 2 May 1946, to make a review of previous reports on the Cape Fear River in the interest of flood control. The Soil Conservation Service was requested by the Corps of Engineers to participate in a joint study of the Cape Fear River Basin, and its activities were carried out under the authority of Section 6 of Public Law 566, 83d Congress. The State of North Carolina also participated in the study. The Cape Fear River and its tributaries produce major flood damages. The maximum flood stages of record occurred in September 1945 when 313,000 acres were inundated. It is estimated that a recurrence of a flood of similar magnitude would cause flood damages amounting to $9.3 million to the properties on the flood plains along the main stem of the Cape Fear River below the confluence of the Deep and Haw Rivers. There are substantial flood damages to agricultural lands and rural property. The most serious urban flood problem is at Fayetteville, where it is estimated that recurrence of the 1945 flood would cause damages of about $4 million. This report presents the results of studies of alternate plans of development of the land and water resources of the Cape Fear River Basin. One plan, consisting of the New Hope Reservoir (plan A), was investigated by the Corps of Engineers, and the other plan, consisting of a system of 232 small and intermediate-size reservoirs (plan B), was investigated by the Soil Conservation Service. Estimates pertaining to functional requirements and costs associated with each plan were prepared by the investigating agency in accordance with procedures normally followed by them in making similar studies. The New Hope Reservoir is estimated to cost $23,975,000 and provide annual benefits of $1,762,000, of which $1,127,700 would be flood control benefits. The system of small and intermediate reservoirs is estimated to cost $34,800,000 and provide benefits of $2,331,300, of which $1,403,500 would be flood control benefits. The Corps of Engineers and the Soil Conservation Service have reached agreement on most items relative to this study of the Cape Fear River Basin. The principal differences that were unresolved are described in the summary of the report.

CAPE FEAR RIVER, NORTH CAROLINA

LAND AND WATER RESOURCES STUDY

JOINT REPORT

9 May 1961

SECTION 1 - INTRODUCTION

PURPOSE AND SCOPE

1. The purpose of this report is to present the results of a joint interagency study to develop and compare alternative methods of development of the land and water resources of the Cape Fear River Basin.

2. The scope of the study includes an appraisal of problems and needs encompassing flood control, water supply, low-flow regulation, recreation, and other related purposes.

3. This report is not intended to serve as an authorizing document, but to provide a framework within which the Corps of Engineers, the Soil Conservation Service, and other concerned agencies can proceed with the preparation of reports on specific projects for authorization.

AUTHORIZATIONS FOR JOINT STUDY

4. Corps of Engineers. The Corps of Engineers was authorized by Resolution of the Committee on Flood Control, House of Representatives, 2 May 1946 to make a review of previous reports on the Cape Fear River in the interest of flood control and other purposes. As a part of the investigation a public hearing was held at Fayetteville on 8 February 1957, during which interested groups suggested that a comprehensive study be made of the land and water resources of the entire Cape Fear River Basin, considering possible alternative plans for the development of the river-basin resources.

5. Soil Conservation Service. By letter of 19 June 1957, the Soil Conservation Service was requested by the Corps of Engineers to participate in a joint study of the Cape Fear River Basin. The Soil Conservation Service carried out its phase of the joint investigations under the authority of Section 6 of Public Law 566, 83d Congress, as amended. The State of North Carolina also agreed to cooperate in the joint study.

COORDINATION AND COOPERATION

6. During the progress of the joint study the Corps of Engineers and the Soil Conservation Service worked together on the majority of field surveys and site inspections and exchanged data on many phases of the work. However, in carrying out the primary duties assigned to each agency, practices and criteria commonly used in their respective agencies on similar problems were followed, unless specific agreements to the contrary were reached. Accordingly, estimates pertaining to functional requirements and costs associated with the small dams network were prepared by the Soil Conservation Service in accordance with procedures normally followed by them, and investigations of New Hope Reservoir by the Corps of Engineers were in accordance with their normal procedures. Various agencies of the State of North Carolina provided information in their own spheres of interest.

7. Divisions of work. Where possible and mutually agreed upon, respective participating agencies were assigned primary responsibility for performing certain phases of the study.

a. Primary assignments to Corps of Engineers. The primary work assignments to the Corps of Engineers were:

(1) To survey main-stem cross sections.

(2) To make field surveys of reservoir sites selected in sample areas 5 and 6.

(3) To make all flood routings along the main-stem tributaries and to determine modified discharge hydrographs at key stations along the Haw, Deep, and Cape Fear Rivers.

(4) To make flood-damage surveys of the main stem of the Cape Fear River below the confluence of the Haw and Deep Rivers and to determine the average annual benefits in these reaches attributable to flood reductions by reservoirs.

(5) To determine storages for the New Hope Reservoir.

(6) To compute cost estimates of the New Hope project.

b. Primary assignments to Soil Conservation Service. The primary work assignments to the Soil Conservation Service were:

(1) To select sample areas.

(2) To select initial reservoir sites in sample areas and to make final selection in consultation with the Corps of Engineers, and to make field surveys of reservoir sites selected in sample areas 1, 2, and 4.

(3) To select and allocate storage for sample-area reservoirs and primary subbasins (PSB's) and to determine design and functional characteristics of all small and intermediate-size dams.

(4) To determine the effects of a network of small dams within each sample area.

(5) To estimate flood damages and to compute average annual agricultural flood-prevention benefits to be obtained from a system of small reservoirs along the Haw River and in sample areas; based on these sample area studies, estimate benefits applicable to the remainder of the area above Fayetteville, North Carolina, except along the Cape Fear River.

(6) To estimate the cost of dams and reservoirs in the sample areas and to expand these estimates to apply to the remainder of the area above Fayetteville, North Carolina, to represent the total cost of a system of small reservoirs.

c. Primary assignments to the State of North Carolina. The primary work assignments to the State of North Carolina were:

(1) To survey municipal and industrial water-supply needs throughout the Cape Fear River Basin above Fayetteville.

(2) To investigate needs and problems related to fish and wildlife conservation.

(3) To determine the need for stream low-flow regulation for pollution abatement.

(4) To investigate recreation needs and problems.

SECTION 2 - DESCRIPTION OF BASIN

8. General.

a. The Cape Fear River is formed by the confluence of the Deep and Haw Rivers which rise in the north-central part of North Carolina in a region of rolling hills known as the Piedmont Plateau. The Cape Fear River flows generally southeast 198 miles and empties into the Atlantic Ocean at Cape Fear, North Carolina. The total length of the Cape Fear River and the Deep River, its longest tributary, is about 320 miles.

b. The drainage area of the Cape Fear River Basin is 8,570 square miles, of which 3,127 square miles are above the confluence of the Deep and Haw Rivers and 5,443 square miles are in the lower basin.

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The basin is oblong, its greatest width is about 60 miles, and its length about 200 miles.

9. Climate. The entire Cape Fear River basin has a temperate climate; light snow and freezing temperatures occur annually in the northern portion and occasionally over the entire basin. January is the coldest month, with a mean temperature of 42° F. above Fayetteville and 47° F. below Fayetteville. July, the warmest month, has a mean temperature of 78° F. above Fayetteville and 79° F. below. Extreme temperatures on record are 107° F. and -9° F.

10. Physical features of drainage basin.

a. Tributaries. The major tributaries of the Cape Fear River are shown in ascending order in the following tabulation.

Stream	Drainage area (sq. mi.)	Elevation of source (ft. m.s.l.)	Elevation of mouth (ft. m.s.l.)	Region drained	Length (miles)
Northeast River	1,650	200	0	Coastal Plain	120
Black River	1,410	200	0	Coastal Plain and Sand Hills	120
Rockfish Creek	303	500	30	Sand Hills	
Lower Little River	477	500	54	Sand Hills	
Deep River	1,422	1,000	158	Piedmont	
Haw River	1,705	1,000	158	Piedmont	90
Cape Fear River (main stem)	5,443	160	0	Coastal Plain	198

b. Topography.

(1) The topography of the basin drained by the Cape Fear River can be divided roughly into three physical divisions which are known locally as the Piedmont Plateau, the Sand Hills region, and the Coastal Plain. The Sand Hills region is in reality a subdivision of the Coastal Plain, but because of its distinctive characteristics it can be more conveniently considered separately.

(2) The Piedmont Plateau consists largely of rolling hills and deeply eroded valleys, the tops of the ridges being remnants of a former peneplain. This region extends from the sources of the stream and beyond to a northeast and southwest line defined roughly by the main line of the Seaboard Air Line Railroad. The elevation of the Piedmont Plateau varies in the Cape Fear River Basin from 1,000 feet at the headwaters of the stream to 300 feet, where it merges into the Sand Hills region. In this division, reservoir sites are found both on the main streams and in the smaller tributaries. Foundation conditions are excellent in either case.

(3) The Sand Hills region, so called because of its rolling sandhills, is a wedge-shaped area located between the Piedmont Plateau and the Coastal Plain proper. This division lies mainly in the central area of the basin, but below the fall line. Its general elevation varies from 300 to 150 feet above sea level. This belt is much more undulating than the Piedmont Plateau and its drains are comparatively shallow, only the main stream having cut through the softer deposits to basement rock. Few sites for larger reservoirs exist in this area, but excellent sites for small and intermediate reservoirs are available in the tributary areas off the main stream.

(4) The remainder of the drainage area of the Cape Fear River is located in the Coastal Plain proper. This region is gently rolling to comparatively flat, with the flat areas predominating. The stream valleys are wide and have much overflow and marshland. Because of these features, practically no reservoir sites are available on the main streams; however, sites for smaller structures are available off the main streams, but not in the quantity found in the Piedmont Plateau

c. Soils and geology.

(1) The Piedmont soils are mostly slates, granites, and triassic sandstones and shales in origin and are underlain by several varieties of rocks generally classified as gneisses, schists, and metamorphosed volcanics. The principal soils are composed of sand and clay in varying mixtures. The soils are relatively shallow and are usually underlain by sandstone, slate, shale, schists, and granite or other igneous material. These soils are capable of producing from medium to high yields of adapted crops. Faults and fractures of the earth's surface are unusual in this region. Good foundations for dams exist throughout the Piedmont Plateau.

(2) The soils in the Sand Hills region are composed largely of sand, clays, marl, and gravel which probably are the remains of an ancient shoreline. This region, in its contact with the Piedmont Plateau, is underlain by a sandstone belt which contains seams of shale or other rocks. The entire area is underlain by igneous basement rock. The depth of these rocks increases toward the coast, their general dip being in that direction. Several parallel faults running northwest-southeast have been found along the western boundary of this area. The soils of this area are relatively deep and are usually sands, loamy sands, and sandy clay loams. They are fair agricultural soils and produce good to high yields of some specialized crops.

(3) The Coastal Plain is composed largely of sand and marine deposits of comparatively recent origin. The entire area is underlain with sands, clays, marls, and gravels; in some locations sandstone is found. Near the coast, basement rocks have been encountered at great depths. These soils are excellent for the production of adapted crops; however, sand deposits from stream overflow have made some areas relatively unproductive.

d. Flood-plain areas.

(1) In the Piedmont Plateau the channel capacities are relatively greater than they are downstream, but the flood plains are narrow to gorgelike in character with high stream and valley gradient. The New Hope River valley is a notable exception to this; the stream and valley gradients are relatively flat, and broad flood plains are in evidence throughout most of the area. The streambeds are shallow and considerable swamping has taken place.

(2) In the Sand Hills and Coastal Plain areas the streambeds are shallow and the broad flood plains are subject to frequent overflow. Along stretches of the Coastal Plain area, infertile sand deposits are in evidence in many flood-plain areas.

(3) Flood-plain areas investigated are limited to those inundated by the largest flood of record and to areas downstream from flood control structures considered in this report. The total area of such flood-plain land and its major usage for the entire basin are as follows:

Flood-plain land, in acres

Land use	Upper Cape Fear River Basin[1]		Main-stem Cape Fear River[2]	
	Current use	Projected use[3]	Current use	Projected use[4]
Agricultural land				
Woodland	63,806	56,054	138,247	126,225
Open	12,606	20,261	38,883	50,805
Total	76,412	76,315	177,130	177,030
Nonagricultural land and water areas	18,078	18,175	41,970	42,070
Total acres of flood plain	94,490	94,490	219,100	219,100

[1]Includes flood plains of the Deep and Haw Rivers and tributaries thereof, and tributaries of the Cape Fear River above Fayetteville. Areas are based on expansion of data from the sample areas.

[2]Includes flood plains of the Cape Fear River main channel from the confluence of the Deep and Haw Rivers to the mouth of the Black River.

[3]Estimated conditions in approximately 1975, with or without project.

[4]Estimated 2010 conditions, without project.

ECONOMIC DEVELOPMENT IN THE CAPE FEAR RIVER BASIN

11. Basin population. Based on the 1950 census, the estimated population of the Cape Fear River Basin is 796,000. Basin population according to the 1940 census was 659,000. This represents an overall increase of 20.8 percent, while the increase in State population during the same period was 13.7 percent. A breakdown of basin population of the three main drainage areas is tabulated below.

Population data of the Cape Fear River Basin

Item	Haw River Basin	Deep River Basin	Main-stem Cape Fear River	Total
1940 census	221,000	118,000	320,000	659,000
1950 census	268,000	136,000	392,000	796,000
10-year increase	47,000	18,000	72,000	137,000
Percent increase	21	15	23	20.8
Percent increase for State	13.7	13.7	13.7	13.7
Estimated 1970 population	409,000	189,000	565,000	1,163,000

12. Rural population. The rural population of the Cape Fear River Basin in 1950 was estimated to be 493,520, or 62 percent of the total basin population. The rural population in 1970 is estimated to be approximately 640,000, or 55 percent of the total basin population. In the highly urbanized and heavily industrialized center of the upper basin, both the total urban and rural population increased. However, in the agricultural areas the urban population increased at a uniform rate, while the rate of growth of rural population decreased. Other data showing a decrease in farm population indicate clearly that nonfarm rural residents account for much of the increase in rural population. This trend is not as pronounced in the lower portion of the basin.

13. Urban population. The 14 principal municipalities in the watershed with populations of 5,000 or more are shown in the order of their 1960 population in the following tabulation.

Population of the principal cities in the Cape Fear River Basin

City	1940	1950	1960	1970 (est.)
Greensboro	59,319	74,389	119,574	153,000
Raleigh[1]	46,897	65,679	93,931	117,000
Durham[1]	60,195	71,311	78,302	88,000
High Point[1]	38,495	39,973	62,063	76,000
Fayetteville	17,428	34,715	47,106	60,000
Wilmington	33,407	45,043	44,013	48,000
Burlington	12,198	24,560	33,199	42,000
Reidsville	10,387	11,708	14,267	19,000
Chapel Hill	3,654	9,177	12,573	19,000
Sanford	4,960	10,013	12,253	18,000
Asheboro[1]	6,981	7,701	9,449	12,000
Graham	4,339	5,026	7,723	9,000
Dunn	5,256	6,316	7,566	9,000
Smithfield[1]	3,678	5,574	6,117	8,000
Total	307,194	411,185	548,136	678,000

[1]Cities just outside or on watershed divide.

14. Industrial development.

a. Upper Cape Fear River Basin. In the 7-year period prior to 1954, the number of industrial establishments had increased sharply. By 1954, slightly over 1,000 industrial establishments were located within the Upper Cape Fear River Basin. Approximately 52 percent of these were located within the Haw River Basin, 33 percent within the Deep River Basin, and 15 percent in the Upper Little River Basin. By 1957, the total number of industrial establishments had declined to approximately 800, with little percentage change in the number of establishments in the three major divisions of the basin. Of the total industrial establishments in the area, about 44 percent are textile plants and 14 percent are devoted to food processing and related activities. Other types of plants of some significance are lumber, 7 percent; apparel manufacturing, 6 percent; furniture and fixtures, 5 percent; and stone, clay, and glass establishments, 4 percent. The industrial establishments typically are relatively small and hire a correspondingly small number of workers. The North Carolina directory of manufacturing firms for 1956 indicates, for example, that 62 percent of the firms in the Haw River Basin employed 50 or fewer people, 13 percent of the plants in the area employed from 50 to 100 workers, and 14 percent employed from 100 to 250 workers; only 1 percent employed more than 1,000 workers. The total value of production from industrial plants increased sharply from 1947 to 1954. The value added by manufacture during this period increased from $259,000 to $407,000. Adjustments for changes in price levels during the period would account for some of this increase; however, it is estimated that the output increased about 37 percent during the period. In general, the most rapid growth within the Upper Cape Fear River Basin is related to the relatively high rate of industrial growth; agriculture has declined in relative importance.

b. Main-stem areas of the Lower Cape Fear River Basin. In contrast to the Upper Cape Fear River Basin, agriculture is the major industry in the Lower Cape Fear River Basin. Some manufacturing establishments, principally textiles, are located in the vicinity of Fayetteville. Other industrial plants of note in the Lower Cape Fear River Basin are a large paper mill at Riegelwood; factories engaged in the production of fertilizer, synthetic fibers, cellophane, machinery, chemicals, clay, glass, plastics, metal fabrication, and industrial rubber; and some meat and foodpacking and beverage processing plants.

15. Agriculture.

a. Upper Cape Fear River Basin. There are approximately 2,775,900 acres in the Cape Fear River Basin above Fayetteville, excluding the Fort Bragg area. Of this area, 68 percent was in farms in 1950 and 63 percent in 1954. The decrease in the number of acres in farms for this period amounts to approximately 138,000 acres. The average-size farm is about 75 acres. More than 50 percent of the total area is in woods. The principal crops grown are tobacco, cotton, corn, small grain, and some hay and pasture. Poultry, livestock, and dairying are also of some importance. Farm tenancy is decreasing throughout the basin, while mechanization is increasing rapidly.

b. Lower Cape Fear River Basin. This portion of the Cape Fear River Basin is one of the most heavily wooded areas in the State. Some 65 percent of the total land area is wooded. Some of the larger pulp and paper companies have holdings here that are being developed for their use. Many sawmills in the area supply lumber to the construction industry. Practically all of the land is capable of producing commercial-quality trees, except several thousand acres of swampland or pocosins that are too wet or infertile to grow timber of usable size. In recent years, many of the swamplands and pocosins have been drained by canals and are being reclaimed for agricultural use. In addition, much of the land not suitable for continuous cultivation is now being used to raise livestock. This area has the potential of being one of the largest livestock-producing sections in the State. There is a definite trend toward use of surface water for irrigation throughout the entire basin. The crops are more diversified in this section than in any other section in the basin, and in comparison to the Deep and Haw River drainage areas, where the average size of farms has decreased from the previous census in nearly all counties, the average-size farm in the main-river drainage area increased in over half the counties. The principal crops raised in the Lower Cape Fear River Basin are corn, cotton, tobacco, small grain, hay, peanuts, soybeans, potatoes, peaches, and truck crops.

16. Mineral resources. The mineral resources of the Cape Fear River Basin are relatively unimportant at the present time. Copper, gold, silver, and iron are present and have been mined at various times in relatively small amounts. Bituminous coal is found in Chatham, Lee, and Rockingham Counties. These deposits are of low quality and have not been developed. Granite, diabase, and sandstone are quarried in sizable quantities. Brick and tile clay, sand, gravel, and marl are produced in large quantities throughout the basin.

17. Forest resources. The forest resources in the Cape Fear River Basin are extensive; in fact, over 50 percent of the total area is in forest. Mixed hardwood forests are located in the Piedmont section of the basin. The most important varieties of timber produced in this area are oak, and Virginia, loblolly, and shortleaf pines. In the coastal regions, loblolly and longleaf pine, gum, and cypress are the leading commercial varieties. It is estimated that over 600 million board feet of lumber are produced annually from the forests in the Cape Fear River Basin. In addition to this, a large quantity of pulpwood is harvested for the use of the several pulp and paper mills located in or near the basin.

18. Electric power. Approximately 6,000 kilowatts of hydroelectric power is being produced in the Cape Fear River Basin by privately owned power companies. By far, the greatest portion of the electric power used is generated in steamplants. A network of electric transmission lines operated by the three major privately owned power companies serves the area. In addition, some small hydroelectric developments on the Haw, Deep, and Lower Little Rivers and Rockfish Creek supply power for textile manufacturing plants, gristmills, cotton gins, and other uses. Most of these plants are out of date and are so located or constructed that they do not develop the potential of these streams.

19. Transportation.

a. Highways. An extensive network of highways covers the entire basin, connecting nearly all communities with improved all-weather roads. Excellent hard-surfaced highways connect all of the larger towns and cities, providing adequate routes for the well-developed motor-freight and passenger service found in the area.

b. Railroads. The Cape Fear River Basin is served by a network of railroads; the principal lines are the Atlantic Coast Line, Seaboard Air Line, Southern, and Norfolk-Southern Railroads.

c. Navigation. Navigation is important in the lower reaches of the Cape Fear, Wilmington being a deepwater port. A navigable channel is maintained as far upstream as Fayetteville which provides a depth of 8 feet from Navassa to Fayetteville and is controlled by three locks and dams. The Atlantic Intracoastal Waterway, with a navigable depth of 12 feet, connects the Cape Fear River with the ports of Beaufort and Morehead City to the north and Georgetown and Charleston to the south.

ECONOMIC DEVELOPMENT IN THE FLOOD PLAINS OF THE CAPE FEAR RIVER BASIN

20. Urban and industrial areas in the flood plains.

a. Upper Cape Fear River Basin. The urban and industrial development of flood-plain areas in the Upper Cape Fear River Basin is restricted almost entirely to the main stems of major streams. Minor tributaries are utilized by cities and towns and by industries in the area for water supply and the disposal of waste materials. The present and proposed future water supply for the city of Greensboro comes from reservoirs along the Reedy Fork Creek or on tributaries thereto. Chapel Hill gets its water supply from a tributary of the New Hope River, while High Point has a reservoir located on the upper reaches of the Deep River. Practically all of the urban and industrial development in the area, which is oriented to the flood plain because of past or current need for large quantities of water is located along the main stems of the Deep and Haw Rivers. The greatest value for this type of development is represented by the textile mills and adjacent mill villages. Only a small number of dwellings, stores, and similar structures are located within the flood plain. Textile mill plants are rarely located entirely within the flood plain, and some are so situated that no significant portion of the plant is located in the flood plain. There are a number of gristmills located along the main stem of the Deep River and along the minor tributaries of both the Deep and Haw Rivers. Two small hydroelectric power plants are located on the Deep River and two fairly large steam-generating plants are operated by the Carolina Power and Light Company on the main stem of the Cape Fear River.

b. Lower Cape Fear River Basin. Urban and industrial development, insofar as flood damages are concerned, is concentrated at three locations. These urban areas are the towns of Lillington, Fayetteville, and Elizabethtown. Fayetteville has by far the greatest amount of urban and industrial development in the flood plain. The development of port facilities at Fayetteville is dependent to some extent upon flood control measures provided for the Cape Fear River. Although the three locks and dams and the dredged channel provide a navigable waterway to the ocean, the constant threat of severe flooding prevents in part any significant economic development of port facilities.

21. Rural areas in the flood plains. Rural flood-plain areas within the Cape Fear River Basin are characterized by their use for woodland, cropland, and pasture. An exception to this, however, is found along the lower portion of the Cape Fear River main stem. In this area, in the general vicinity of Kelly, the flood plain is wide, and many rural homes, churches, and extensive stretches of public roads are found within the flood-plain area. Photointerpretation and field studies indicate that these developments increased significantly in both number and unit value between 1938 and 1955; continued increases are expected. Most of these properties are currently located at the higher flood-plain elevations.

SECTION 3 - FLOOD PROBLEMS

22. General.

a. The Cape Fear River Basin lies in the path of tropical hurricanes originating north of the Equator. These tropical hurricanes and related atmospheric disturbances cause the most severe storms and floods.

b. Above the confluence of the Deep and Haw Rivers the basin is hilly, with narrow flood plains. Below the confluence the flood plains are very wide and are extensively developed for agriculture.

23. Main-stem flood plains of the Cape Fear River. Because of the growing economic development of the Cape Fear River flood plain below the confluence of the Deep and Haw Rivers, the flood problem has become very critical. The maximum flood stages of record occurred during the September 1945 storm and the resulting flood inundated approximately 219,000 acres. It is estimated that a recurrence of a flood of this magnitude would cause flood damages amounting to $9.3 million. Specific flood problems relative to the various types of property affected by floods are discussed in the following paragraphs.

24. Nonrural flood problems. Nonrural flood problems involve the following types of properties:

a. Urban and industrial flood problems. The urban and industrial flood problems are confined primarily to the Fayetteville-Godwinton area. Approximately 15 percent of the commercial and residential areas, as well as many industries, are located in the flood plain and were damaged by floodwaters of the September 1945 storm. A survey made in 1955 revealed that approximately 2,750 homes, 185 commercial and industrial establishments, schools, churches, and other public buildings were in the flood plain and would be affected by the recurrence of such a storm. The commercial establishments are retail stores; and the industries consist of large oil and asphalt plants, textile factories, cotton gins, and beverage bottling plants. It is estimated that a recurrence of a flood having the magnitude of the September 1945 event would cause urban and industrial flood damages in the Fayetteville-Godwinton area of about $4 million, or about 90 percent of the total urban-industrial flood damage for the entire lower basin. In addition to the annual direct flood damage suffered by the Fayetteville-Godwinton area, industrial expansion along the existing waterway is greatly hampered by the frequent flooding of usable land.

b. Transportation facility problems. Highway bridges and their approaches have been damaged by severe floods in the past. Extensive damage occurred to the approaches of the highway and railroad bridges at Fayetteville during the September 1945 flood. In general, all major highway and railroad bridges have been raised so that damage occurs only at the high stages of infrequent floods. However, many miles of the secondary road system are affected by floods at lower stages. It is estimated that recurrence of a flood having the magnitude of the 1945 event would cause flood damages to transportation facilities in the Lower Cape Fear River Basin amounting to $1.2 million.

c. Other nonrural flood problems. The major flood problems have been stated in the preceding paragraphs; however, other undesirable conditions are caused by floods relative to the disruption of utility services resulting from flood damage to telephone and electric-power transmission lines, and gas, water, and sewage distribution and pumping systems. Public water supplies were cut off in several communities in the Lower Cape Fear River flood plain during the September 1945 flood. The towns of Dunn and Erwin were without water for several days. Many private water supplies were contaminated and water had to be treated prior to use. Sanitary sewers in Fayetteville were flooded and in some cases ruptured. Raw sewage floated in the streets and lodged there as the floodwaters subsided, subjecting the population to danger of dysentery, typhoid fever, and other diseases.

25. Rural flood problems. Agricultural activity of the flood plains of the Lower Cape Fear River Basin is frequently interrupted, and annual flood damage to crops and rural property is so severe that large portions of the usable fertile lands are being left idle or used for low-income-producing crops. It is estimated that a recurrence of the September 1945 flood would cause about $2.8 million damages to the following types of rural properties:

a. Crops and pastures. The Cape Fear River flood plain below the confluence of the Deep and Haw Rivers is primarily developed for agriculture, with very diversified farming. The principal crops of the flood plain are corn, hay, small grain, cotton, tobacco, and pasture. The extensive timberlands supply logs for lumber and pulpwood. It is estimated that approximately 20 percent, or 44,200 acres, of the Cape Fear River flood plain inundated by the September 1945 flood is used for crops and pastures. A recurrence of the September 1945 flood would cause an estimated $1.5 million damage to crops and pastures.

b. Rural buildings and other rural property. Many rural buildings and other rural fixed improvements such as fences, on-farm roads, ditches, etc., are subject to periodic damage from floods in the Lower Cape Fear River Basin. It is estimated that a recurrence of the September 1945 flood event would result in $1.3 million damage to this type of property.

c. Ponding, poor drainage, and swampy areas result from the flooding of the extremely flat coastal flood plains in the lower part of the basin.

26. Danger to life and health. During the September 1945 flood several persons were drowned in the Lower Cape Fear River Basin. There is no record of loss of life as the direct result of floods prior to 1945. In general, the comparatively slow rise of the floodwaters allows sufficient time for evacuation of the flooded area. During the September 1945 flood, units of the U. S. Army at Fort Bragg and the U. S. Marine Corps at Camp Lejeune evacuated hundreds of people from the area between Fayetteville and Currie, N. C. Also during this flood it was necessary to close more than 50 schools along the Lower Cape Fear River, many for a week or more. It is estimated that a recurrence of the 1945 flood would result in emergency costs amounting to $555,000, which would include evacuation, emergency measures, and medical and hospitalization costs.

27. Main stem, Haw River. The main stem of the Haw River is generally characterized by narrow flood plains and medium to high incidence of flooding. Low-stage overbank floodflows occur quite frequently, but severely damaging floods are of infrequent occurrence. However, during major flood-producing storms such as those which occurred in 1936 and 1945, the high flood peaks and velocities combine to cause severe damages to both agriculture and industry, plus lesser damages to roads and bridges.

a. Within an approximate 20-year period extending from January 1936 through August 1955, there were 70 recorded floods along the main stem of the Haw River. Many of these floods caused only minor damages. However, 50 of these floods inundated 10 percent or more of the flood plain, and 34 of the 50 occurred between March 1 and November 30. Only 6 floods were of sufficient magnitude to produce measurable damages to nonagricultural property. Nearly 70 percent of the total damages estimated for a 35-year period of record was caused by the September 1945 flood.

b. Approximately 32 percent of the farmland within the flood plain of the Haw River is used for crops and pasture, and direct flood damages to agriculture are low.

c. Realized net returns on agricultural flood-plain land along the main stem of the Haw River are estimated as only 56 percent of the "flood-free" net return. The projected average "flood-free" net return amounts to $7.82 per acre, the average annual direct damage to agriculture is $3.44, and the realized net return is $4.38.

28. Main stem, Deep River. The flood problems along the Deep River are quite similar to those along the Haw River. The stream and valley characteristics, type of material through which the streams flow, valley width, and type of farming are very much the same for both the Deep and Haw Rivers.

a. The largest flood of record along the greater portion of the Deep River main stem was the September 1945 flood. The September 1947 flood was the largest of record at Randleman and above on the Deep River.

b. The maximum flood of record would result in more than 50 percent of the direct nonagricultural flood damages which occurred during the past 35-year flood cycle. There was a total of 11 floods during the 35-year evaluation series of sufficient magnitude to cause measurable recurrent damages at one center on the Deep River. The flood-free returns and average annual agricultural flood damages and net returns per acre are approximately the same in the Deep River as in the Haw River.

c. A high proportion of all mill properties situated within the flood-damage zones along both the Deep and Haw Rivers has been so located for a relatively long period of time. There has been some recent expansion within the flood plain, but all of this expansion is connected directly with the original plant and is a part of the total plant facility of the older, established operations.

d. The nature of the nonagricultural flood problem along the Deep and Haw Rivers is expected to remain approximately the same as at present. The magnitude is expected to increase, largely because of expansion of existing facilities and plant within the flood areas. The same is generally true for agricultural flood problems in these areas.

29. Primary subbasins. Flood problems within the primary subbasins are predominantly agricultural in nature at present and are expected to remain so. Floodwater and sediment damages to municipal and industrial water supply reservoirs are of major importance in localized areas, centering in the vicinity of cities and towns such as Greensboro, High Point, Durham, Asheboro, Chapel Hill, and Burlington. Damages to gristmills are of minor importance in some areas. Some damages to roads and bridges occur in nearly all areas, but are generally minor in extent.

Summary of Cape Fear River Basin average annual flood damages

Item	Main-stem flood plains			Minor tributary areas of basin above Fayetteville	Total average annual flood damages
	Haw River	Deep River	Main stem, Cape Fear River		
Crops and pastures	$ 6,300	$ 8,600	$ 168,000	$50,300	$ 233,200
Rural fixed improvements	2,600	4,300	80,000	22,800	109,700
Rural buildings	2,000	5,000	98,000	-	105,000
Total rural flood damages	$10,900	$ 17,900	$ 346,000	$73,100	$ 447,900
Transportation facilities	$ -	-	$ 167,000	$ 5,100	$ 172,100
Industrial property	50,000	105,000	128,000	2,600	285,600
Urban property	-	-	598,000	-	598,000
Utilities	-	-	29,000	-	29,000
Emergency costs	-	-	62,000	-	62,000
Total nonrural damages	$50,000	$105,000	$ 984,000	$ 7,700	$1,146,700
Total average annual flood damages	$60,900	$122,900	$1,330,000	$80,800	$1,594,600

SECTION 4 - OTHER LAND AND WATER-USE PROBLEMS

30. General.

a. The Upper Cape Fear River Basin area considered in this study includes the drainage areas of the Deep and Haw Rivers and all other drainage areas contributing surface water to the Cape Fear River above Fayetteville, N. C. Both the Deep and Haw River Basins are comprised almost entirely of Piedmont soils, while the drainage areas of streams discharging water to the Cape Fear River between the confluence of the Deep and Haw Rivers and Fayetteville are comprised largely of Coastal Plain soils. Land and water-use problems are quite different between these two physiographic areas.

b. A comprehensive and detailed study of land and water-use problems within this area has not been made. However, consideration has been given to the more significant problems in the area.

31. Drought and water-deficiency problems.

a. Irrigation. The severity of the moisture deficiency problem varies by soils, by the crop or combination of crops grown, and by seasons of the year. The average frequency and duration of drought periods can be expected to be about the same for all areas within the upper basin. The soils and cropping patterns, however, vary considerably, particularly between the heavy clay soil areas usually found in the Piedmont and the excessively drained sands of the Sand Hills. The condition of a given soil at the time rains occur has a direct bearing upon the amount of water infiltrating into the soil. These conditions tend to vary from farm to farm, depending largely on the soil-management practices of each farmer.

(1) At the present time, some farm operators are using irrigation systems. Water is obtained by pumping from streams, small farm ponds, or from wells. However, the crop-distribution pattern influences the need for and feasibility of farm-irrigation systems. High-value crops, such as flue-cured tobacco, truck crops, pastures for dairy enterprises, and cotton, are the types of crops irrigated.

(2) Economic studies of the frequency and duration of droughts and the expected increases in yields indicated that irrigation of high-value crops will produce an increased net return. However, these studies also determined that a minimum of 12 percent of the crop acreage must be devoted to the production of high-value crops before farm-irrigation systems are economically feasible. The cost and availability of water is another factor which influences the installation of irrigation systems.

b. Other water problems. Other agricultural water supply problems exist in the upper basin area. These include the need for water for domestic purposes and for livestock. However, these problems were not investigated for the purpose of this report.

32. Municipal and industrial water supply. Although the Cape Fear River Basin is located in one of the most favored climatic regions where rainfall is well distributed and relatively abundant, there have been some years in which critical shortages of water have been experienced by a number of municipalities. Burlington, N. C., reported shortages amounting to 100 million gallons in 1951 and 587 million gallons in 1953. Greensboro, N. C., also located on the headwaters of the Cape Fear River, used 224 million gallons less water during 1954 than in 1953, although its needs were greater in 1954. Some cities sought new sources of water, some obtained water from other sources, but most of them resorted to restrictions on water use during critical periods.

33. Practically all cities in the Cape Fear River Basin are continually expanding their water supply systems to meet demands attendant to population and industrial growth. Some have had to go

great distances to obtain adequate supplies, and some have indicated that they are planning to obtain their supplies from the Cape Fear River.

34. Future water consumption in the Cape Fear River Basin is expected to reach substantial proportions due to the steadily increasing population, the constantly rising standard of living, and the rapid increase in the per capita consumption of raw materials. Some sources predict a more than doubled usage of water within the next 20 years. It is becoming increasingly evident that water resources must be conserved and that more adequate and reliable sources of supply be provided.

35. A study based on a survey of present water use and projected into the future to the year 2000 indicates that about 100,000 acre-feet per year would be required to meet the needs of those municipalities within the basin which could obtain their supplies from reservoir storage.

36. Pollution abatement and stream low-flow regulations. Some streams in the Upper Cape Fear River Basin are highly polluted with sewage and industrial wastes, making the waters unsatisfactory for drinking purposes, agriculture, recreation, and fish and wildlife. During dry periods, problems of water supply and pollution abatement become more intense. The high concentration of effluent makes the water in the river less usable. Lowered ground-water elevation causes some difficulty to communities which obtain their supplies by pumping.

37. On 6 April 1951, the General Assembly of North Carolina ratified an act to rewrite Article 21 of Chapter 143 of the General Statutes relating to stream sanitation. The State Stream Sanitation Committee was created and charged with the responsibility of protecting the water requirements for health, recreation, fishing, agriculture, industry, and animal life.

38. Recreation. The reservoir sites being considered are located in the Piedmont Plateau and Sand Hills sections of the Cape Fear River Basin. The scenic attractiveness of the region is a resource of great importance. There are no lakes or reservoirs of consequence in this area that provide recreational facilities. The reservoir sites under the scope of this study are readily accessible by an adequate network of Federal and State roads.

39. About half of the one million people who reside within 60 miles of the reservoir sites live in Raleigh, Durham, Greensboro, and adjoining industrial centers. Due to the shortage of recreational facilities in the Cape Fear River Basin, people drive great distances, averaging about 300 miles each trip, to enjoy the facilities of coastal and mountain areas. Reservoirs with impounded water suitable for swimming, boating, and fishing would meet many unfilled recreational needs.

40. Power. Electric power requirements of the Cape Fear River Basin are supplied principally by the Carolina Power and Light Company and Duke Power Company. The major portion of power in the basin is generated by steamplants. Many small hydroelectric developments on the Haw, Deep, and Lower Little Rivers and Rockfish Creek supply power for textile manufacturing plants, cotton gins, and other uses. Most of these plants are outmoded and are not located or constructed so as to develop the full potential of the streams.

41. The Federal Power Commission Regional Office, Atlanta, Georgia, estimates that area-load demands by 1970 to 1975 will be increasing at an average rate of 300,000 kilowatts a year. At this rate of annual growth, the Commission estimates that an additional increment of about 50,000 kilowatts of power operating at 15 percent load factor could be absorbed in the load area each year after 1960.

42. Navigation. With increasing industrial growth in the area, greater demands will be made upon the Cape Fear River waterway. This waterway has complete towing and barge services from Fayetteville to the Atlantic Ocean and connects with the Atlantic Intracoastal Waterway. Also, existing navigation projects for the Cape Fear River provide for a channel 35 feet deep and 400 feet wide from the 35-foot contour in the Atlantic Ocean through the ocean-bar channel, thence 34 feet deep and 400 feet wide to the upper end of the anchorage basin at Wilmington, thence a minimum depth of 25 feet and width of 200 feet to Navassa, and thence 8 feet deep and 200 feet wide to Fayetteville. Commerce in the amount of 4,610,584 tons, and 3,171 passengers were moved from Wilmington Harbor, and 430,214 tons of commerce were moved from Wilmington to Fayetteville during 1958. Traffic consisted principally of crude oil, gasoline, petroleum, asphalt, tobacco, cottonseed meal, fertilizer, iron and steel scrap, and pulpwood. The present flow of water is now considered adequate for lockage and navigation between Fayetteville and Wilmington as long as the 8-foot channel is properly maintained.

43. Erosion. Erosion within the Cape Fear River Basin varies from slight to very severe. The conditions are directly related to soil slope and past and present land use. Upland areas, on slopes exceeding 2 percent and used for cropland, are subject to erosion. Areas of shallow soils and soils with slowly permeable subsoils that have been used for cropland are generally severely to very severely eroded. Moderately deep and deep permeable soils used for cropland are moderately eroded. Substantial acreage of severely eroded land has reverted to pines and complete or partial stabilization of these areas has occurred. Erosion control practices have been effective in controlling excessive soil losses on some of the cropland, but many areas still exist that are subject to heavy annual soil losses.

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44. Effects of erosion are evident throughout the upper part of the river basin. Both sheet and gully erosion have been active in the destruction of former areas of cropland and in substantially reducing crop and forage yields on land presently being farmed. Stream channels have had their carrying capacity seriously impaired by depositions from eroding uplands and sterile erosion debris has damaged formerly productive alluvial soils.

45. Sedimentation. The effects of sedimentation were studied in four sample areas in the Upper Cape Fear River Basin. In three of these areas, channels have filled to bankfull capacity in many places and natural levees have built up to the extent that surface flow cannot enter the streams. This has occasioned a rise in the water table in these areas, causing swamping of flood-plain land to such an extent that it is no longer used for crop and pasture production. Farm drainage has been impaired in localized areas. In addition to channel fill, infertile deposition is being spread over large areas of flood-plain land. Much of this land has now reverted to woodland use.

46. Sediment damage to municipal reservoirs is occurring in tributary areas, especially in the vicinity of urban centers such as Greensboro, High Point, Burlington, and Chapel Hill.

47. Surface runoff problems. Photointerpretation studies indicate that the runoff problem is neither increasing nor decreasing measurably in intensity within the area as a whole. These studies, based upon major land-use conversions and covering complex changes on both agricultural and nonagricultural land for a period of nearly 20 years, indicate that changes in the use of agricultural lands which tend to reduce runoff have been approximately counterbalanced by the encroachment of urban areas, highways, and similar uses which tend to increase runoff.

48. Land-use adjustment problems. The study of these problems, as such, was rather limited with respect to the Upper Cape Fear River Basin drainage areas as a whole. Studies made in direct connection with flood damage and damage-reduction benefit investigations and more general studies of census data indicate that there are numerous land-use adjustment problems currently in existence throughout the area, some of which are comparatively serious in nature and may be expected to remain so for many years to come.

49. Farm tenancy, although decreasing, is still an important factor in some areas. In 1954, the proportion of all tenant farmers ranged from a low of 19 percent as an average for the Deep River area to 27 percent for the Haw River to 42 percent for all other Upper Cape Fear River Basin drainage areas. These percentages in 1950 were 20, 28, and 46, respectively.

50. Farms in the 1- to 10-acre size groups increased materially in number in all areas from 1950 to 1954, while farms in nearly all other size groups decreased in number. The percentage of the number of farms of 1 to 10 acres between 1950 and 1954, by major drainage areas, is as follows: Haw River, 29 percent; Deep River, 21 percent; and other, 15 percent.

51. Drainage problems. Drainage problems of the area are largely confined to the flood-plain areas and are almost inseparably interrelated with the flood problem. Most of the wet lands of the area which are currently in crop or pasture usage can be managed to produce a profit without additional drainage measures. However, crops could be produced more profitably on some of these soils if adequate drainage measures were applied.

52. Most drainage needs of the area can be met by individual farm operators. No indication of any problem of such nature as to require group effort was found in the area.

SECTION 5 - PROJECT PLANS CONSIDERED

53. General.

a. A study of the Cape Fear River Basin was made by the Corps of Engineers some 30 years ago. A report of the findings of this study was published in 1933 and appears in House Document No. 193, 73d Congress. This report, dealing with flood control, power development, and navigation, and often referred to as the "308 Report" on the Cape Fear River, presents three plans involving the use of dams. In all three plans, a dam below the mouth of the New Hope River was the key feature.

b. On February 8, 1957, a public hearing was held at Fayetteville, N. C., for the purpose of reviewing the 308 Report and hearing views concerning flood control in the Cape Fear River Basin at or below the New Hope damsite. At this hearing, certain interests voiced objections to the New Hope proposal and suggested that a comprehensive study be made of the land and water resources of the entire Cape Fear River Basin, presenting a possible alternative plan or plans for the development of the river basin resources.

c. Subsequent to this hearing, the Corps of Engineers requested the Soil Conservation Service of the U. S. Department of Agriculture and the State of North Carolina to join with them in such a cooperative study. This study and report was to present a generalized plan for the comprehensive development of the land and water resources of the Cape Fear River Basin in which flood control would be the major element for consideration.

d. This plan and report would provide a basic framework within which the Corps of Engineers, Soil Conservation Service, and other agencies or groups concerned could proceed with preparation of reports on specific projects for authorization. The original concept of this plan and report was to cover four possible plans as follows:

Plan A - New Hope Reservoir alone.

Plan B - A system of small and intermediate reservoirs.

Plan C - A combination of A and B above.

Plan D - A system of small reservoirs (under 5,000 acre-feet of flood prevention storage).

e. In the process of collecting and evaluating data, it was determined that of the two plans (plan B and plan D) involving small dams, plan B would be the most feasible; plan D was eliminated from further consideration.

f. Plan C, a combination of New Hope Reservoir and small and intermediate reservoirs, may have considerable merit; but, due to the numerous combinations of such a plan and the difficulty of obtaining a reliable comparison with either plan A or plan B, it was decided to concentrate on the study of plans A and B to obtain such degree of comparability as possible.

g. The Corps of Engineers was assigned primary responsibility for the development of plan A and the Soil Conservation Service was assigned primary responsibility for the development of plan B.

PLAN A - NEW HOPE RESERVOIR

54. General. A number of different plans were studied at the New Hope site, but only the one considered generally the most satisfactory, plan A, is described in this report.

55. Description of plan.

a. Location and functional objectives. The New Hope damsite is located on the Haw River immediately below the mouth of the New Hope River and is approximately 2 miles above Moncure (see plate I). The main body of the reservoir would be in Chatham County, with the extremities extending into Wake, Orange, and Durham Counties (see exhibit I-3). The reservoir perimeter would extend to approximately 20 miles from Raleigh, 10 miles from Durham, 25 miles from Burlington, 45 miles from Greensboro, and 15 miles from Sanford. A number of plans with varied objectives were studied for the New Hope project. Among these objectives were flood control, power, navigation, recreation, water supply, and low-flow regulation. Plans for providing these features separately and in combination were studied. Studies indicate that plan A, a multiple-purpose project with flood control, low-flow regulation, and recreation as the principal features, would be the most feasible at the New Hope site. Ultimately, the plan would include water supply combined with low-flow regulation when the need arises. A high dam for power development was studied at New Hope, but this plan was considered inadvisable due to inundation of much expensive property, costly relocations, and the low benefit-cost ratio obtained in comparison with plan A.

b. Type of dam considered. The type of dam used as a basis for cost estimate at the New Hope project consists of a 340-foot gated ogee spillway in the main valley section with 430 feet of concrete abutments. A 460-foot earth section including 10 feet of overlap would connect the concrete abutment to the hill on the left side. The overall length of the dam would be 1,220 feet. The streambed is at elevation 154 feet mean sea level and the top of the earth dam would be at elevation 255 feet mean sea level, making the dam 101 feet high. The top width of the earth dam would be 30 feet, with side slopes at a 3:1 ratio. The earthen portion of the dam would have an impervious core and a rock toe on the downstream side; the upstream slope would be riprapped above permanent pool elevation.

c. Storage capacities and regulation plans. The New Hope dam and reservoir were designed to provide for low-flow regulation and recreation and to control 6 inches of runoff during floods. The dam would impound 660,000 acre-feet of gross storage at a maximum pool elevation of 240 feet above mean sea level. The gross storage would be allocated as shown in the following tabulation.

Type of storage	Maximum pool elevation (feet)	Capacity (acre-feet)	Surface area (acres)
Flood control	240	541,000	30,000
Low-flow regulation	212	72,000	9,400
Permanent pool	200	47,000	4,300

d. Spillway and outlet facilities and discharge quantities. The 340-foot ogee spillway would be controlled by seven 40-foot by 36-foot tainter gates and would have sufficient capacity to pass the maximum peak discharge of 326,000 cubic feet per second during the probable maximum flood-peak inflow of 511,000 cubic feet per second. The clear opening of the spillway is 280 feet, with crest at elevation 205; and the maximum headwater elevation would be 250 feet mean sea level. A 6-foot-diameter conduit through the ogee section would aid in stabilizing streamflows by maintaining a constant flow of 600 cubic feet per second during dry periods. Flood discharges would be controlled so as not to exceed, whenever possible, bankfull capacity of 20,000 cubic feet per second.

56. Lands. The drainage area above the New Hope damsite is approximately 1,690 square miles. About 30,000 acres of this area would be flooded at maximum flood-storage-pool elevation 240. About 90 percent of the flowage area is wooded or swampland. The project would require the purchase of 20,000 acres of land in fee, and flowage easements would be required on approximately 15,000 acres.

57. Design criteria. The length of spillway and capacity of outlet works were determined by routing of the spillway design flood through the reservoir. Standard ogee and gravity sections

were sized by use of the 40-foot design head above the spillway crest. The weight of tainter crest gates was also determined by applying the above head to standard size gates. The embankment slopes, top width, height, and other features of the earth dam were determined from the maximum water-surface elevation.

58. Field investigation.

a. Damsite topography. Field surveys and cross sections were made to prepare a complete topographic map of the New Hope damsite. The map is on a scale of 1:2,000, with a contour interval of 5 feet.

b. Geologic investigations. Eight core borings have been made along the damsite centerline and spillway section. These borings range from 57 to 82 feet in depth and terminate well within a sound rock base.

c. Appraisal of reservoir lands. Field appraisal methods were used to evaluate reservoir lands to be purchased in fee and leased for flowage easements. These field studies, made in May 1958, included appraisal of recent sales of reservoir farmlands and timber cruising for evaluation of standing timberlands.

d. Relocations. Relocation costs for plan A were based on field investigations made in February 1958 which included determination of type and classification of roads and railroads that would be affected; count of churches, schools, and cemeteries to be relocated; estimates of road fill and bridge embankment required to elevate necessary items to proper heights; and field investigations of other items which would be affected by the reservoir, such as utility lines, pipelines, etc.

59. Hydrologic considerations.

a. General. Extensive hydrologic investigations and studies had been completed by the Corps of Engineers with respect to the New Hope Reservoir and the Cape Fear River Basin, in general, prior to the undertaking of the joint study. Supplementary studies have been made as required for this report. Meteorological and hydrological relationships evaluated and established for this study by the Corps of Engineers are presented in appendix II.

b. Standard project flood. The standard project storm was developed in 6-hour increments for the New Hope Reservoir. The computed rainfall excess for the standard project storm amounts to 9.89 inches of rainfall excess, allowing for an initial loss of 1.06 inches and an infiltration rate of 0.24 inch per 6-hour period. The standard project flood was computed at the New Hope damsite from the rainfall excess applied to the unit hydrograph, with allowance being made for a reasonable base flow. This flood, with a reservoir peak inflow of 258,000 cubic feet per second when routed through the reservoir, obtained a maximum pool elevation of 245 feet mean sea level.

c. Spillway design flood. A spillway design flood was developed for use in estimating the maximum spillway discharge; the maximum pool level; and, with an allowance for freeboard, the height of the dam at the New Hope site. In accordance with Corps of Engineers' practices, the design flood was based on estimates of maximum possible precipation prepared by the U. S. Weather Bureau. The maximum inflow into the reservoir from the spillway design flood would be 511,000 cubic feet per second. Assuming the flood control pool full at elevation 240 feet mean sea level, a maximum pool elevation of 249.7 feet was computed by routing the spillway design flood through the reservoir while the peak discharge through the spillway reached 326,000 cubic feet per second.

d. Routing procedures. Floods used in determining the effects of the reservoir were routed through the reservoir and to downstream index stations. These routings are discussed in appendix II.

60. Estimated effects of New Hope Reservoir on flood discharge. The New Hope Reservoir has the capacity of storing all of the runoff from the September 1945 event for the drainage area above the damsite during periods when such runoff would otherwise contribute to downstream flood peaks. This flood event produced the highest flood peaks of record throughout the Cape Fear River Basin except for the upper headwaters in the basin. The effects of plan A in reducing downstream flood peaks from floods such as the September 1945 event and others analyzed in this study are summarized herein in the tabulation under subsection entitled "EFFECTS OF PLANS A AND B IN REDUCING DOWNSTREAM FLOOD PEAKS," page 27.

PLAN B - SMALL AND INTERMEDIATE-SIZE RESERVOIRS

61. This plan consists of approximately 232 small and intermediate size multipurpose dams and reservoirs controlling drainage areas ranging from 2.5 to 60 square miles. These structures would be located in the headwaters of the Haw, Deep, and Little Rivers as well as other tributary areas upstream from Lillington, excluding the Fort Bragg area. These structures would be located so as to give close to maximum downstream flood protection without sacrificing too great an amount of upstream protection. This system of dams would provide reservoir storage for approximately 65 percent of the drainage area above Fayetteville and would furnish flood protection to small tributary areas as well as to the main stem of the Deep, Haw, and Cape Fear Rivers. It would also furnish, when the need arises, a readily available water supply for irrigation, industrial and municipal water supply, and for other purposes. The cost estimate for plan B is based upon flood control and irrigation storages only.

62. This plan is sufficiently flexible so as to enable the shifting of the location of most structures to alternate sites to avoid inundation of valuable lands, highways, and railroads, as well as other public or private facilities, and at the same time to retain

the beneficial features of the plan. The availability of alternate sites in this area would allow such flexibility.

63. This plan, based on use of the 1945 flood as a runoff distribution pattern, would provide for storage of varying amounts of water behind each structure, ranging from 4 to 8 inches of runoff in individual structures, but averaging approximately 6 inches (the maximum gaged runoff from this area of the basin is 6.4 inches, which occurred in the September 1945 storm).

64. The dams are rolled earth construction with vegetated emergency spillways designed to operate at a frequency not exceeding once in 50 years. The principal spillways are reinforced concrete drawdown tubes with trash racks and antivortex devices which will release stored water at the designed rate.

65. The gross storage capacity of the 232 structures amounts to a total of approximately 980,000 acre-feet, of which 890,000 acre-feet are for flood prevention storage, 50,000 acre-feet are for irrigation storage, and 40,000 acre-feet are for sediment storage. The floodwater-detention pools are designed to store, as a minimum, the runoff from storms estimated to occur once in 50 years. Irrigation storage was based on providing sufficient water for the crops to be irrigated for the most severe drought expected to occur once in 10 years.

66. Each of the potential reservoir sites considered in the sample areas was studied to determine the feasibility of including storage for irrigation use. The present land use and crop distribution patterns within a maximum radius of 5,000 feet from the proposed reservoir site were determined. It was assumed that under future conditions there would be little, if any, change from current land use and cropping pattern. Water storage for irrigation use was included in each reservoir in the sample areas when land use and crop distribution was such that irrigation would be feasible.

67. Plan B does not encompass storage for other purposes than flood prevention and irrigation; but it is sufficiently flexible and sites are available so that water may be impounded for use as municipal and industrial water supply, low-flow regulation, fish and wildlife, or other purposes as the needs for such purposes are determined. There are several sites available on the main stem of the Haw and Deep Rivers that would afford considerable storage when needed. The investigation carried out in the sample areas indicated that there were a significantly larger number of structure sites available than were utilized in developing plan B. One such site is located near Benaja on the Haw River; another at Randleman on the Deep River. Plan B has the potential of meeting most of the current needs for the basin as a whole and still leaves available sites for larger dams for future needs.

EFFECTS OF PLANS A AND B IN REDUCING DOWNSTREAM FLOOD PEAKS

Item	Cape Fear River discharges (c.f.s.) Lillington	Fayetteville	Lock No. 2
125 percent Sept. 1945 flood			
Unregulated peak Q	240,000	148,900	120,000
Regulated by plan A	113,300	104,300	93,100
Percent reduction	53	30	22
Regulated by plan B	136,350	109,800	91,200
Percent reduction	43	26	24
Sept. 1945 flood			
Unregulated peak Q	185,900	124,000	103,200
Regulated by plan A	90,700	90,200	80,300
Percent reduction	51	27	22
Regulated by plan B	86,300	81,000	71,000
Percent reduction	54	35	31
75 percent Sept. 1945 flood			
Unregulated peak Q	144,000	105,500	88,300
Regulated by plan A	68,000	77,700	68,100
Percent reduction	53	26	23
Regulated by plan B	58,000	61,900	57,800
Percent reduction	60	41	35
50 percent Sept. 1945 flood			
Unregulated peak Q	96,000	80,000	71,800
Regulated by plan A	45,300	51,900	50,500
Percent reduction	53	35	30
Regulated by plan B	42,600	46,000	46,800
Percent reduction	56	43	35
Bankfull Q	30,000	20,000	20,000
Zero damage Q	35,000	30,000	35,000

SECTION 6 - PROJECT BENEFITS

68. General. The benefits expected from two of the four plans of land and water resource development, based on use of the 1945 flood as a runoff distribution pattern, were evaluated. Plans A and B were evaluated with primary emphasis placed on their flood control potential in the Cape Fear River Basin. The Soil Conservation Service evaluated agricultural benefits accruing to the main stem and minor tributary flood plains of the Cape Fear River Basin. The Corps of Engineers evaluated nonagricultural benefits to the main stem and major tributary flood plains of the Cape Fear River Basin. These evaluations were used in estimating benefits anticipated from plans A and B.

FLOOD CONTROL BENEFITS

69. General. As stated previously, emphasis was placed on the flood control features of Plans A and B in order to determine a degree of comparison of the plans. The estimates of flood control benefits were divided primarily into two categories - agricultural benefits and nonagricultural benefits. The agricultural benefits include benefits to crops, pastures, rural fixed improvements, and rural buildings. The nonagricultural benefits include benefits to transportation facilities, industrial and urban property, utilities, and benefits from the reduced need for emergency measures. The nonagricultural land-enhancement benefits were not evaluated.

70. Plan A - flood control benefits. The benefit-evaluation studies indicate that the expected flood control benefits resulting from the operation of plan A would amount to $1,127,700 annually. Approximately 26 percent of these benefits accrue to agricultural commodities and facilities and 74 percent accrue to nonagricultural properties.

71. Plan B - flood control benefits. The results of the benefit-evaluation studies indicate that the expected flood control benefits resulting from the operation of plan B would amount to $1,403,500 annually. Approximately 36 percent of these benefits accrue to agricultural commodities and facilities, while the remaining 64 percent accrue to nonagricultural properties. For distribution of benefits see plate 2.

72. Comparison of plans A and B - flood control benefits. The following tabulation presents a comparison of flood control benefits for plans A and B.

Summary of plan A and plan B - flood control benefits

Item	Plan A	Plan B					
		Cape Fear River					
	Cape Fear River, main stem	Main stem	Minor tributaries	Haw River, main stem	Deep River, main stem	Minor tributaries of Haw and Deep Rivers	Total (plan B)
Crops and pastures	$ 122,600	$ 117,800	$ 9,500	$ 5,400	$ 7,200	$ 29,500	$ 169,400
Rural fixed improvements	55,800	54,800	11,300	2,600	3,500	11,100	83,300
Rural buildings	65,000	62,000	-	1,400	2,900	-	66,300
Land	-	-	-	1,500	2,000	11,300	14,800
Agricultural land enhancement	49,300	60,900	33,300	3,800	5,000	67,500	170,500
Total agricultural benefits	$ 292,700	$ 295,500	$54,100	$14,700	$ 20,600	$119,400	$ 504,300
Transportation facilities	$ 127,000	$ 111,000	$ 300	$ -	$ -	$ 3,200	$ 111,500
Industrial properties	109,000	89,000	-	42,500	92,500	-	224,000
Urban property	531,000	456,000	-	-	-	-	456,000
Utilities	24,000	23,000	-	-	-	-	23,000
Emergency measures	44,000	41,000	-	-	-	-	41,000
Reservoir sedimentation	-	-	-	-	-	40,700	40,700
Total nonagricultural benefits	$ 835,000	$ 720,000	$ 300	$42,500	$ 92,500	$ 43,900	$ 899,200
Total flood control benefits	$1,127,700	$1,015,500	$54,400	$57,200	$113,100	$163,300	$1,403,500

BENEFITS OTHER THAN FLOOD CONTROL - PLAN A

73. Irrigation benefits. Irrigation benefits resulting from the operation of plan A were not evaluated for this report.

74. Recreation benefits. Benefits resulting from the provision of recreational facilities under the operation of plan A were evaluated by the U. S. National Park Service and were estimated to amount to $376,000 annually. These benefits are exclusive of hunting and fishing benefits.

75. Fish and wildlife benefits. Fish and wildlife benefits resulting from the operation of plan A were estimated to amount to $150,000 annually.

76. Low-flow regulation benefits. Low-flow regulation benefits resulting from the operation of plan A were evaluated by the U. S. Public Health Service and were estimated to amount to $108,300 annually. These benefits include pollution-abatement benefits as well as downstream water supply benefits to municipal and industrial establishments.

77. Reservoir water supply benefits. Existing trends indicate that in the near future there will be a demand for reservoir water supply storage. Plan A, as presented in this report, is the first phase of a more comprehensive Cape Fear River Basin development plan. The comprehensive plan, in anticipation of the reservoir water supply need, contemplates reallocation of a certain portion of the New Hope Reservoir's flood control storage to water supply storage. This reallocation of storage could be made at a time when local interests can provide adequate assurances of willingness and ability to assume the cost of water supply reservoir storage. Basin-wide flood control storage could then be increased by other projects as required. Benefits resulting from reservoir water supply storage in plan A are not included in this report.

BENEFITS OTHER THAN FLOOD CONTROL - PLAN B

78. Irrigation benefits. Plan B, as presented in this report, provides for conservation storage for irrigation. The application of water to high-value crops will increase crop yields and net returns. Average annual net irrigation benefits estimated to accrue to plan B amount to $324,800.

79. Recreation benefits. The rapidly growing population in the Cape Fear River Basin has created an increasing demand for recreational facilities. There is a particular need for water-associated type recreational facilities. This area has a relatively high population density and is served by a good network of public roads. The widespread distribution of the reservoirs in plan B would provide convenient recreational facilities to a large segment of the population.

a. The estimate of recreational use of the reservoirs in plan B is based on the findings of studies of the use of small and intermediate-size reservoirs for recreational purposes made by the Agricultural Research Service and the Oklahoma Agricultural Experiment Station. These studies showed that the average annual use of such reservoirs for recreational purposes, generally, was related to the population density in the surrounding area and to the surface area of the reservoirs.

b. The average annual net benefits from all types of recreational use for plan B are estimated to be $603,000. This estimate is based on the anticipated use of the water impounded in the sediment pool of all of the reservoirs and of the conservation pool for those structures in which irrigation storage is included.

c. Most of the reservoir sites in plan B could be developed so as to provide additional storage for recreational purposes above the amounts required for floodwater and conservation storage.

80. Fish and wildlife benefits. Fish and wildlife enhancement benefits were not evaluated separately for the system of reservoirs in plan B. Fishing and hunting are included with other types of recreational uses. The total of the average annual benefits which would result from the utilization of the recreational features of the reservoirs is estimated as "recreation benefits."

a. The heavy pollution load of streams in the upper basin, particularly in the Haw River, has had a serious adverse effect on the fish habitat. Under existing conditions, fish have been virtually eliminated from heavily polluted reaches of some streams. There would be a significant increase in benefits from fish and wildlife enhancement if the pollution load in these streams was reduced by the provision of storage for low-flow regulation in the system of reservoirs in plan B.

81. Low-flow regulation benefits. The Cape Fear River Basin is the most industrialized river basin in the State. Significant sources of pollution are present in the Deep and Haw River Basins. Under critical conditions, there is a lack of water available for pollution-abatement purposes. Even with the best economic treatment of sewage and industrial waste, unsatisfactory conditions exist in certain streams.

a. The State Stream Sanitation Committee of the North Carolina State Board of Health provided information on the condition in the Haw River Basin in a preliminary report dated August 21, 1957. The report states that within the Haw River Basin there were 34 significant sources of pollution which represent a pollution loading before treatment equal to that from 438,198 persons. At that time, the existing waste-treatment plants prevented only 37 percent of the pollution load from reaching the streams. The stream loading was equal to that from 276,135 persons.

b. Additional storage for low-flow regulation is available in the system of reservoirs included in plan B. The amount of storage available for this purpose will depend upon the degree of regulation required in different sections in the upper basin. The costs and benefits of storage for low-flow regulation have not been estimated for purposes of this report. However, preliminary studies indicate that the benefits in the upper basin would significantly exceed the costs. In addition to the benefits that would accrue in the Deep and Haw River Basins from the release of stored water during critical periods, there would be some benefits along the main stem of the Cape Fear River.

82. Reservoir water supply benefits. The rapid population growth in the Cape Fear River Basin has resulted in an unusual demand for water for municipal and industrial use. A number of municipalities, particularly in the Deep and Haw River Basins, have employed private engineering firms to prepare plans for the development of an adequate water supply. The reports of these firms considered the present needs of the municipalities and, on the basis of population projections up to the year 2000, estimated future needs. Plans have been made by some municipalities for the orderly development of water supply sources.

a. The system of reservoirs contemplated in plan B is adapted to multiple-purpose use and can include storage for municipal and industrial water supply. The structures in localities where municipalities are in need of additional water supply can be designed to include storage for this purpose. Since plans for multiple-purpose storage would necessarily be prepared on a case basis, the costs and benefits of such storage have not been estimated for purposes of this report.

SUMMARY OF BENEFITS - PLAN A AND PLAN B

83. The following tabulation summarizes the average annual benefits estimated to result from the operation of plan A and plan B.

Benefit	Plan A	Plan B
Flood control	$1,127,700	$1,403,500
Irrigation	(Not evaluated)	324,800
Recreation	376,000	603,000
Fish and wildlife	150,000	(Included with recreation)
Low-flow regulation	108,300	(Not evaluated)
Reservoir water supply	(Not evaluated)	(Not evaluated)
Total benefits evaluated	$1,762,000	$2,331,300

SECTION 7 - PROJECT COST

84. General. The estimated costs of the two plans, A and B, for the development of the Cape Fear River Basin are given in the following paragraphs. The cost estimates presented herein for plan A were made by the Corps of Engineers, and those for plan B were made by the Soil Conservation Service. The cost estimates for the two plans were made, insofar as possible, on a comparable basis, but each estimate is based on studies and field investigations that are different in scope and detail.

COST OF PLAN A - NEW HOPE RESERVOIR

85. General. Project costs for plan A were made by following the procedures normally required for survey-type reports. These included detailed hydrologic analyses to determine spillway and outlet requirements and height of dam. Extensive field investigations, including mapping, core borings, relocations, and land appraisals, were made of the New Hope damsite and reservoir for use in preparation of plans and cost estimates.

86. Quantity estimates. The unit prices are based on recent contract prices and are comparable to 1958 price levels. Plan and typical sections of the dam are shown on exhibits I-1 and I-2.

87. Cost of dam and outlet works. The total estimated cost of the dam amounts to $7,763,000 and the cost of outlet works to $185,000. Quantities for the dam were figured from typical sections along the centerline of the dam and at each change in elevation.

88. Relocation costs. Relocation costs for plan A are based on field investigations made in February 1958; these include estimates of the costs of relocating, raising, rerouting, or replacing in kind, at desired elevation, 11 miles of Federal, State, and county roads, 20 miles of railroads, and other structures or utility systems encountered. The total cost of the relocations would amount to about $6,773,000.

89. Land costs. For the 20,000 acres to be acquired in fee, the cost per acre was estimated to be $108.72. The cost of the 15,000 acres for flowage easements was estimated to be $18.15 per acre. Improvements, severance damage, resettlement, acquisition costs, and contingencies were taken into consideration in computing the real estate values. The total estimated cost of lands and damages amounted to $4,756,000.

90. Recreational facilities. Included in the cost of recreational facilities are roads, picnic areas, and launching ramps. The estimated cost of these facilities is $360,000.

91. Contingencies. Contingencies in the amount of 20 percent were added to all cost items of plan A, with the exception of land

acquisition and cost of churches under the flowage easement item. A cost of 6 percent is added to the total project cost, with the exclusion of lands and damages to care for engineering and design. A cost of 8 percent is allowed for supervision and administration.

92. Total project costs. The total project cost for plan A, including contingencies, engineering and design, and supervision and administration, is $23,975,100.

COST OF PLAN B - SMALL AND INTERMEDIATE-SIZE RESERVOIRS

93. General. Project costs for plan B were based on structural design criteria in accordance with procedures and practices used by the Soil Conservation Service. These are the same criteria under which dams are designed and constructed under the provisions of Public Law 566 for watershed protection projects. Complete and detailed plans were not prepared for any of the structures, and certain assumptions used are based on the extensive experience of the Soil Conservation Service in designing this type of structure.

94. Quantity estimates.

a. Embankments. Embankment quantities were calculated based on sections taken at right angles to the centerlines of the proposed dams after the height of dam had been established by flood routing.

b. The outlet works consist of intake structure provided with antivortex baffle and outlet conduit which regulate the flow from the reservoir.

c. Emergency spillways are side spillways excavated into solid earth and planted with appropriate vegetation.

d. Clearing estimates were based on measurement of area extending to an elevation 1 foot above the permanent pool.

e. Rock excavation is estimated to be 10 percent of excavation removed from the emergency spillway.

f. Contingencies. An allowance of 30 percent for contingencies was added to construction costs. It is recognized that the number of available sites storing between 8,000 and 20,000 acre-feet are limited and may require higher easement and relocation costs as well as certain special design criteria. For these reasons, a special contingency allowance, ranging from 0 percent of construction costs at 8,000 acre-feet total capacity to 35 percent of construction costs at 20,000 acre-feet total capacity, was added for structures in this size category. This special contingency allowance, in excess of the standard 30-percent allowance for contingencies, was added to the total cost for structures within this range of storage capacities. This additional cost amounted to $1,655,000.

g. Engineering and supervision. An allowance of 20 percent was added to all construction costs for engineering design and supervision of construction.

h. Relocations. The cost of relocations was determined for the Haw River Basin and extrapolated to cover the entire Upper Cape Fear River Basin.

i. Reservoir lands. The cost of reservoir lands was determined separately for five sample areasby field surveys and real estate records for the sample areas.

j. Access to the proposed site was not considered as a cost item in estimating the cost of small and intermediate-size reservoirs.

k. Cost curves. Separate costs were estimated on 35 individual sites storing runoff from approximately 2 square miles to 55 square miles in area. The cost per acre-foot of storing the runoff in individual structures was plotted against gross storage capacity to spillway crest to arrive at a generalized cost curve. This curve includes construction costs, contingencies, relocation costs, costs of lands and easements, and other associated costs. This cost curve was then used to determine cost of structures not studied in comparable detail.

l. Sample area expansion factors. Total project cost for plan B was based on direct expansion of data from the five sample areas which were considered representative of the Upper Cape Fear River Basin. Details of these areas and expansion factors are given in appendix IV.

m. Total project cost. The total cost of plan B is estimated at approximately $34,800,000, of which $33 million is for flood control and $1,800,000 for irrigation storage requirements.

SECTION 8 - SUMMARY AND COMMENTS

95. Summary. This report presents the results of a joint study by the Corps of Engineers and the Soil Conservation Service of the potentialities for flood control and other water resource developments in the Cape Fear River Basin, North Carolina. Other Federal and State agencies have provided information with respect to the needs for water supply and related needs for various purposes within the basin.

96. The Cape Fear River Basin is one of the most intensively developed industrial areas within the State of North Carolina. Agriculture is important to the economy of the area, particularly in the section along the main stem of the Cape Fear River.

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97. Portions of the flood plain throughout the entire basin are subject to flooding. Agricultural activity on the flood plains is frequently interrupted and there are substantial flood damages to agricultural lands and rural property. Because of the expanding economic development of the area, the flood problem has become critical in some areas. Urban and industrial developments in the Fayetteville-Godwinton area and along the main stems of the Deep and Haw Rivers have been subjected to damaging floods.

98. Industrial development and the accompanying increase in the population of the Cape Fear River Basin have increased the need for water for municipal and industrial use. Critical shortages of water have been experienced during dry years. Most of the cities in the area are considering long-range plans to assure an adequate supply of water in the future, and a major portion of the supplies will come from reservoir storage. Water supplies for the irrigation of agricultural crops have been obtained from wells and small farm reservoirs.

99. Consideration was given to a high dam at the New Hope site, with development of power as one of the prime purposes. This plan involved a larger reservoir area than the one without power, the purchase of much expensive property, and many costly relocations and changes. Local interests were strongly opposed to a large reservoir, which would be required for power development and the fluctuations of pool level that would result from generation of power. For these reasons and the low benefit-cost ratio obtained, the inclusion of power development was not considered to be a part of the best plan of development.

100. Some streams in the Cape Fear River Basin are highly polluted, making the waters unsatisfactory for water supply, fish and wildlife, and recreational use. The pollution problem becomes particularly acute during prolonged dry periods. Water storage for low-flow regulation would alleviate a large part of the pollution problem.

101. The rapidly increasing population in the basin has brought about a need for water-associated recreational facilities. These facilities are limited in the area, and most of the people seeking this type of recreation have to travel a considerable distance for this purpose. A large use of these facilities would be assured if they were available.

102. There has been relatively little development of the water resources in the basin. The joint study by the Corps of Engineers and the Soil Conservation Service has determined that there is a need for flood protection in the Cape Fear River Basin which can be provided by economically justified reservoir storage. The reservoirs can be developed for multiple-purpose use which will also provide for some of the water needs for municipal and industrial use, low-flow regulation, irrigation, and recreation.

103. This joint study presents two alternative plans for development of the Cape Fear River Basin. Plan A (the New Hope Reservoir) was prepared by the Corps of Engineers and plan B (a system of 232 small and intermediate-size reservoirs) was prepared by the Soil Conservation Service. Although either of the plans as presented would make a substantial contribution toward the development of the resources of the basin, neither plan would provide for all of the water needs throughout the entire basin. Each agency followed the policies, procedures, and criteria it normally uses in making similar studies independently.

104. The following tabulation summarizes pertinent data relative to the two plans, benefits to be derived, and the estimated costs of construction.

	1	232
Number of reservoirs		
Drainage area controlled, square miles	1,690	2,969
Storage capacity, acre-feet		
Flood control	541,000	890,100
Low-flow regulation	72,000	-
Irrigation	-	50,400
Sediment	47,000	41,600
Total storage capacity	660,000	982,100
Water surface area, acres (full flood pool)	30,000	72,000
Area of land required, acres	35,000	78,000
Area benefited by flood protection	219,000	313,000
Benefits		
Flood control	$ 1,127,700	$ 1,403,500
Irrigation	(Not evaluated)	324,800
Recreation	376,000	603,000
Fish and wildlife	150,000	(Included w/recreation)
Low-flow regulation	108,300	(Not evaluated)
Total benefits	$ 1,762,000	$ 2,331,300
Total cost	$23,975,100	$34,800,000

105. Comments. The Corps of Engineers and Soil Conservation Service are in agreement on the plans and data presented in this report, with the following reservations.

VIEWS OF THE CORPS OF ENGINEERS

106. The Corps of Engineers considers that the estimated cost of plan B would be higher if procedures and criteria employed by the Corps for engineering and cost estimating had been used in this case.

107. Because of a lack of basic data such as subsurface investigations, topography, relocation information, land appraisals,

etc., the Soil Conservation Service used in its estimates for plan B a contingency of 30 percent for dams with less than 8,000-acre-foot pools and an additional contingency allowance, over and above the 30 percent, ranging up to 35 percent for dams with pool capacities in excess of 8,000 acre-feet. For plan A, however, the Corps of Engineers made core borings, obtained topography and relocation information, and made land appraisals. The estimate for plan A was based on this information and on design that could be prepared therefrom and contains contingency allowances appropriate to this basis. Accordingly, contingency allowances of the magnitude used for plan B are not needed for plan A, nor would such allowances be proper for that plan.

108. The estimates of recreation benefits are on different bases. Plan A includes costs of the basic facilities needed to permit public access to the water area of the New Hope Reservoir. The recreation benefits were estimated in coordination with the National Park Service. For plan B, the Soil Conservation Service prepared its own estimates of recreation benefits. As these were prepared on a net basis (excess of benefits over costs), the project cost estimates for plan B do not include costs of recreational facilities. However, the expenditures would have to be made to realize the benefits.

109. Although the runoff from the 1945 storm was a factor in determining the storage capacity for reservoirs in plans A and B, the effectiveness of those reservoirs in producing flood control benefits is based on consideration of the entire range of flood magnitudes corresponding to the flood-frequency relations developed from analyses of all floods of record from 1928 to 1954.

110. Because of these principal differences in the bases for estimates of benefits and costs, the Corps of Engineers considers that the data presented for the two plans are not directly comparable and do not reflect adequately the relative merits of the two alternatives.

VIEWS OF THE SOIL CONSERVATION SERVICE

111. The estimated effects of the two alternative plans are based on the analysis of one storm runoff pattern, the storm of tropical origin which resulted in the 1945 flood. The use of this storm as a basis for the development of reservoir plans assumes that rainfall from all major storms in the basin would always be distributed in a like manner. The Soil Conservation Service does not consider that there is a meteorological or topographical justification for this assumption. Consequently, the alternative plans, while they are comparable between themselves, do not necessarily provide for the best protection against all future storms.

112. Inasmuch as a substantial part of the economic justification of plan B is based on benefits that it would produce along the main stem of the Cape Fear River below the New Hope damsite, it should be recognized that if the New Hope Reservoir were constructed only a few of the reservoirs in plan B could be built because their justification would be limited to benefits within the tributaries and reduction of the residual flood damages along the main stem of the Cape Fear River.

113. The cost estimates for plan B are based on criteria used by the Soil Conservation Service in the small watershed programs administered by the Department of Agriculture. Experience gained in the design and construction of more than 2,000 small watershed reservoirs over the past 10 years demonstrated the adequacy of these criteria. The Soil Conservation Service believes that the application of criteria used for the design of large dams is inappropriate and economically unjustified for the type of structures proposed in plan B.

114. The Soil Conservation Service has applied a contingency allowance of 30 percent to all construction costs. However, to assure an ultraconservative estimate of costs, the Soil Conservation Service has provided an additional contingency allowance ranging up to 35 percent of construction costs for structures exceeding 8,000 acre-feet in capacity. Had comparable contingency allowances been provided in plan A, the estimated construction cost would have been considerably higher.

VIEWS OF THE STATE OF NORTH CAROLINA DEPARTMENT OF WATER RESOURCES

115. It is the view of the State that the report, as written, fails to accomplish the stated objective of the study, which was to prepare a generalized comprehensive plan providing the basic framework within which the Corps of Engineers and the Soil Conservation Service can proceed with separate reports recommending specific projects.

116. The report merely describes two alternate plans which are neither comparable nor complementary. It does not recommend either plan, or a combination of plans. The procedure to be followed to accomplish the objective of the study remains to be solved.

117. The State is concerned about the length of time that would be required to accomplish plan B. In fact, plan B cannot be put into effect by the Soil Conservation Service under existing Federal legislation.

118. It is the belief of this Department that a combination of plans A and B is feasible and in the best interest of the State.

119. The Department recommends that:

a. The Corps of Engineers, U. S. Army, be requested to initiate action to construct the New Hope Reservoir.

b. The Corps of Engineers be requested to determine if a need exists for intermediate dams that cannot be constructed under the provisions of Public Law 566 and that action be initiated to construct such dams where the need exists.

c. The Soil Conservation Service be requested to put into operation Public Law 566 projects when initiated by local interests.

R. M. DAILEY
State Conservationist
U. S. Department of Agriculture
Soil Conservation Service

R. P. DAVIDSON
Colonel, Corps of Engineers
District Engineer
Wilmington, N. C., District

HARRY E. BROWN
Director
Department of Water Resources
State of North Carolina

Mr. POAGE. Thank you, Mr. Dailey. We are very much obliged to you.

It is the custom of this committee to allow members to ask questions if they care to. We realize that those questions sometimes extend so long that we will not get through.

Mr. Smith, do you have some questions that you want to ask?

Mr. SMITH. What would be the total acreage involved in the reservoirs in plan B, Mr. Dailey?

Mr. DAILEY. That is 72,000 acres.

Mr. SMITH. Thank you.

Mr. POAGE. Are there any other questions? If some of you do not want to ask a question, I would like to ask Mr. Dailey if this $34 million total cost of plan B involves only Federal money, or if that is the total cost to the Federal Government and the locality.

Mr. DAILEY. That is the total cost. If I turn around here to get some assistance from some of the people who helped prepare this report, I presume that is in order.

Mr. POAGE. Certainly it is.

Mr. DAILEY. That is the total cost including local costs as well as the Federal costs.

Mr. POAGE. The local costs normally run about 40 percent, is that not about right?

Mr. DAILEY. That much or more in some cases.

Mr. POAGE. And more in some cases. And they include not only the cost of the acquisition of the land, but also the land treatment that goes into the treatment of the land above the reservoir, that is right, is it not?

Mr. DAILEY. Yes, sir; that is correct. But in this case the land treatment measures are not included in this figure, Mr. Poage.

Mr. POAGE. I see. Thank you.

Are there any other questions? If not, we are very much obliged to you, Mr. Dailey.

Mr. DAILEY. Thank you.

Mr. POAGE. We will next ask Mr. Robert Scott, master of the North Carolina State Grange, for his statement. We shall be glad to hear you now.

STATEMENT OF ROBERT W. SCOTT, MASTER, NORTH CAROLINA STATE GRANGE

Mr. SCOTT. Mr. Chairman and members of the committee, I am Robert W. Scott, master of the North Carolina State Grange with headquarters in Greensboro. My home is in Alamance County, and I operate a dairy farm that lies on the banks of Haw River and Back Creek, which is a part of the Cape Fear River Basin.

We appreciate your willingness to visit our State for this hearing and allowing the grange and other interested parties to present our views concerning the flood control program for the Cape Fear River Basin.

The Grange is a national, voluntary, nonprofit, general farm organization with local units located in every section of the State. We have grange units in communities both above and below the proposed dam

The State grange has long recognized the need for a sound water program based upon a comprehensive study of all the problems in connection with both droughts and floods as they affect the safety, welfare, and economy of the State. As far back as the early 1930's, when my father was serving as master of the grange, there was a recognition of the importance of long-range plans to conserve our land and water resources for the benefit of all.

A formal policy on flood control in river basins was adopted by the State grange at its 1946 annual convention at Clinton. This policy called for (1) consideration to be given to agricultural as well as industrial benefits in flood control projects; (2) joint studies to be made by all agencies, both State and Federal, having an economic interest in the area under study; and (3) when all the facts are in and a project is determined to be feasible and desirable, that equal consideration be given to land-use and land-treatment practices as is given to engineering structures.

The Army Corps of Engineers has conducted studies of the Cape Fear River Basin as far back as the 1920's. On May 2, 1946, the corps was authorized by Congress to make a review of these studies in the interest of flood control. At a public hearing in Fayetteville on February 8, 1957, the grange, along with other groups, requested that a complete study be made of the land and water resources of the entire basin, considering possible alternative plans for the development of the total resources of the basin for the benefit of all.

On June 12, 1957, Senator W. Kerr Scott, working with grange leaders, arranged for a conference in his office with representatives on the North Carolina State Grange, the Soil Conservation Service, and the Corps of Engineers to work out agreements for a joint study of flood control plans. As a result of this conference, the Corps of Engineers, the Soil Conservation Service, and the North Carolina Department of Water Resources made a joint study of the Cape Fear River Basin and filed a report in 1961.

Mr. Chairman and members of the committees, I cite this background to show that the grange has been concerned with proper water and land resource use for many years and that our organization has been specifically concerned with flood control proposals for the Cape Fear River Basin since studies were initiated in 1946.

For purpose of this testimony, I shall refer to the Corps of Engineers proposal as plan A and the Soil Conservation Service proposal as plan B.

It is not my intent to discuss in detail the advantages and disadvantages of plan A and plan B as outlined in the joint study, since these will be brought out in later testimony. However, I do want to discuss some of the principles involved and raise some questions that should be answered before a final decision is made.

Which of the two plans offers the most benefits over a long period of time and over the largest area? Will upstream resources be sacrificed by the construction of a single large dam with two smaller dams that might be added later to provide protection of downstream flood damage prospects? Is the apparent preference to downstream flood control the best procedure for arriving at an orderly land and water resource program for the entire basin? If a large dam is erected at New Hope what happens to the conservation and flood

control needs in the vast area above this site? These are but a few of the questions that must be answered before a truly sound program can be adopted.

The grange believes that every watershed project should provide for the maximum use of the water resources for the welfare of all segments of our economy, taking into account the needs of people and animals, agriculture and industry, recreation, et cetera. This means that the tributaries along the main stream must be taken into consideration before any program is finalized.

The relationship between headwater dams and land treatment must be recognized if sound natural resource policies are to be carried on. Flood control, though a major factor, should never be considered as a separate and independent entity. It is, instead, a part of an inseparable complex which includes land, timber, grass, crops, and other values. This means that agricultural conservation measures must be fully utilized if a sound program is developed.

The entire economy will benefit to the extent that water problems are solved back on the land where the rain falls and the need for large structures on the main streams for flood control purposes is minimized. We must always remember that the largest water reservoir in the world, outside of the oceans, is land. In consideration of any policy affecting water and land resources, this fact cannot be overlooked or ignored.

The North Carolina State Grange cannot support plan A, which is the Corps of Engineers proposal, of the joint report of 1961 because it does not meet the principles for total resource development of the entire basin.

It has been stated by some that the construction of a large dam at New Hope and the carrying out of plan A would not prevent the implementation of plan B, also. But a realistic appraisal of the situation would indicate that, once plan A has been approved and the large dam erected, there is very little possibility that plan B will ever be implemented.

That being the cold, hard facts of the matter, what is the likelihood of resource development in the area above New Hope? Since plan A is concerned primarily with flood control, I can tell you from personal experience that there is a need for flood control above New Hope. Quite often we have flooding of our creek and river bottomland, some of which is serious and some of which is minor. I well recall the big flood of 1945 in which the waters of Haw River and one of its tributaries spilled over the lands of our farm. We lost about six head of dairy cattle in that flood. Other cattle were stranded on a slight elevation with water swirling about them, and we were very much concerned that they, too, might be lost.

Even the so-called minor floods take away our topsoil, tear down fences, wash away crops and leave debris on the land. A dam at New Hope will not solve this problem for me or my neighbors.

Conversely, there are periods of drought as well as flood. Crops cannot be grown profitably without adequate moisture. A dam at New Hope will not solve this problem, but plan B would provide farmers with sources of water from which they could irrigate their crops.

There are those who point with enthusiasm to the recreational benefits of plan B, and I suspect that many of those who so adamantly support plan A are looking forward to buying a lot, building a cabin, and going water skiing on the New Hope Reservoir with little concern for flood control, water conservation, or anything else. I, for one, would not want to build a cabin near the water's edge at flood stage and, during the summer, suddenly find myself a half mile from the lake.

It could well be true because of the variation in the water level under plan A. Judging from some of the reports in the papers recently it might be that we would want to have water skiing and get Jayne Mansfield to do the water skiing and do a little publicity for our State.

Wouldn't it be far better to have the water impounded at numerous sites throughout the tributaries and allow fishing, boating, and perhaps swimming over the entire river basin? Such recreation would be more accessible to those who cannot afford the time or money for a 50-mile trip to a large reservoir.

Many municipalities, particularly the smaller ones, would benefit under plan B because they would have sources of water near at hand to meet the needs of their expanding economies; and they would further have a strong inducement to attract new industry.

Concern has been expressed in the press recently by one of our public officials that it would take years to implement plan B and put it into effect. This need not be the case. I further call attention to the fact that the Corps of Engineers has been conducting studies, off and on, since the 1920's, and more specifically since 1946.

I do not see how we can get much lower than that.

We do not intend to object to plan A without offering a means of implementing plan B immediately. It is true that, if any attempt to put plan B into effect under Public Law 566 is undertaken, it would take a number of years to make the surveys, acquire the agreements with landowners, and erect the structures.

The grange proposes, however, that legislation be enacted by the Congress to create a Cape Fear Commision on Water Use and Control, whose purpose it would be to carry out the proposals as outlined in plan B of the 1961 joint report. Such a commission could well serve as a model for total river basin resource conservation, development, and use throughout the Nation.

There is a definite need for general legislation which would provide for such commissions to be established throughout the United States wherever and whenever the need arises. In some areas, the need is immediate and one of those areas is here in the Cape Fear River Basin.

There is no need for delay of plan B. The Congress can move just as fast as it desires. The elected officials can expedite or delay the program according to whether they wish to provide an overall program of resource development for the entire river basin. At the conclusion of this hearing, the facts will be before you. I am confident that you will, as in the past, accept the program that is in the best interest of all areas of the basin and in the best interest of all our economy.

Again, the grange wishes to thank each of you distinguished gentlemen for allowing us the privilege of presenting our views.

Mr. POAGE. Thank you very much, Mr. Scott. [Applause.]

Are there some questions of Mr. Scott?

Mr. SMITH. Why are you so sure that plan B cannot be implemented?

Mr. SCOTT. It could be implemented, but those who say that the quickest way to get it done would be to enact new legislation setting up a river basin authority or program.

Mr. SMITH. Thank you.

Mr. POAGE. Anyone else? I believe we have no further questions. We thank you again, Mr. Scott.

We will now hear from Mr. Lemuel Johnson, representing the North Carolina Farm Bureau Federation.

STATEMENT OF LEMUEL JOHNSON, REPRESENTING THE NORTH CAROLINA FARM BUREAU FEDERATION

Mr. JOHNSON. Mr. Chairman and members of the committee, I am Lemuel Johnson. Mr. Mangum, president of the North Carolina Farm Bureau Federation, could not be present today and asked me to convey to you his regrets, and asked me to read his statement here today.

I will first read the letter addressed to Mr. Earl Parker, chairman of the New Hope Valley Association.

This is in reply to your letter of January 30 at which time you extended an invitation to Mr. B. C. Mangum, our president, to appear before the House Agricultural Subcommittee in a hearing to be conducted at Pittsboro on Friday, February 16, concerning a proposal by the Army Engineers to construct a dam in the New Hope Valley.

We regret very much that we are not in a position to attend the hearing due to a special meeting of our voting delegates being held on that day.

We are enclosing herewith a statement along with a sufficient number of copies to furnish one to each member of the committee present, and we shall appreciate very much your seeing that this statement is placed in the record of the hearing.

Will you please state to the chairman of the subcommittee our sincere regrets at not being able to appear personally in support of the recommendations being made by the New Hope Valley Association which is in keeping with the position set forth by the Soil Conservation Service in a joint report of land and water resources study concerning this project.

That is signed "Will H. Rogers, secretary."

I will now read Mr. Mangum's statement:

Gentlemen, I regret that I am unable to attend this meeting. The North Carolina Farm Bureau is holding a special session of its voting delegates on a very important matter. However, we would like to express our ideas and opinions concerning the New Hope Valley area project. We have very carefully studied part I, "Joint Report of Land and Water Resources Study" for the Cape Fear River Basin.

The Cape Fear River Basin is among the most intensively developed industrial areas in North Carolina. Agriculture is very important to the economy of this area. Portions of the flood plain throughout the entire basin are subject to flooding. Agricultural activity on the flood plains is frequently interrupted and there are substantial flood damages to agricultural lands and rural property. Urban and industrial developments have been subjected to damaging floods, also. Economically justified reservoir storages which would help in protection from floods, could also be used to meet the water needs for municipal and industrial use, low-flow regulation, irrigation, and recreation.

After careful consideration of both plan A (New Hope Reservoir) and plan B (small and intermediate-size reservoirs), we feel that plan B would be more suitable for the Cape Fear River Basin. We recommend the use of this plan

(1) With many small intermediate-size multipurpose dams and reservoirs from the headwaters of the Haw, Deep, and Little Rivers, as well as other tributary areas upstream from Lillington, we feel that farmers as well as industrial developments throughout the entire Cape Fear River Basin, would be better protected from floods and soil erosion.

(2) This plan is sufficiently flexible so as to enable the shifting of the locations of most structures to alternate sites. This plan will remain beneficial because the overflow of water from reservoirs in most instances will be on swamplands and other low productive sites instead of on valuable farmland, highways, and railroads, as well as other public or private facilities, and can still be used for greater irrigation uses.

(3) It is also sufficiently flexible, and sites are available, so that water may be impounded for use as a municipal and/or industrial water supply, low-flow regulation, and recreation areas.

Finally, we feel that the total benefits from the many small- and intermediate-size reservoirs would be greater than from plan A which places a dam and reservoir on the Haw River, immediately below the mouth of the New Hope River.

Mr. POAGE. Mr. Johnson, we are very much obliged to you. I wonder if the members have any questions? If not, thank you, Mr. Johnson.

We will now hear from Mr. Earl Dark, chairman of the county commissioners for Chatham County.

STATEMENT OF EARL J. DARK, CHAIRMAN, BOARD OF COUNTY COMMISSIONERS, CHATHAM COUNTY, PITTSBORO, N.C.

Mr. DARK. Mr. Chairman and members of the committee, I am Earl J. Dark, chairman of the Board of County Commissioners for Chatham County. I want to read a resolution that our board passed. It was a regular meeting of the Board of County Commissioners of Chatham County at the courthouse in Pittsboro on January 2, 1962, with all of the members being present, to wit: E. J. Dark, chairman, and Messrs. G. J. Brooks, Arthur D. Phillips, Ben Wimberly, and A. R. Wilson.

The following proceedings were then had.

The recent report of the district engineer of the Corps of Engineers of U.S. Army recommends the construction of a large dam across Haw River just below the mouth of New Hope Creek. After a full discussion of the effects of such proprosed project in Chatham County, Commissioner Wilson offered and moved for adoption a resolution as follows:

Whereas it appears from the report of the U.S. Army Corps of Engineers that it is recommended that an enormous dam of some 90 to 100 feet above stream level be constructed across Haw River just below the mouth of New Hope Creek, which would flood many thousands of acres of land located in the northern portion of Cape Fear Township, and the greater portions of New Hope Township and Williams Township in Chatham County; that to complete such project, it would be required to take in fee and by way of lease some 35,000 acres; and

Whereas in the opinion of the Board of County Commissioners of Chatham County, such a project would be disastrous to the economic, social, and political life of this county; and

Whereas in a joint study of "Flood Control for the Cape Fear Valley" by the U.S. Army Corps of Engineers and the Soil Conservation Service, the Soil Conservation Service recommended the building and construction of a multiple number of small dams as being more feasible for flood control in the Cape Fear Basin, pointing out the disadvantages of the large dam, as recommended by the Army Corps of Engineers, in that it does not provide for flood control except on the main stem of the Cape Fear River; in that it does not give any protection to the property north of Moncure. On the other hand, great advantages would accrue to all the people in the Cape Fear Basin by the building and construction of many small dams. By the building of the small dams, benefits would be realized throughout the entire basin rather than just the main stem of Cape Fear River—below Moncure. Under the plan recommended by the Soil Conservation Service, greater benefits would accrue to the people and properties of the entire Cape Fear Basin:

1. There would be water conservation located nearer to the users, such as for irrigation, industrial and municipal uses, low-flow regulation, fish and wildlife, as well as recreation.
2. Although more total land would be covered by the permanent pools, adjustments in location or use of alternate sites could be used to avoid the flooding of valuable lands and improvements.
3. Whole farms and communities would not be disrupted.
4. Storage for purposes other than flood control could be included in this plan without major changes either in location or purpose of the original reservoir.
5. Recreation and other benefits would be distributed throughout the area.
6. Low-flow regulation for pollution abatement could be available to all areas of the basin under this plan: Now, therefore, be it and it is hereby

Resolved by the Board of County Commissioners of Chatham County, That it protest the building of the New Hope Dam as recommended by the U.S. Army Corps of Engineers; but on the other hand, that this board go on record as being favorable to the recommendations of the Soil Conservation Service; be it further

Resolved, That a copy of these resolutions be forwarded to the Honorable Harold D. Cooley, our Representative in the U.S. Congress from this Fourth Congressional District, with the request that he endeavor to have proper legislation enacted to the end that the recommendations of the Soil Conservation Service be realized; and with the further request that, as chairman of the Committee on Agriculture, he arrange for a proper hearing to be held at the courthouse in Pittsboro upon the subject matter of this resolution.

The adoption of the foregoing resolution was seconded by Commissioner Brooks, and upon a rollcall vote it was adopted unanimously.

Mr. POAGE. Mr. Dark, thank you very much. Are there questions of Mr. Dark? If not, we are very much obliged to you.

We will now hear from Mr. Arthur C. Lawrence.

STATEMENT OF ARTHUR C. LAWRENCE, FARMER, APEX, N.C.

Mr. LAWRENCE. Mr. Chairman and members of the committee, my name is Arthur C. Lawrence, Apex, N.C. I own and operate farms in Wake and Chatham Counties in the New Hope watershed.

Congressman Cooley, I, along with many others here today, appreciate the fact that your policy throughout the years you have been in public office has been that before any people are to be affected adversely by Government decree that they, insofar as you are concerned, have had the opportunity to be heard in a public hearing. I think that is a major policy that has helped keep our country great.

I stand in favor of the small dam system for flood control and other purposes in the Cape Fear Basin. My remarks will be very brief.

Throughout the development of our country, we have recognized the principle of fair play and mutual helpfulness. These principles are the very essence of American democracy. Certainly the policy of our Government will not sanction the support of any proposal that would tend to destroy good land and forest resources, homes, churches, and dynamic community centers when an alternative plan is available which could be developed so as to enrich the whole area involved.

I have no bones to pick with the Army Corps of Engineers. They have an outstanding record in flood control. But in this case I do

not think their plan goes far enough. Every day we are made more aware of the importance of water in every area of life, whether rural or urban. The objective in any water planning should be the best utilization of all water resources from the time that the precipitation falls on the land until the water again finds its way to the sea. The plan of the Engineers fails to attempt to meet this objective. In fact, the only proposal which they are recommending at this time is for one large dam on Haw River.

Inasmuch as the major economic justification for the New Hope Reservoir is based on its providing reasonable flood control needs along the main stem of the Cape Fear River below the New Hope Dam site, only a few, if any, of the other reservoirs proposed by the Engineers can be reasonably expected to be built because their justification could be limited to the benefits within local areas or communities. Too, if North Carolina were to be allocated $25.5 million for a project of this nature in one area of the State, the probability is that we could not expect another sizable allocation for this area any time in the foreseeable future.

Some have expressed concern about the length of time that would be required to implement the Soil Conservation Service plan. I contend that the main point here is not so much a matter of time involved as it is a reasonable certainty that we are on the right track. The more I look into this matter, the more I am convinced that the plan of the Soil Conservation Service is the justified solution to water problems and needs of the Cape Fear Basin. The small reservoir plan offers more long-term benefits to more people, thereby adding a greater emphasis to the future progress of North Carolina.

Mr. POAGE. We are very much obliged to you, Mr. Lawrence. Are there any questions of Mr. Lawrence? If there are no questions, we thank you again, Mr. Lawrence.

We will now hear from Mr. Harold Seagroves, mayor of Pittsboro.

STATEMENT OF HON. HAROLD T. SEAGROVES, MAYOR, PITTSBORO, N.C.

Mr. SEAGROVES. Mr. Chairman and members of the committee, I am Harold T. Seagroves, mayor of the town of Pittsboro, N.C.

The following resolution was unanimously adopted and passed by the Board of Town Commissioners of the Town of Pittsboro, N.C., at a regular meeting of that board held on February 5, 1962:

Be it resolved by the Board of Commissioners of the Town of Pittsboro, That they do protest against the construction of the proposed New Hope Dam, but on the other hand, they do approve the construction of smaller dams upon the streams and tributaries in the Cape Fear Basin, and they do respectfully urge all persons or agencies having the authority, to disapprove the construction of said New Hope Dam, and in lieu thereof, that many small dams be constructed upon the principal streams and tributaries of the Cape Fear Basin.

Thank you, sir.

Mr. POAGE. Thank you very much. Are there any questions of Mayor Seagroves?

If not, we will now hear from Mr. Earl Parker of the New Hope Valley Association.

STATEMENT OF EARL F. PARKER, CHAIRMAN, NEW HOPE VALLEY ASSOCIATION, PITTSBORO, N.C.

Mr. PARKER. Mr. Chairman and members of the committee, I am Earl F. Parker, chairman of the New Hope Valley Association, which consists of the people who would be inundated if the Engineers' plan were adopted. They would be forced to leave their homes.

We have spoken, Mr. Chairman, in our previous statements about material things. Would I be out of order, sir, to ask that those whom I represent please stand?

Mr. POAGE. We will be glad to have them stand.

Mr. PARKER. Will you please stand, and those who are standing, would you raise your hands?

(Practically the entire audience.)

Mr. PARKER. May I deviate from my prepared statement?

Mr. POAGE. You may.

Mr. PARKER. I would like to talk to you about the people, first As I previously mentioned, we hear reports that there will be 110 families caused to move or to relocate, but the committee by actual count of the area up to the high water mark, at 240 feet mean sea level, which would not include the additional 5 feet that would be taken in fee, nor the additional 10 percent which would be taken for blocking out, nor would it consist of the additional 2,000 acres which the easement rights would be on—these people are the ones I speak to you about whom we consider would be in the water area—not in the area that was taken in fee.

So my figures may not be as elaborate as they might seem, because we tried to make this honest. But it is our honest opinion that these figures that I give to you are correct.

Today for a few minutes I would like to make known to you several facts about the people of the New Hope Valley. We like to think of ourselves as a people who are interested in progress. With that thought in mind I bring you the following facts.

New Hope Valley is blessed with fertile land and a great timber potential.

If the high dam is constructed there will be more than 560 acres of tobacco allotment destroyed, 2,000 acres of cereal crops, 150 home gardens, much pasture land, and—according to the survey report—30,000 acres of growing timber. These factors within themselves are a great asset to our State. The minimum of their annual value would be: tobacco, $560,000; corn and cereal crops, $100,000; home gardens, $75,000; annual timber growth at $12 per acre, $360,000. The total of these figures is $1,095,000, which would be done away with in this county and in this State of ours. That would be no more.

Now, compare this amount with the annual benefits to be enjoyed below the proposed dam and you will find that there is not a feasible ratio of cost and benefit.

If you compare those two together, we think the cost-benefit ratios are not so pleasing to look at.

We are interested in a program that will benefit the lower reaches of the basin and also the people in the upper reaches of the Haw River and its tributaries. We sincerely believe the series of small dams proposed by the Soil Conservation Service is as near ideal a program

We are interested in the value of our land, too. The latest known land transaction in our valley was completed this week. The farm that was sold consisted of 42 acres. That was in our valley. This farm, with 4.2 acres tobacco allotment and meager buildings, sold for the round figure of $12,000, on the open market, or approximately $285 per acre—one of the least desirable.

Our land would be bought in fee for about $108 per acre. if the Army Corps of Engineers program is put into effect. The soil conservation program would not inundate this valuable land. It would be necessary to acquire only low grade or bottom land, thus leaving the most productive soil to feed and clothe our people and remain an asset to our State and Nation.

By making the program of soil conservation a reality, many thousands of acres will enjoy land enhancement in the Piedmont regions as well as in the regions below the junction of the Haw and New Hope Rivers. Farms in many areas could use said water for irrigation. Even though in the benefit figures the irrigation water was not considered in the benefits of the soil conservation program, if I understand correctly. That is a possibility.

Municipalities and industries could receive tremendous benefits by having bodies of water readily accessible in their area, which instead of pumping water 40 or 50 miles, the water would be impounded in their general area.

If the big dam is constructed, the railroad which traverses New Hope Valley would have to be relocated. This would cost $2 million. This figure for the relocation of a single railroad track is fantastic—$100,000 per mile. If the small dams were constructed, this expense would be eliminated, and business could be transacted on said railroad in the usual manner.

Also, the relocation of highways, including U.S. 64, would be a major undertaking. The accomplishment of this task would cost the Government a sizable sum. Again, we say that such an expense would not be necessary if the multiple system of dams should be used.

In the past, the Army Corps of Engineers has underestimated the actual cost of projects—no reduction, but I think I speak facts—of this nature. We see no reason why this would not be a repeat of things in the past.

Many people who presently favor the Army Corps of Engineers program do not realize that they will not receive any benefits from that program. They think that the plan will provide an ideal recreational outlet for central North Carolina. It has been told that under certain conditions, said lake would be useful only for boats. However, the Army Corps of Engineers have pointed out in the past themselves that, due to upstream pollution, the water will not be suitable for swimming, thus reducing recreation to a minimum.

I think I am safe in saying that it would not be suitable to fish life.

Since 1945, Chatham County has entered extensively into the program of soil conseravtion. 1,251 farm ponds—two of which are over 20 acres—have been constructed. Such ponds as these have made a valuable contribution in the direction of flood control. Those of us who have entered into this program have realized tremendous benefits

from it and we heartily recommend this program to people in all areas of our country, that they may reap from its wisdom also.

I would like to call to your attention the participation of the Soil Conservation Service; in our own individual way, with minimum assistance from the Federal Government. This is individual farm participation.

Since the flood of 1945, which we hear so much about, Chatham County alone—not just the valley, Chatham County alone has constructed 1,251 individual farm ponds or more. These in a small way contribute to the problems down below.

Soil Conservation we think has a program that is best suited to the progress of our country. We think there are many benefits that can be derived from independent families and that will be an asset to this State and Nation as well.

We sincerely believe and hope that each of those, Mr. Chairman, who still stand with me—who stood before, were in this program to be enacted. We are not against those people down below the dam; we are for them. But we still would like to live and to progress in like manner.

And again may I refer to people—we find that in that area there are 151 families who will have to relocate.

I would like also to mention a few things about the religious aspects. In the report we hear that there will be three churches completely done away with. That in itself is something. But there are to my knowledge 11 churches which will be adversely affected. Now it comes to my mind that it seems possible they will not be able to exist if such a proposal is carried out.

There will, of course, be a division in our county. There will be a division in communities. There will be a division in church groups. And there will be isolated areas.

Again I would like to mention to you that I speak for this number of fine people. We strongly urge and proudly recommend this program. And if we did not, I would not be proud of them and you would not be proud of us.

I thank you.

Mr. POAGE. Thank you very much, Mr. Parker. [Applause.]

Mr. Breeding wants to ask you a question.

Mr. BREEDING. I would like to ask Mr. Parker a question about the price of the land. This is nearly $300 an acre on this $12,000 deal. And the engineering figure on this project is $108 per acre. Is this figure of $300 per acre an average price per acre?

Mr. PARKER. No, sir; it is not average. It is below average.

Mr. BREEDING. Would this figure of $108 be about an average?

Mr. PARKER. No, sir. It would not be an average. May I, sir, also say this?

Mr. BREEDING. What is an average price of the land in the valley?

Mr. PARKER. There is not much land that is being sold. I would say that there is much land in the valley that is of such value to the people that it would take as much to buy it as it would to buy the Capitol in Washington. [Applause.]

I do not mean to be disrespectful, but I mean that many of those are not to be sold. They have been handed down from generation to generation as an asset, something that has been looked forward to.

There is much fertile land in this valley, sir—not in the low lands on the bottom. It was hill land. It was mostly eroded land. I think I can verify that by many of the local people, and by many of the people in the county government who would verify those facts.

Mr. BREEDING. There is one other question I would like to ask, Mr. Chairman.

Mr. POAGE. Yes, Mr. Breeding.

Mr. BREEDING. Why is this water not suitable for swimming, or fish and wild life.

Mr. PARKER. I am not engineer. I only speak from what I read in the reports. There are many cities that empty sewage and dispose of their wastes into the tributaries of these streams. The main stem of the Haw River goes into the Greensboro area, and the New Hope River goes into the Durham area where they dump their wastes into them. I am not familiar with that, but I think that the city treats it. It would not be suitable, however.

Mr. GATHINGS. I want to commend you for a very splendid statement. You seem to have quite a lot of support here today.

What is your occupation, Mr. Parker?

Mr. PARKER. Farmer, sir, and I am proud to be one. I meant to mention that to you. [Applause.]

Mr. GATHINGS. I thought that you were a lawyer.

Mr. PARKER. Thank you, sir. Maybe I will be one day. [Laughter.]

Mr. GATHINGS. One other thing, I believe you stated that some 560 acres of tobacco allotment would be inundated if the high dam were to be constructed. Just what is the average size of these allotments?

Mr. PARKER. May I ask, sir, a question of a friend of mine who has a better idea than I do?

Mr. POAGE. Certainly.

Mr. FARRINGTON. About 4.5 to 5.

Mr. GATHINGS. Is that flue cured?

Mr. FARRINGTON. That is flue cured. We are proud of it.

Mr. PARKER. In the two townships, may I add, also, which will be so adversely affected, the average of the entire township is well above 1,500 pounds an acre for good and medium farmers, for everyone.

Mr. GATHINGS. I just wanted to say that 560 acres of allotment is such that if you were speaking of cotton, it would be just a few allotments, maybe 15 or 20 or so. There are several farmers involved here, I believe you said 150 would be destroyed and 151 people driven from their homes?

Mr. PARKER. Yes, sir; that is according to the best of our ability to judge within the waterlands, yes, sir. According to our figures I think Mr. Farrington is correct, it would be nearly 5 acres as the figure which would be just about right. Most of the people here today are farmers.

Mr. POAGE. Mr. McIntire wants to ask a question.

Mr. MCINTIRE. I would interpret from the fact that it has been stated that the average tobacco allotment is in the neighborhood of 5 acres that most of the farms involved are producing some tobacco?

Mr. PARKER. Yes, sir. I think I could say 100 percent, but I would say better than 99 percent.

Mr. MCINTIRE. May I ask if one could project values—in following Mr. Breeding's question—what would be the land value in the farm to which you made reference here? What would this farm have sold for had there been no tobacco allotment on it?

Mr. PARKER. That was a deciding factor, sir.

Mr. MCINTIRE. What was the land worth on the market without factoring the tobacco allotment?

Mr. PARKER. Any land that has been cut over recently, that has been timbered recently, our paper companies give $100 an acre for it. As you know, it would be several years before there are any more trees or harvest. That land would be worth $150 or more an acre without the allotment or without any structures on it whatsoever.

Mr. MCINTIRE. Thank you.

Mr. PARKER. That is my honest opinion.

Mr. POAGE. Are there any further questions?

Mrs. JOHN FOUSHEE. May I make a statement?

Mr. POAGE. Yes.

STATEMENT OF MRS. JOHN FOUSHEE, DURHAM COUNTY, N.C.

Mrs. FOUSHEE. I should like to say something about the cost of the land that would be used for backwash on the roads in Chapel Hill. Recently, we bought some land at auction and we paid $1,600 per acre for it. Twenty years ago, it was sold at $40 an acre. This was an increase of $1,560 an acre in an area 10 miles or 15 miles from here.

Mr. POAGE. Thank you.

We will now hear from the Reverend Allen Wadsworth, pastor of the Bells Baptist Church, New Hope Valley Township, Chatham County, N.C.

STATEMENT OF REV. ALLEN P. WADSWORTH, JR., PASTOR, BELLS BAPTIST CHURCH, NEW HOPE VALLEY TOWNSHIP, CHATHAM COUNTY, N.C.

Reverend WADSWORTH. Mr. Chairman and members of the committee, I would say at the beginning that it is not my intent today to sermonize. I am the pastor of the Bells Baptist Church which is in New Hope Valley Township.

A little over 2 years ago, I began my pastorate at Bells Baptist Church, which is located 11 miles east of here—Pittsboro—in the New Hope Valley Township. Each year our church has conducted a Soil Stewardship Week in cooperation with the program of the soil conservation department. The people of Bells Church, who represent a large portion of the New Hope Valley residents, include this week in their annual calendar of church activities because they consider the soil to be man's greatest material blessing. Living close to the soil, their prosperity is directly related to its well-being.

Their belief in soil conservation springs from their belief in Holy Writ, which teaches: "The earth is the Lord's and the fullness thereof; and they that dwell therein." Their belief in the Scripture causes them to believe the following things: (1) Soil and water are gifts of God; (2) it is the moral responsibility of all people to care for and wisely use our soil and other natural resources; (3) the man on the

land has a particular moral responsibility, as a steward of the soil; and (4) he who contributes to the destruction of the soil veritably sins against God and his fellow man.

For just a few moments, I invite you to reflect on the bountiful natural resources of our community, our State, and our Nation.

Consider the soil. It is the spectacle of the Grand Canyon, the flatness of the plains, and the rolling convolutions of the Shenandoah Valley. It covers millions on millions of acres around the globe—yet it is a rare thing and cannot be replaced. The soil is an intricate house of myriad elements. Yet it is so commonplace as to be known as dirt. The soil produces crops and verdant grass and trees. It cannot be duplicated by chemistry or physics. It is the source of our nourishment; it provides the means of our protection. The soil is a living thing, yet it can be destroyed. God has willed that we live with it; we cannot live without it.

Recent statistics reveal that our population now is near 180 million. We gain one more person every 12 seconds in our country. Within 40 years our population will double. The farmer of today produces food to feed himself and 23 other persons. In the light of our rapid population rise, our problem is increasingly becoming one of more mouths to feed with less land of a poorer quality upon which to grow the food. Our cemeteries, highways, and factories are built on the best land. Our dams flood the lowlands with their rich soil.

There is no more land—unless we make some more progress in our space program—with more people to feed and clothe it seems to me that we should think in terms of making the best possible use of all our natural resources. If the present trend continues, within the next 15 years farmland per person in our country will decrease 30 percent.

I stand with the people of New Hope Valley not because I am the pastor of Bells Baptist Church, or because I fear I may lose my pastorate if the valley is flooded, or because I have financial interest in the community, but I stand with the people of New Hope Valley in their opposition to the proposals of the Army Corps of Engineers, in their support of the proposals by the Soil Conservation Service, because I am convinced that they are justified in the position they have taken. I have never believed in a policy of robbing Peter to pay Paul. I feel that the Soil Conservation Service has proposed a program which will benefit all people without utterly destroying one group for the benefit of another.

So, gentlemen, we do not feel that our struggle is one of getting the right people on our side, but of getting people on the right side by acquainting them with all of the facts which bear upon the issues of flood control, irrigation, recreation, and water conservation. We do not intend to stand in the way of progress—we mean to accelerate it. The reason we favor the program recommended by the soil conservation department is because we confidently thing it will benefit more people in more ways, and thus facilitate the greater welfare of our county, State, and Nation. It is in this attitude that we respectfully submit to you our views.

Mr. POAGE. Thank you very much, Reverend Wadsworth.

Are there any question of Reverend Wadsworth?

(No response.)

Mr. POAGE. If there are no questions, we are very much obliged to you, Reverend Wadsworth.

We will hear from Mr. James Diggs of the New Hope Valley Grange.

STATEMENT OF JAMES DIGGS, NEW HOPE VALLEY GRANGE

Mr. DIGGS. Mr. Chairman and members of the committee, my name is James Diggs. I am master of the Hope Valley Grange, and a farmer by profession. I should like to read a resolution of the New Hope Valley Grange. It is as follows:

RESOLUTION—NEW HOPE VALLEY GRANGE NO. 1204, CHATHAM COUNTY, FEBRUARY 13, 1962

We, the patrons of New Hope Valley Grange No. 1204, Chatham County, hereby go on record favoring the soil conservation plan of small dams in the development of the Cape Fear River Basin for flood control, recreation, and the storage of a quality of water that would be usable for industrial and municipal water supply.

We feel that the impounding of the waters by this plan will have a far better long-range effect on the development of the economy of the Cape Fear watershed without the displacement of so many families and the destruction of many thousands of productive acres of land.

Mr. POAGE. Thank you very much, Mr. Diggs. Are there any questions of Mr. Diggs?

(No response.)

Mr. POAGE. If not, we are very much obliged to you.

We will now hear from Mr. J. C. Overman of the Olive Chapel Grange.

STATEMENT OF J. C. OVERMAN, APEX, CHATHAM COUNTY, N.C.

Mr. OVERMAN. Mr. Chairman and members of the committee, I represent the Olive Chapel Subordinate Grange and its community in western Wake and eastern Chatham Counties. Our people have studied the report of the Corps of Engineers and the report of the department of soil conservation relative to water resources in the Cape Fear River Basin. We favor the plan of the department of soil conservation.

We practice the conservation and development of our natural resources. When the U.S. Government became interested in the conservation of soil and water in America, the people in the Olive Chapel community were among the first to establish conservation measures. The Neuse River Soil Conservation District was initiated in the Olive Chapel Grange in the year 1940. Twenty-two years ago we began conservation practices designed to help both our own people and the people below us on New Hope River, Haw River, and Cape Fear River. There are scores of farm ponds in our community. We keep the water there for our own use, and this gives some protection for the people below us. We realize that this is small-scale operation. However, it involves a principle for which we make an appeal here today.

We commend the Army Engineers for their outstanding record of achievements for flood control, but it is our contention that in this case their plan does not afford the required consideration for all the area that should be involved.

We also believe that the expenditure of $26 million at this time for the proposed big dam will mean that no additional expenditures can be expected, in the foreseeable future, for the additional development of the resources along the Cape Fear River tributaries. We believe there is a way to protect and develop the communities along the Cape Fear River and the communities along its tributaries at the same time. We believe that a series of small dams as proposed by the department of soil conservation, and an intensified program of watershed development throughout the whole area involved, will make a much greater long-range contribution to North Carolina than a single large dam which will help some communities while hurting others.

We are interested in developing the soil and water resources of every community along the Cape Fear River Basin. We would like to see them protected from floods. In our opinion, the plan for a series of small dams strategically located will not only offer flood control in the entire basin, but also affords a greater potential for recreation for more people. This plan also offers greater advantages for future irrigation, municipal, and industrial water supply. It just makes good sense to control water at its source so that all people all along the waterway can enjoy its benefits.

Mr. Chairman, the people of the Olive Chapel Grange community appeal to the members of the joint congressional subcommittees here today to give consideration to a system of water control that will benefit the entire area of the Cape Fear River Basin and will at the same time preserve and protect already established family units and communities.

Mr. POAGE. We are very much obliged to you, Mr. Overman.

Are there any questions of Mr. Overman?

If not, we will now hear from the Honorable Harry P. Horton.

STATEMENT OF HARRY HORTON, ATTORNEY, PITTSBORO, N.C.

Mr. HORTON. Mr. Chairman and members of the committee, I am Harry Horton, a resident and practicing attorney of Pittsboro and Chatham County. I would like to make a few brief remarks in support of the soil conservation approach to water conservation and flood control for the Cape Fear Basin.

Before doing so I would like to read and then file with this subcommittee a certified copy of a resolution adopted by the Board of County Commissioners of Alamance County, N.C.

(The resolution is as follows:)

RESOLUTION FROM MINUTES OF BOARD OF COMMISSIONERS OF ALAMANCE COUNTY, FEBRUARY 5, 1962

Whereas flood control in the Cape Fear River Basin is a source of great interest, and importance to the citizens of Alamance County; and

Whereas it appears that the one map and proposal by official reflects a recommendation for the construction of one large dam within the project, and that soil conservation officials have prepared a map and proposal whereby several small dams are designed and recommended within the project; and

Whereas it appears that the plan for the several small dams, rather than the one large dam, would more adequately serve the project and accomplish the desired purposes, provide purer water more accessible to industry and other [illegible] available water for irrigation, recreation, and other purposes

and over a much larger area, and by proper and planned location of the dams cause less flooding of valuable property than would be the case if one large dam is constructed and the necessary water impounded in one large area: Now, therefore, be it

Resolved by the Board of Commissioners of Alamance County:

(1) That they endorse the plan and proposal for the construction of several small dams within the Cape Fear River Basin.

(2) That copies of this resolution be mailed to the Honorable Harry Horton, Pittsboro, N.C., Senator B. Everett Jordan, Congressman Horace Kornegay, and other appropriate officials.

CERTIFICATE

I, D. B. Paris, secretary of the Board of Commissioners of Alamance County, do hereby certify that the foregoing is a true and exact copy of that resolution adopted at the February 5, 1962, meeting of the Board of Commissioners of Alamance County, as the same is compared with and taken from the original minutes of said board.

Witness my hand and seal, of the county, this 13th day of February 1962.

D. M. PARIS, *Secretary.*

Mr. HORTON. Mr. Chairman, much has been said here today regarding a plan for flood control in the Cape Fear Basin, which encompasses some 17 counties. It has been pointed out very ably by the soil conservation officials that a series of dams spread strategically over this entire basin can offer effective flood control in this area equal to that of the plan offered by the Army Engineers. I am very impressed with the thought that with multiple dams water can be conserved and stored all over this basin and can be made available for farm, municipal, and industrial use. As the need grows for more and more water near our industrial centers, this flexible series of multiple dams can provide a fresh supply of water for them. The industries and towns in countries as far up in the basin as Guilford, Randolph ,and Alamance will be benefited. Graham, Burlington, and Greensboro, with their continuous growth, could well afford to have water stored for municipal and industrial purposes.

We have in this basin great areas of agriculture. Multiple dams throughout the area would be of benefit to this great industry of our State.

To build one large dam as proposed by the Army Engineers in Chatham County might provide some flood protection, should the need arise, to the city of Fayetteville. They do not propose nor recommend that dams be built in Randolph County at this time, which is west of us here. The dam that they propose would only serve to flood thousands of acres of rich crop and timber lands in Chatham County and move many families from their homes and churches and farms. It would not be near to the towns of Greensboro, Burlington, Graham, High Point, and would not offer them and the farmers in Randolph, Alamance, and Guilford or Chatham any benefits. The soil conservation plan would provide benefits to all people of this basin.

Much has been said by the proponents of the Army Engineers' plan prior to this hearing regarding the existing legislation that could put their plan into effect should Congress desire to do so. I do not think that that should be the sole factor in such an important undertaking as this. I feel that every phase of the needs of this basin should be considered with a view of giving the maximum benefits to all the people of the entire basin which would include the great industry of agriculture and the towns and cities and industrial plants throughout the basin.

I would not be so presumptuous as to try to tell you how to enact legislation to the end that the soil conservation survey could become a reality. It seems to me, however, that this is an excellent opportunity to push forward, using this county as an example, to set up a pattern for other areas of the country where similar situations arise calling for water conservation and flood control. I feel that Public Law 566 should be revised and earnestly urge that consideration be given to a different approach to the overall problem being discussed here today, by new legislation. I would like to request that consideration be given to some plan whereby Congress could authorize the Soil Conservation Department to be able through eminent domain to acquire property for construction of dams in an area such as this in North Carolina where agriculture and water conservation and flood control are the primary objects, and particularly in such a situation as confronts us now where power is not and should not be a factor for the building of a dam as proposed by the Corps of Engineers. I can visualize the construction of multiple dams in the Cape Fear Basin as a pioneer project that would have far-reaching effects throughout our country with great benefits to all, particularly to agricultural areas.

I would like to express my appreciation to the subcommittees for coming to Pittsboro. We welcome you to North Carolina, and hope that you will return and visit us some other time.

Thank you.

Mr. POAGE. Thank you.

Are there any questions?

Mr. SMITH. You mentioned a problem that has not been discussed here, but which we should be made aware of. I wonder if the proponents of plan B realize the problem that is involved in acquiring the rights-of-way for all of these reservoirs. In plan B, all of the farmers would have to be in on a voluntary basis under the present law.

Mr. HORTON. It is my understanding that under the present law it would require possible State participation or individual participation in such a project. And for that reason we would hope that you and your wisdom could find some means whereby such a program as we have suggested here could be implemented in the Cape Fear Basin. We recognize that there is a problem under Public Law 566.

Mr. SMITH. Thank you.

Mr. POAGE. May I suggest that that matter comes before the Conservation and Credit Subcommittee every time we have a discussion of this program. And the reason we have left it as it is is because we know something of what happens when the Federal Government goes to buying rights-of-way. I have heard some testimony as to the value of your land. It does not make any difference whether it is worth $100 or $1,000 an acre—it will be worth three times that much if the Federal Government goes to buy those rights-of-way. That always happens. The Federal Government has to pay more than the local people have to pay for the land.

We have a program at the present time spread over the Nation pretty well. There are a few States that are not yet participating in it. We have a program where we have a relatively small amount of money—it is a large amount of money, but relatively small compared with some of the other expenditures of the Government. If

we go to spending a large part of that money to buy rights-of-way we are going to develop very few watersheds. It has been the feeling of the Agriculture Subcommittee, at least, that we had better put these projects where the people are sufficiently interested in the projects to supply the rights-of-way. And if they are not sufficiently interested in the projects that that, probably, is about as good a test as we can find as to whether that is an area that ought to have these watersheds or not. In other words, if the community has not enough interest to get the rights-of-way there is always somebody else who has. And we have not only believed in local self-government, but we believe in practicing it now and then.

We believe that local self-government involves accepting responsibility as well as holding out your hand to get Federal money. We believe that if the Federal Government pays approximately 60 percent of the total expenditure of these projects that we have a kind of cooperation between Federal and local people that is entirely lacking where the Federal Government pays everything.

We in Congress maybe hear it more often than you do the term "pork barrel."

Mr. HORTON. I am familiar with it.

Mr. POAGE. But we hear it from the people at home. I hear it from the 11th District of Texas. These other people here from every other district hear it. It is always pork barrel in the other fellow's district.

Your project here, no matter how meritorious it is, back in central Texas is a pork-barrel project. The projects down there are pork-barrel projects in North Carolina.

We are going to eliminate some of that if we keep the local people paying for some of it, making them, at least, responsible for getting the rights-of-way.

Mr. HORTON. May I answer that with a question? As to the Army Engineer program, if it is implemented, are the people going to give the rights-of-way?

Mr. POAGE. No, they are not. You never heard of an Army Engineer program yet that has not been criticized as pork-barrel. The question is, do you or do we want to go to centralization, relying entirely on the Federal Government, or do we want the localities to have some part in the responsibility as well as the benefits?

Mr. HORTON. I will state here my personal feeling is that I am opposed to centralization.

Mr. POAGE. Than you must be opposed to the Federal Government paying these costs.

Mr. HORTON. If you have one project as opposed to another, we feel that the plan as submitted by the Soil Conservation Service is going to benefit an entire basin. It is not a community project where maybe a dam might be built in one county. I am sure that if this program were implemented there would be a desire on the part of many people to contribute their land for damsites, particularly in this area. I cannot speak for the entire valley or for the Cape Fear Basin.

Mr. POAGE. May I suggest that it has been pointed out here already this morning that there was some consideration of establishing a river authority or a district that would cover the whole area. In my own home State we have used that for a good many years. I believe that the Brazos Reclamation District was the first whole stream program

inaugurated in America, even ahead of the Tennessee Valley. It is a State agency and not Federal. Our law does provide for the creation of such districts, and gives them on two-thirds vote of the people, taxing power. A few of them have used that power to pay for such contributions as they might need to get rights-of-way.

I think it is perfectly feasible for the local people to do that. I think that they are able to keep those costs within the bounds of reason then. I do not know of any place in Texas where we have just gone out and bought all of the rights-of-way, but we have made contributions to rights-of-way costs, particularly where even these smaller reservoirs are going to cover up farms. There will be some whole farms covered. And when a man's whole farm is covered it would be utter folly to expect him to give it. But when it simply gives him a good watering pond, I would hesitate long, if I was on that board, before I would contribute a thing in the world to it, because if he is going to benefit out of that, I think that he ought to share some of the burden.

I think there is a way if you will keep this thing close to the people that we can avoid some centralization that we see.

I know that we have a difference here. I know that there is competition between the two programs, but, unfortunately, the Committee on Agriculture has jurisdiction over only one phase of this thing. We have tried to keep it on the basis of local participation.

There are other programs presented by the Congress that do not involve local participation. But should we abandon the one program that is based on local participation just because there are other programs that you might say are in competition to it?

Mr. Horton. Mr. Chairman, I think that when you come to the proposition that we have here where they are proposing a dam that will serve only a few people downstream at the natural fall of the water where it can be used around industrial centers and towns, and the farmers can, also use it—if the Army Engineer plan would be put into effect, I think it is just as logical that the Soil Conservation Service should then step in and have authority to conserve that water for the use of each and every individual throughout the entire basin.

Mr. Poage. Is that not the basis on which every concentration of power in Washington, D.C., has been placed since the Civil War? Has there been one single thing that has ever been advanced that was not based on the proposition that somebody else has got their finger into the pot and "Why should not we"?

Mr. Horton. Maybe so. I am not as familiar with that as you are. [Laughter.]

Mr. Poage. The people at home tell us.

Mr. Horton. I did not mean to be facetious.

Mr. Poage. No. But the people at home tell us in one breath that they want to avoid this concentration of power in Washington—they want government at home.

Mr. Horton. Yes, sir.

Mr. Poage. And I have been fool enough to believe it. I believe that it is a sound policy.

Mr. Horton. And how you stop that is beyond my conception.

Mr. Poage. You know the way to stop it is just not to do more of it.

Mr. Horton. Can we stop the Army Engineers at the same time? [Applause.]

Mr. Poage. Now you are talking something different.

Mr. Horton. And we would be getting to the same end.

Mr. Poage. I just want you to understand the problem that confronts us and why we do not just go out and hand it out.

Mr. Horton. Yes, sir. I am fully cognizant of that.

Mr. Poage. Are there any other questions?

Mr. Purcell. I have one, Mr. Chairman. As I view this whole thing, if I understand the figure correctly, there will be about 72,000 acres used under the soil conservation plan, and about 30,000 acres under the Army Engineers' plan. Has there been any reasoning in your pioneering in this area—has there been any discussion within your groups of the significant difference in the amount of land that would be required?

Have you or the other local governing entities discussed the possibility of helping to provide the difference in cost? Has there been any discussion as to how much difference would be required?

Mr. Horton. I do not believe that there has been any discussion among the groups. There has, probably, been some discussion as to the actual amount of land that would be taken in the event the Army Engineer program were put into effect. Mr. Dailey with the Soil Conservation Service can give you a more definite answer on that than I can.

Mr. Purcell. I am giving you the figures as have been given us here.

Mr. Horton. There is that difference as to the amount of the acreage that would be taken in Chatham County. The Army Engineers say that they are going to flood just so much area. I do not believe those figures take into consideration fringe areas where the lands would be taken, also. I am not fully familiar enough with that distinction or the difference between those to give you a definite answer on that.

Mr. Purcell. You have no plan of participating in the cost of this?

Mr. Horton. There is no plan at the present time; no, sir. We have no plan. There is a sharp difference as to which plan should be put into effect by the people in the basin. The people in the lower basin, although a part of the basin, want their plan implemented by building the large dam, yet that does not take care of the people 60 miles north and northwest of Chatham County.

Mr. Purcell. Your people in the county you represent have not made any plans for participating?

Mr. Horton. There has been nothing whereby they could make plans to do so. That would put into effect the soil conservation program.

Mr. Purcell. I understand.

Mr. Horton. We cannot give you a definite answer.

Mr. Purcell. Thank you.

(The following resolution of the Board of Commissioners of Alamance County was later submitted to the subcommittee:)

EXCERPT FROM MINUTES OF BOARD OF COMMISSIONERS OF ALAMANCE COUNTY HELD ON MARCH 5, 1962

Whereas at the regular meeting of the board of commissioners on February 5, 1962, a resolution was adopted favoring the agricultural plan for flood control in the Cape Fear River Basin, all as appears by resolution duly recorded in the minutes of said meeting; and

Whereas, at the time of said meeting, proponents of the agricultural plan appeared before the board and since the adoption of the resolution on February 5, 1962, a congressional committee hearing has been held relative to the project and additional facts and information have come to the attention of members of the board which, in the considered judgment of the board, should be given consideration and study by the board relative to the respective plans for the Cape Fear River Basin: Now, therefore, be it

Resolved by the Board of Commissioners of Alamance County, That it rescinds the resolution of February 5, 1962, by which the agricultural plan for flood control in the Cape Fear River Basin was recommended and approved; that the advantages and disadvantages of the respective plans be given detailed study and consideration by the board inasmuch as the project is of great importance to this area.

This is to certify that the above is a true copy of a resolution adopted by the Alamance County Board of Commissioners at its regular meeting held on Monday, March 5, 1962, and duly recorded in the minutes thereof.

D. B. PARIS,
Clerk to the Board of Commissioners, Alamance County.

[SEAL]

Mr. POAGE. Are there any further questions?

If not, we are very much obliged to you, Mr. Horton.

We will now hear from the Honorable Wade Barber, county attorney for Chatham County.

STATEMENT OF WADE BARBER, COUNTY ATTORNEY, CHATHAM COUNTY, PITTSBORO, N.C.

Mr. BARBER. Mr. Chairman and members of the two subcommittees, Committee on Agriculture and Committee on Public Works, U.S. House of Representatives, allow me to say that we in Chatham County in Congressman Cooley's district want to express our appreciation and gratitude to you for coming to visit with us here today. We are deeply honored and we consider it a signal honor to our own Congressman in whom we have just pride.

Just after our board of county commissioners passed this resolution, which we read to you a few moments ago, and just after Harold Cooley announced to the press that this hearing would be held here today, there appeared in the News and Observer a squib to the effect that he must be in favor of the big dam and expected it to be named "Grand Cooley." [Laughter.]

Harold, let me say this, that if you will follow the very logical argument that my good friend, Bob Scott, the master of the North Carolina Grange, put forth here a moment ago and devise some means and some legislation to put it into execution—and, Chairman Poage, we believe that Harold Cooley can do it—and if you do that, we may not build you a monument of stone and concrete, that would eventually crumble, nor a bronze statue to rust, but your name would be imbedded forever in the memories and the hearts of the most loyal constituency any Congressman ever had, and your name will be called blessed.

Mr. Chairman, a few moments ago you made some remarks about the term "pork barrel." Well, no one likes the term "pork barrel" unless that one be the recipient. I think that was the gist of your remarks, and we are in full accord with you.

Gentlemen, I can say to you, and our Congressman will confirm it, that never yet have the people of this county gone to him to seek to dip their hands into that pork barrel of which you have been speaking.

When the metropolis of this county, Siler City, had postal receipts to justify it, a beautiful post office was erected there and we now have one here in Pittsboro and we are proud of it. But Mr. Cooley, that was on your own initiative and under the general law; and not one time were you petitioned by the people of this county to get their hands into the pork barrel.

Chairman Poage announced at the beginning of this hearing that he did not know anything about this project, and therefore he was wholly neutral. That's all right, but in the words of the late beloved Governor and Senator, Kerr Scott, "Stay neutral, but be neutral on our side." [Laughter.]

Let me do a little explaining here on this map. This map covers the entire Cape Fear Basin. I don't know whether it was prepared by the Army Engineers or the Soil Conservation Service, but this map was one thing, and about the only thing, that the Army Engineers and Soil Conservation Service agreed as being correct.

Right here at this point [indicating] in the eastern boundary line of Lee County, is where Deep River and Haw River run together. Now, there is the beginning of the Cape Fear River, the main stem of the Cape Fear River, and it flows on southward, on by Fayetteville, Wilmington, and into the Atlantic Ocean. Now, up here in the western area of Guilford County are the headwaters of Deep River and it flows on down what is known as the Deep River Basin, on down through Randolph County and through Moore County and here makes the dividing line between Chatham County and Lee County on the south, and on to the beginning stem of the Cape Fear River.

Then, let's go back up here again to the northeastern area of Guilford County where we find the headwaters of the Haw River, and you will note that it flows on south and southeastward down through the Haw River Basin, through Alamance County, into Chatham County, and on down to the beginning stem of the Cape Fear.

And here [still indicating], allow me to point out to you the smaller streams or tributaries flowing into both the Deep and the Haw Rivers; time will not allow me to call their names but you will note that they are numerous. Though I will refer here to this little tributary [indicating], New Hope Creek, it has always been known to us as New Hope Creek, though the Army Engineers in their report refer to it as New Hope River. Here it is, rises up here in the eastern area of Orange County, flows on down through a portion of Durham County and on down through Chatham County into Haw River at this point, about 200 feet below which the Army Engineers propose to build the big dam.

Gentlemen, you have heard of Piedmont, N.C. Piedmont, N.C., is the industrial area of this State, and Chatham County is included therein. But beginning here in the northern stem of the Cape Fear River and going down the river, we leave the Piedmont area and enter into the Coastal Plain area.

From this point on down to the port of Wilmington is not an industrial area; it is a great agricultural area. The stem of the Cape Fear River runs by Fayetteville, one of the oldest settlements of this State, and in recent times has become quite a city. With the aid of the millions and millions of dollars spent every year, here at Fort Bragg, the city of Fayetteville continues to grow and is expanding, expand-

ing over here on the low swampy banks of the Cape Fear River. It is from this area that we hear the great healing cry for the flood control. They want to dig deep down in the pork barrel of the Federal Government further. Not only that, they are not satisfied there. They want to dip down into the assets of Chatham County. That is what this is all about.

Right up here is the city of Greensboro.

We come on down and in Alamance County here's the city of Burlington. And within the past several years it has become a great industrialized area. Mr. Horton has just read to you a resolution from the board of commissioners from this same Alamance County, in which they express opposition to the big New Hope Dam.

All along the Haw River here in Alamance County there is a large area where you will find great textile plants; they were built before we were able to have electricity. They built the mills on the river where they could get waterpower. After getting electricity, these mills have grown and expanded until now in this area are some of the outstanding textile mills of the world.

I am going over this map here so that you may get the general idea of the area.

The Army Engineers' report states very frankly that the only section that would benefit from flood control by the erection of this big dam would be that portion which lies down the river from the proposed dam.

Above the big dam, not one iota of flood control would we have. This industrialized area on Haw River in Alamance County would not receive one particle of benefit from the big dam.

Yet the Army Engineers recommend the building of a dam up here at Randleman on the upper reaches of this Deep River [indicating]. And another one here on Deep River at Howard's Mill.

Now, Mr. Chairman and gentlemen of the committee, we are not disturbed at all about the building of the dams on Deep River. We wish them well. If they want the dams, so far as we are concerned let them have it. That does not effect us, for it is on Deep River in Randolph County. I notice we have some of our brethren from over in Randolph County here. They are interested in those two dams. But I want them to hear this. The Army Engineers' report says:

> Let us build the New Hope Dam and give them relief down the river, and then in some 10, 12, or 15 years from now, probably, get over here and build those dams on Deep River.

Now this map is the map of the general Cape Fear Basin, including the Deep River Basin and the Haw River Basin; but now please let me direct your attention to this map of Chatham County. This is a map of Chatham County put out by the North Carolina State Highway Commission; many of these markings on here are highways, but I have placed this black line around the border line of our county.

Now note we have transposed on this map, from the map put out by the Army Engineers, the proposed lake from the proposed big dam. You see the dam right here [indicating]. This portion here colored blue covers that portion of the lake which they say would be con- the normal level of the lake. This red marking around

the outer edges of the blue colored marking shows where the lake would extend to during high water.

Now on this map, I point out Haw River again; and over here I point out Deep River on this map. You will note on the north of Chatham County here is Alamance County, Orange County, and Durham County. Over on the east of us is Wake County.

Gentlemen, as you drove over here this morning from the Raleigh-Durham Airport, you came over this highway, U.S. No. 64. This Highway No. 64 is relatively new, as nearly all other highways in our State, they have not been built very long. You did not come through the most beautiful area of the New Hope Valley. This is the area you came over.

Let me give you a little history of this New Hope Valley. It was the first section of what is now Chatham County to be settled by white men. Chatham County was formed in 1771 by an act of the general assembly under control of the Crown. The first clerk of the court in this county was no other than William Hooper, who was one of the signers of the Declaration of Independence. He was clerk here until 1775, when he was elected as a delegate from North Carolina to go to Philadelphia.

But a hundred years before he became a delegate to that memorable Convention in Philadelphia, the Scotch-Irish pioneers coming in to Wilmington came on up the Cape Fear Valley, settled down in what was then known as Cross Creek, now Fayetteville. Some of the more hardy followed on up the Cape Fear River and then on up this eastern prong, Haw River, until they reached New Hope Creek, and from there they drifted on up here into this fertile valley. They called it New Hope.

The names of those pioneers are the names of the people living there this day. We had the Scotts, the Farrars, the Copelands, the Goodwins, the Bells, the Masons, the Mills, the Yates, the Bryans, the Wilsons, the McCauleys, the McCoys, and many other of the "God blessed Macs." I can't name them all, but their heirs are still there. They are rooted to the soil the same as those beautiful pine trees which you saw on your journey over here this morning.

One of you gentlemen were asking a question a moment ago about the price of land there. There is no market value for the land there, simply because it does not change hands. They love the soil; they are of the good earth. They are the type of people in there who moved in and they are still there. They are God-fearing people. They are not tenant farmers, they are homeowners, the salt of the earth. They own the rich fertile fields of this valley; they own the lands where the pine forests grow. And here may I divert to say that according to the Forestry Division of the U.S. Department of Revenue, these pine trees grow more abundant and faster than in any other area of these United States—in this New Hope Valley. They do not want to sell this land, they expect to be buried here with their ancestors and to pass the good earth on to their children and their children's children.

Mr. Chairman, when one of those dirt farmers completed his argument this morning you questioned him and seemed to express some amazement that he was not a professional man. Let me add, the poise and the intelligence shown by this young man is not a rarity in New Hope Valley among these dirt farmers, and should you know them as

I know them you would be really amazed of the high standard of education and culture among them. They are not large landowners, but yet on down the main stem of the Cape Fear, there you find the large landowners, the absentee farmer whose large farms are tended by the tenants.

Chatham County is interested in the economy that this dam would have upon it. They propose to come in here and take the lands shown by the coloring on this map, 35,000 acres of land, 33,000 in fee and 2,000 by lease.

How will it affect the economy of Chatham County? Let us start right up here at these little reaches up here [indicating]. We will have lost that; those people will no longer have any community of interest with the people of the county seat; that area will go to Durham.

All this area here east of the proposed lake will go to Wake County.

And pray, look right down here. This southernmost portion of the county, build that dam and this portion would be connected onto our county by a little neck less than a mile wide to hang onto our county, right here [indicating]. There is where we get a large portion of our tax revenues.

Mr. Chairman, if we lost this area east of where I place this pointer—from the western edge of the proposed lake—if we lost that area, Chatham County would lose 43.1 of its taxable valuation. That is correct.

This resolution from the board of county commissioners of this good county states that it would be disastrous—that the construction of this dam would be disastrous to the economy of Chatham County; this is not idle talk. This map speaks louder than words [indicating the map].

We would still have a large county, over here [indicating], but this eastern area right there pays more taxes into the treasury of Chatham County than the western part of the county over here [indicating].

This daily newspaper that I referred to previously made the statement that the western part of Chatham County was in favor of this big dam, and that the others were opposed to it. This is wholly erroneous. The people of Chatham County—I do not mean all of them, of course, because you will find some in there who feel that we ought to have it in order to have speedboats on it—but all of the people of Chatham County, and particularly the taxpayers of Chatham County, realize that this big dam will wreck the economy of this county.

We are not seeking to dip our hands into the pork barrel, if you please, but do not come here demanding that we make such a contribution to the pork barrel. [Applause.]

One of you gentlemen asked a question to one of the previous speakers about the pollution of Haw River.

Haw River has the reputation of being the most polluted stream in North Carolina, to the extent that some 7 or 8 years ago a bill was introduced into the State legislature seeking to abate the pollution. They wrote into that bill that it must be completed by 1960. The legislature of 1959 then extended the period to 1970, because nothing so far had been done.

Sewerage and industrial waste are dumped into this stream in varying degrees of treatment, from completely treated to raw sewerage and raw industrial wastes, beginning at Reidsville and extending to Greensboro, Altamahaw, Ossipee, Hopedale, Burlington, Haw River, Graham, Swepsonville, Saxapahaw, Gibsonville, Elon College, Mebane, Bynum; municipalities and industries of all types are contributing to this pollution problem. On New Hope Creek, we have Durham, Chapel Hill, Apex, together with many industries again contribute to this pollution problem.

If this proposed dam at New Hope is started, all of this waste will be collected into one big lake and will provide a cesspool with damaging effects, which appear to be unpredictable at this time.

Gentlemen, I have strayed away again from the effect that such a dam would have on the economy of this county.

This project would mean the necessary abandonment of 151 homesteads—homesteads that would be flooded. The engineers' report says 110, but we have counted and we are correct. It would flood out 8 stores, 10 churches, and 15 cemeteries.

But when we figure the total area that would be lost to Chatham County, it would mean that we would lose 352 homesteads, housing an estimated 1,500 people.

It would be bad enough if a community of 1,500 people had to be abandoned; but unfortunately, with this project goes not only the wiping out of the equivalent of a community of 1,500 population, but also goes with it the productivity of food and fiber and the loss of the resultant income supporting these 1,500 people.

Our county agent has estimated that the confiscation of this area for this project including that portion of the land which was lying east of the lake would take out of production 1,185 acres of tobacco; and that the value of the crops produced for the year 1960 amounted to more than $2 million, or the gross farm income for the people of this area was $2 million.

Some will say that this is not so bad because these allotments of tobacco acreage and other farm crops can be transferred to farmlands in other parts of the county. But what good would it do to Chatham County if this acreage is transferred to some other county or some other State? For this immediate trade area, the productivity of this land its its resulting income of $2 million to the 1,500 people is forever taken out of service.

The Norfolk-Southern Railroad now serves New Hope Valley with a line extending from Durham through Fearrington, Seaforth, Beaver Creek, Bonsal, and on into Duncan. Through its interconnection with the Southern Railway, the Norfolk & Western and Seaboard Airline at Durham with the main line of the Seaboard at Bonsal and with its own line at Duncan, this railroad has provided a much needed service to this valley. Should the abandonment of this railroad become necessary because of the proposed New Hope project, such greater economic loss could accrue to the area in future years because of lack of these needed railroad facilities.

Local highways and roads would be completely disrupted.

Mr. COOLEY. May I interrupt you 1 minute? Do I understand that the dam will inundate Highway No. 64?

Mr. BARBER. Yes, sir.

Mr. COOLEY. And how much of the railroad would it inundate?

Mr. BARBER. If you noticed this morning, you crossed New Hope Creek. And when you are right on that bridge, the water at that point would be in excess of 55 feet.

Gentlemen, we are not here as obstructionists, but so far as this big dam is concerned, we are pleading for the life of this body politic—that is, Chatham County. We cannot stand it. Sure, this big dam would provide flood protection for the people down the Cape Fear River, but it is no protection for the people on the Haw River or the tributaries of the Haw River.

The big dam does not provide storage at any point other than at New Hope.

This big dam would require relocation of whole farms, cemeteries, churches, roads, and railroads.

No, we are not here as obstructionists. Let's follow the plan of the Soil Conservation Service—the plan outlined here today by my good friend, Mr. Bob Scott. That plan—sometimes referred to as "plan B" would serve the greatest number with the greatest good.

Benefits would be realized throughout the entire basin, rather than in or upon the main stem of the Cape Fear River.

Water supplies for all purposes would be located near the user—irrigation, industrial and municipal uses, low flow regulation.

Even though more total land would be covered by the permanent pools than by the big dam, adjustments in location or use of alternate sites could be made to avoid flooding of valuable lands and structures.

Whole farms and communities would not be destroyed.

Storage for purposes other than flood control could be included in plan B without major changes in either location or purpose of the original reservoir.

Recreation and other benefits would be distributed throughout the Cape Fear Basin.

As to pollution abatement, the need for pollution abatement in Alamance, Orange, Durham, and Chatham Counties is just as great and just as desirable for them as it is for the people living on the main stem of the Cape Fear.

Gentlemen, we are simple people here, maybe we are too conservative, but at that we have made great progress. We are proud of this courthouse here. It was built in 1886, but as you will note we have recently modernized it. It cost us a lot of money. We did not ask any help from the Federal Government. We did not even ask the bondholders to buy bonds because we saved up enough money to pay for it and did pay for it when we completed it.

We have an agricultural building here that cost us around $150,000. We didn't ask the Federal Government or the State government to let us dig down into the pork barrel. We did not borrow any money to pay for it, and when the last brick was laid the building was paid for. We are very conscious of the fact that the Federal Government cannot give us or the people down the river any money until it has first taken the money from the taxpayers of this country.

One other thing, gentlemen. This resolution that was adopted by the county commissioners of this county stated that the big dam would have a disastrous effect upon the economic, political, and social life of this county. We do have more than a slight interest in the

political effect. I am sure that at times you gentlemen, too, give some consideration to politics. Well, we Democrats do stay in power but the Republicans do give us a fit.

[Laughter.]

Let me tell you this. That in the last election if we had not had the Democratic votes over here in this area which the big dam would take away from us, we would not have carried this county for our Governor or for our President. We need to keep that area, to keep us in the Democratic column.

In closing, let me repeat. We do not want you to build that big dam. Oh, they tell us that the people who live in that area will be paid for the land which is taken, if the big dam is built, but pray tell me how is Chatham County going to recover its revenue which would be lost to it by the confiscation of eastern Chatham?

The people down the Cape Fear River say they want this big dam and they want it quick, but they are not willing to pay one red penny for it; they are not willing to make one slight little sacrifice for it.

I say to you that the big dam is impractical. I will go further and I will say to you in all sincerity that it is immoral to come here and yank these people out of their homes where they have lived for generations and to literally wreck the economic life of Chatham County, when another plan can be had whereby the people on the main stem of the Cape Fear will receive the same benefits and whereby the people living up stream could likewise be benefited.

[Applause.]

I thank you, gentlemen, very much.

Mr. COOLEY. What is the estimated value of the railroad that will be inundated?

Mr. BARBER. Some of them call it the cigarette train. That train runs from Durham, where it connects to the Southern and the Seaboard and the Northwest. And comes on down this valley to Burlington and Seaboard and stops at the little communities. It crosses the Seaboard right here [indicating] and comes down to Duke, where it connects with the main line of the Southern Railroad.

If you build this dam, the entire railroad will have to be moved—every bit of it.

It now comes right through here [indicating]. You would have to carry it over and bring it on through Wake County.

The Army Engineers' report says that it will cost $2 million. I just think they put a higher value on the railroad than they do on our land. I think, also, there are about 11 churches over there, most of them Baptist.

Mr. COOLEY. They will not remain very much longer under this plan?

Mr. BARBER. No. There are cemetaries over there. All of the churches have cemetaries. I do not want to go into the emotional phase of this, but I do want to stick to the economy of this county.

I am not going into more detail. I know that you fully realize when you say that you will come in and spend $2 million in a community that it will mean more, that you multiply it so many times and that it will eventually mean $10 million. That works in reverse, too.

It is estimated by the county agent that just in that flooded area it will take out of production, that is, farm production of agricultural

products, $2 million. That can strangle you when you take out that much. That can strike the economy of this county a walloping blow.

I thank you very much.

[Applause.]

(The map referred to above may be found in the files of the committee. A general map of the area may be found on p. 104.)

Mr. POAGE. Thank you very much.

Let me state at this point that if there are those who want to file a statement, who do not want to make one, the committee will welcome any written statements that you care to file. All you need to do is to bring them up here to Mrs. Gallagher. Some of you may find that you feel you have not the time to stay here and that you want to file a statement. We will be glad to have that done in this way.

We are now ready, if there are any questions of Mr. Barber.

Mr. STUBBLEFIELD. I would like to ask a question off the record.

Mr. POAGE. You may do so.

(Discussion off the record.)

Mr. POAGE. If there are no further questions, we thank you very much, Mr. Barber.

Mr. BARBER. Thank you.

Mr. POAGE. We will now hear from Mr. J. B. Slack.

STATEMENT OF J. B. SLACK, FORMER MEMBER, BOARD OF SUPERVISORS, RANDOLPH SOIL CONSERVATION DISTRICT

Mr. SLACK. Mr. Chairman and members of the two committee, I am J. B. Slack, a former member of the Board of Supervisors for Randolph Soil Conservation District.

I am not going to present a prepared statement, but would like to make two or three points.

The first point that I would like to make is that, according to the report of the Army engineers, there is an area above the New Hope damsite of 1,690 square miles. If the high dam is built at New Hope, that is an area that will receive no benefit or no protection whatsoever.

If the soil conservation plan is put into effect, it is conservatively estimated that in addition, 1,265 square miles, or 1,265 square miles of the 1,690 square miles, will receive protection.

As for the two dams on Deep River, there is a total of 575 square miles above the Howard Mill Dam. That is an area that would receive no protection whatsoever if the dams are built on the Deep River.

If a series of multiple dams as proposed by the Soil Conservation is constructed, at least 356 square miles of the 575 square miles would receive protection.

I know from experience because I live in the area, that we do not have to wait for a 1945 flood. Every year, without exception, in many places throughout this area there are flash floods on these creeks and tributaries which lead into the larger streams. The series of smaller dams as proposed by the Soil Conservation Service would give protection to those areas and to the people that would be affected by those flash floods.

Gentlemen, $500 to $1,000 damage to an individual farmer by a flash flood is just as real to him and a lot more personal than a

quarter of a million dollars or one-half million dollars damage to a corporation.

So our plea is that the people above the proposed high damsite be given some protection along with the people below the high damsite.

I would like to mention one other fact. Much has been said here about the loss in tax revenue to Chatham County. I know that is very real. If the soil conservation plan of multiple smaller dams is carried out, that tax burden will be divided between several counties, rather than concentrated in Chatham County alone.

Something has been said with respect to the amount of land taken by the two proposals.

Under proposal A, or the high-dam proposal, in the New Hope or Haw River area, it is estimated that about 35,000 acres would be involved, and that under plan B, 72,00 acres would be involved.

Gentlemen, I would like to point out that there is a vast difference as to the quality of that land, because with the high dam, all of the land over a very large area is taken including the very best agricultural land that is in the area and in the county.

With the small dams, the reservoirs would be located primarily on land that is not so valuable or is not agricultural or used for timber purposes. And even though it takes more land, the land would be much less valuable than that taken by the high dam.

Mr. Chairman, I would like to say with respect to Public Law 566 that I would hope, as an individual vitally interested in conservation, that Public Law 566 will not be interfered with except that through very simple amendments some of the limitations now contained in Public Law 566 be removed; namely, and most importantly, the 5,000 acre-feet of storage capacity. That should be raised considerably, or possibly eliminated entirely. And the 250,000-acre limitation, while not as difficult to get around, could be removed without doing serious injury or at least raised without doing serious injury, to the basic legislation of Public Law 566.

So far as the people of this area are concerned with respect to easements and rights-of-way under the soil conservation plan, it is my hope and my belief that there would be relatively little difficulty in obtaining the necessary easements and rights-of-way for carrying out the multiple-purpose dam program as proposed by the Soil Conservation Service program.

You are dealing here with people who are not interested solely in getting all that they can for themselves. They love their neighbors and are willing to work for and help their neighbors when the time comes. And this, I think, will be true with respect to this project.

And might I point out that our last legislature, in the last session, in this State, passed a bill whereby eminent domain was given to a few counties within the State so as to implement the program under Public Law 566.

I am satisfied that when the need is shown that can be spread to other counties it will be eliminating one of the stumbling blocks in the way of implementing this program with the small dams as proposed by the Soil Conservation Service.

Thank you very much.

Mr. POAGE. Thank you very much, Mr. Slack.

Are there any questions?
(No response.)
Mr. POAGE. If not, we are very much obliged to you.
We will now hear Mrs. Dennis M. Bunker.

STATEMENT OF MRS. DENNIS M. BUNKER, NEW HOPE VALLEY, N.C.

Mrs. BUNKER. Mr. Chairman and members of the committee, this is a piece from a pine tree that is 18 years old. It has 18 rings on it. You can see that from the marks on it. This is 20 inches long. It has grown over an inch every year.

This is a reproduction of a 96-foot map, on a small scale.

The dam they want to build now is 101 feet. This was 96 feet. The flood control covers 34,600 acres. The one they want to build of 101 feet will cover more land.

It will go all the way around here [indicating].

Many of these people have their homes there. They have farmed there all of their lives.

I am a resident of New Hope Valley.

The Engineers have recommended one large dam. The Soil Conservation Service has recommended 232 small dams. Each is designed to accomplish the same purpose—flood control, water conservation, and recreation.

The Corps of Engineers, in understandable self-interest, stresses only the benefits of the larger dam.

The Soil Conservation Service, another well-established and highly respected public agency, contradicts many of these.

Big dams inundate vast areas of our best lands.

Big dams are inhospitable to wildlife, because of siltation which chokes out spawning beds and destroys aquatic vegetation of variable shorelines.

Little dams would not take our homes, and greater benefits would be realized throughout the entire basin. Including irrigation, industrial, and municipal uses, low-flow regulation, fish, wildlife, as well as recreation.

Another feature of small dams is that the land on which they are built is generally owned by two or three persons. If you want to get permission to use the lake you only have to go over and knock on your neighbor's door.

Through the soil conservation districts, the science of soil and water conservation is being brought to the farmers' front gate.

The population in the United States increased over 2 million last year, which means we, also, should have conservation of soil. Congress should revise legislation affecting river basin development under soil conservation practices. If the Government can finance electric power facilities in river basin development, it should be able to finance soil conservation features. If the Government can pay for land for big dams, it should be able to pay for land for little dams. Congress ought to remove these obstacles.

If the 232 small dams are built, benefits would be realized throughout the entire basin. We would have flood control, conservation of soil, conservation of water resources, conservation of forests, and conservation of human values.

I would be happy to give land for small dams.
I thank you very much. [Applause.]
Mr. POAGE. Are there any questions?
(No response.)
Mr. POAGE. If not, we are very much obliged to you, Mrs. Bunker.
We will now hear from Mr. M. A. Stone.

STATEMENT OF M. A. STONE, NEW HOPE VALLEY, N.C.

Mr. STONE. Mr. Chairman and members of the committee, honored guests, ladies, and gentlemen, I would like to clear up or make clear one thing. There is no shortage of water. There may be a shortage of land some day, but never a shortage of water.

Manmaking water pockets, sprinkling systems, bathtubs, steam whistles, a few irrigation pipes will never bring about a shortage of water. We are saturated in water. Four-fifths of the earth's surface is covered with water. There are just as many drops of water in the world today as there were a million years ago. And all of the talk we hear about a shortage of water is political talk or some other kind of talk.

North Carolina has an average rainfall of 52 inches a year which is far more than the average for the Nation. We have plenty of water for everybody and for everything.

Our problem is to find the best method of handling our water supply.

There are two departments of our Government now endeavoring to find the solution for our water supply in your valley.

The Army Corps of Engineers contends that one big dam, built on the Haw River will do the business. While the Soil Conservation Service feels that a system of small dams, distributed throughout the area, will serve the people much better than one big dam, in that the small dams will provide all of the water we need for industry, will provide water for irrigation, prevent major floods, and at the same time allow the people to keep all of their homes and most of the valuable land.

In 1933 the Army Corps of Engineers made a survey of the New Hope project. At that time they declared the project unjustified. In 1946 the Army Corps of Engineers made another survey of the New Hope pilot project, just a year after the big floods. And again they said that it was economically unsound and unjustified.

How many times must a jury render a verdict of "not guilty" before the case is finally closed? If this project was no good in 1933—if it was unjustified in 1946—why should it be so wonderful today or so necessary?

If they built a big dam on the Haw River, flooding the land will do more harm than good. Yet there are those who feel that we need a big lake as a source of recreation. Another group feels that we need a big lake for water supplies for our industries.

Those on the lower Cape Fear River feel we need a big lake for flood control. And then the real estate dealers will make more money.

A big lake might provide for water skiing, speedboats, and picnics, and so forth, but it would still be a mudhole, and a good place to get drowned in.

I might say that I visited in South Carolina some of the big lakes in the State. It has been my impression that they are not too good a place for commercial development or anything else. Have you ever taken a walk around one of these big lakes very early in the morning? If you have, do not tell me of what you saw. We have heard about the stone age and about the middle ages, the jet ages, but if you have visited one of these big lakes you know that you are in the bottle age—the whisky bottle age. Just a proper setup for middle-age immorality and teenager irresponsibility, and not too good a place to build a home or rear a family. Yet regardless of all of the bad atmosphere that may exist around the big lake it would still be folly, even with all of its good features, to destroy all of the fine property in New Hope Valley just to make a place to have a little fun or to make a place for a few "big shots" to spree around on the Fourth of July.

Many are of the opinion that we need a big dam to secure water for our industries. Gentlemen, I do not know of a town or a city that has more industries than the city of Durham—textile industry, tobacco industry. Duke University. A lot of people are located in Durham. They all secure an ample supply of water from the river. If all of the industry of Durham and all of the people of Durham can secure ample supply of water without a big dam—if all of the industry of High Point can secure ample supply of water without a big dam—then I think that the rest of us, surely, can get along without one. It will be a long time before any industry appears in New Hope Valley or on the Cape Fear River equal to those now operating in the city of Durham.

As for flood control we feel that the people on the lower Cape Fear River are being misled as to the actual benefits to be derived from the big dam. Major floods do not occur often on the Cape Fear River. There was one in 1908, September 1928, October 1929, September 1945, and a few others. The total property loss from all major floods on the Cape Fear River for the last 9 years has been around $9 million. And should the water stay over the valley for a period of 90 days the property loss would be $100 million. Is it economical to cause a property loss of $900 million in order to prevent a flood damage of $9 million for the same period of time?

Big dam building has become one of the major problems of our time and it is contagious. Every time a dam is mentioned people say "I am for it," without realizing the consequences of their statement. No thought is given to the human suffering or the property losses involved.

How much good will it be to build a dam on the Haw River? How much good will it be to prevent the lowlands of the Cape Fear River from overflowing once in 20 years? How much good would it do navigation to raise the Cape Fear River 1 foot? That additional foot of water might be desirable for ships. But a ship might be there when the water was not there. And the water might be there when the ships are not there. How can it be alleviated by conditions 150 miles upstream?

The 145,000 acres of woodland situated below the big dam would not be improved one iota by the building of the dam. The timberland on the lower Cape Fear could not be improved more than $15 an acre which would be negligible in comparison to the property losses in

the New Hope River Valley. Why destroy $60 million worth of property here in order to improve a little farmland on the lower Cape Fear when this type of land is not needed for farming?

Gentlemen, I have about come to the conclusion. It is not the industries in Durham that need the big dam. It is not the Research Triangle Development that needs a big dam. It is not the people on the lower Cape Fear or in the valley that need a big dam. It is the real estate boards that need the big dam. I think they are not going to get it. This whole proposition of the big dam, as I see it, is the biggest piece of political tommyrot to face the people of our good State in many a day. And a few more votes below the dam and above the dam will never justify the building of the dam.

The soil conservation department has the right answer to our problem. They believe that a system of small dams, distributed up and down the Cape Fear Basin, will serve the people much better than one big dam way up on the river. Six dams in the New Hope Valley, in the Triangle area, and so forth, will give the people all of the water they need for industry—all of the water they need for irrigation and will protect against major floods to a great extent and it will allow the people to keep all of their homes, and most of their valuable land. This same system could be extended all the way down the Cape Fear River. It would be equally divided so that the people would put something in and all of the people would get something out, instead of some of the people getting something out and all of the people being destroyed as it would be the case in the New Hope Valley by the building of the big dam.

Another thing, if we in the New Hope Valley feel that our land is very valuable, and the U.S. Government says that we ought to conserve our natural resources and better be able to utilize our natural resources—the U.S. Government thinks so—every acre of land irrigated west of the Mississippi River, 126 million acres of it costs the American taxpayers from $3,000 up to $11,000 an acre to irrigate—an average of about $5,000 an acre—if the U.S. Government thinks that land is worth that much west of the Mississippi River as $5,000 an acre, surely, that same Government will let us keep our 35,000 acres of land here in the New Hope Valley—land that needs little or no irrigation—good land, good for farming and stockraising, good for timber and for commercial development and, if it can just stay above water, for fine homes and shopping centers and industrial development here in the New Hope Valley.

When they build a dam in the West it may be built around a canyon or on wasteland. Here in the New Hope Valley the land may be worth more than all of the benefits to be derived from the dam. This land in New Hope Valley is wonderful in location, and it has fine, rapidly growing cities like Chapel Hill and Durham and Raleigh. It will become very valuable. I venture to say that within a few years much of this property will be worth from $1,000 up to $10,000 an acre, up to a value of more than $60 million. This is entirely too valuable a section of North Carolina to be destroyed by the waters of any dam. Another thing we feel that we have donated, surrendered, and given up enough of land for public use in the New Hope Valley and in the Triangle. We were happy to see the University of North Carolina

acquire its 3,000 acres of land; Duke University 7,800 acres of land; the Research Triangle Development 5,000 acres of land; the airport near Raleigh-Durham 3,889 acres; and the North Carolina College 3,500 acres of land, or a total of 23,189 acres of land. We were happy, because all of these projects were and are necessary, but we are not happy when they talk about taking 35,000 additional acres of our land here in the New Hope Valley for public use and public interest. We want to keep some of our land. We want to be able to worship in some of the old churches here in the valley.

If a big dam is built many churches would have to be moved and 15 cemeteries relocated. We feel that we ought to be able to manage our affairs without disturbing them. When a grave is moved something is destroyed that cannot be replaced.

The remains of my mother and father and little brother are in the New Hope Valley. I hope they will never be disturbed by the hands of man.

In 1917 my oldest brother joined the American Army and was wounded, helping to break the Hindenburg line. In 1957 when this project was up for reconsideration I was telling him what was going to happen in the New Hope Valley, how they were going to flood the old home place and dig up the graves of mother and father. He sat in silence and finally he said, "we American soldiers who faced those machineguns in Europe thought that we were fighting for freedom and security. We must have been mistaken."

I know you are going to say that personal feelings do not come into the matter, but if they are going to destroy churches that have stood for 200 years, rob the citizens of their inheritance, break up family ties forever, dig up the bones of the dead and destroy one's faith in life and one's feeling of American security, then I think that we ought to stop talking about the Russians, and take another look at our American democracy. [Applause.]

We are fighting to preserve our heritage that our grandparents left us in the New Hope Valley. And whatever happens may some way be bound to let the 2,000 people residing in the New Hope Valley live on in peace.

The Soil Conservation Department has the right answer to our problem, a system of small dams and a way to finance these small dams can be found even if it has to take an act of Congress. You cannot tell me that the U.S. Congress can find money to build a big dam, but cannot find a way to finance a small one.

I thank you, ladies and gentlemen, and members of the committee. [Applause.]

Mr. POAGE. Are there any questions of Mr. Stone?

(No response.)

Mr. POAGE. If there are no questions of Mr. Stone, the committee is going to stand in recess until 2 o'clock. We will resume at 2 o'clock. I think the first witness will be Mr. John Bunch, mayor of Asheboro, followed by Mr. Singleton and Mr. Walker of Asheboro.

The committee now stands in recess until 2 o'clock.

(Whereupon, at 1 p.m., a recess was taken, to reconvene at 2 p.m., of the same day.)

AFTERNOON SESSION

Mr. POAGE (presiding). The committees will please come to order.

Before we start, I think that I will call the witnesses I have in order to determine if they are here. I think that by accident and coincidence we were able to break this meeting, probably, into the proponents and the opponents, although I did not know who was for what. I saw that we had people from another area to begin this afternoon when we closed at lunchtime. We will start this afternoon with Mr. Robert H. Butler, and Mr. Stein of Fayetteville. Let me call the rest of these witnesses, and see if they are all here. Mr. Cleve Thayer, is he in the room? I do not believe he is. We will cross him off. If he comes in later we will hear him.

Mr. Robert Reese—is Mr. Reese present? I do not believe so.

Mr. George Covington, is Mr. Covington present?

(Present.)

Mr. POAGE. I then have the name of Mr. Cheek, city manager of High Point. I do not have his given name. Is Mr. Cheek here? It is Harold Cheek, I understand.

(Present.)

Mr. POAGE. Mr. Jerry Berkelhammon?

(Present.)

Mr. POAGE. Mr. Newlin, mayor, Randleman.

(Not present.)

Mr. POAGE. Mr. Grove, the assistant to the mayor of Randleman. Is he here?

(Not present.)

Mr. POAGE. Mr. Pat Martin.

(Present.)

Mr. POAGE. Mr. C. Reid Andrews?

(Present.)

Mr. POAGE. Mr. Smith Crow?

(From the floor: He is not to be present.)

Mr. POAGE. Mr. John W. Clark?

(Present.)

Mr. POAGE. We will proceed with the witnesses in the order I have called them. And then, if some of these have come in, in the meantime, we will try to hear them. I would like to caution you that we must adjourn by 4 o'clock to enable some of the members to catch planes. That will give us the same amount of time, approximately, we had this morning. You will observe that some of them will have to be rather short or we will not get through.

We will start with Mr. Robert H. Butler.

Mr. BUTLER. Thank you.

Mr. POAGE. Robert H. Butler?

Mr. BUTLER. Yes, sir.

STATEMENT OF ROBERT H. BUTLER, PRESIDENT, THE CAPE FEAR BASIN DEVELOPMENT ASSOCIATION, FAYETTEVILLE, N.C.

Mr. BUTLER. Chairman Poage and members of the committee, first of all, I would like to thank you for the opportunity to be heard. My name is Robert H. Butler. I am the mayor of Fayetteville, N.C. And I am also president of the Cape Fear Basin Development Associa-

tion which comprises, approximately, 18 counties and a population of somewhere in the neighborhood of one and a quarter million people. We have representatives here today from Bladen County, from Cumberland County, and Randolph County. We have a delegation of, approximately, 15 or 20 people from the city of Fayetteville. I have in my delegation Mr. Henry Tyson, chairman of the county board of commissioners, and Mr. Rumbough, who is director of our planning department for the city of Fayetteville.

The city of Fayetteville is a city of, approximately, 47,000 people located on the Cape Fear River in Cumberland County.

I have printed a prepared statement which I would like to introduce into the record as an exhibit from the Cape Fear Basin Development Association with letters and resolutions, one of which I will read to you from the Governor of North Carolina addressed to Maj. Gen. Keith R. Barney, U.S. Army, Chairman, Board of Engineers for Rivers and Harbors, Washington, D.C.

I have reviewed the comprehensive report on the Cape Fear River Basin prepared by the district engineer, U.S. Army Engineer district, Wilmington Corps of Engineers, Wilmington, N.C. I am impressed by the soundness of its conclusions, and particularly by the vast benefits that would accrue to the region, State, and Nation through the accomplishment of recommended projects.

The report vividly points out the need for flood protection, water quality control, water supply, recreation, and other purposes in the Cape Fear River Basin. To meet these needs over the next 100 years, the report recommends the construction of a series of dams, a system of small and intermediate sized dams to be built by the Corps of Engineers on tributaries of the Cape Fear River, plus watershed protection and treatment measures to be accomplished by the Soil Conservation Service under the provision of Public Law 566, 83d Congress.

I heartily concur in the recommendations contained in the report. As the initial step in the development of the basin, I strongly urge that authorization for the immediate construction of the New Hope Dam be given favorable consideration by your Board. I shall be pleased to appear before the Board in support of the proposed development, if such action appears to be necessary or desirable.

I desire to assure the Board that my administration will do everything within its capability to meet any non-Federal participation and cooperation that may be required in the construction of the New Hope Dam.

With best wishes always.

Sincerely,

TERRY SANFORD,
Governor, State of North Carolina.

You have heard many reports this morning from the people, largely from Chatham County, who are opposed to the Corps of Engineers' recommendations. I would like to point out that there are many, many people who live, farm, have industries and businesses on the Cape Fear River in the area in which I live. We in Fayetteville had a very disastrous flood in 1945 in which approximately one-third of our city was covered with water. At that time an estimated 3,000 people were dislocated from their homes.

As recently as a year ago our city was rejected for an urban renewal grant because the entire eastern section of our city is below the water table which is required for urban renewal grants.

At the same time we have done everything possible in our area to get ready to do what we can for ourselves.

We have heard much talk this morning about the creation of a cesspool. The city of Fayetteville spent $2,500,000 to build a water sewage treatment plant which takes care of all of the sewage products in our county. We do not make a cesspool out of the river.

We also have in the river, at the expense of some $400,000 spent by the Public Works Commission, pumping stations which use water from the river now. And we have prospects for many industries which have come to this area. And we have prospects of industries without which, if they could be assured that there would be flood control.

We also have great prospects in our area for navigational uses for the river. We already have a port there. The county commissioners recently donated to the State port authority 100 acres of land to be used by the State port authority.

I would like to quote to you a portion of this engineers' report. I think it is significant. They estimate that 87 percent of the average annual flood damage in the basin occurred below the New Hope Dam site.

They also estimate that if this dam is built that it is capable of reducing the damage by 80 percent. In other words, the construction of this dam at New Hope would go a long way toward alleviation of our problems.

We understand, of course, and sympathize with the people of Chatham County. Our county lost a large portion of its land to the Federal Government, but in the way of progress the land should be purchased. And these people would be adequately compensated. We do not feel like we are making any demands from a pork barrel. We think that the consideration for 232 small dams which, incidentally, are not so small—some of these dams are estimated to be as large as 1,500 acres—we anticipate that if the 232 small dam projects is approved there will be the same sort of opposition at that time as you have right now.

We feel that the large number of people involved south of the New Hope site, the impracticability of the construction, the legislation required both on the part of the State and the Federal for the construction of these 232 small dams would make the consideration for that project not very feasible. We feel that what we ask for is perfectly reasonable. We have very much at stake. We have a high regard for the people of Chatham County. In fact, our county appropriates money to send a sanitarian up here to check their dairy herds so that we can buy their milk. We are glad to do it.

We want you to know that we are looking at this thing through the eyes of the greatest majority, the greatest number of people, and we feel that we have a right to be given consideration.

The Army Engineers' report is very comprehensive. I will not go into detail about that, because you will have that to read. They have made very exhausting studies of this problem. We feel like the greatest good will be done for the greatest number of people by your endorsement of project A.

Thank you.

(The document entitled "Cape Fear Basin Development Association" follows:)

EXHIBIT OF CAPE FEAR BASIN DEVELOPMENT ASSOCIATION

LETTER TO BOARD OF ENGINEERS FOR RIVERS AND HARBORS BY HON. TERRY SANFORD, GOVERNOR, STATE OF NORTH CAROLINA

JANUARY 9, 1962.

Maj. Gen. KEITH R. BARNEY,
Chairman, U.S. Army Board of Engineers for Rivers and Harbors,
Washington, D.C.

DEAR GENERAL BARNEY: I have reviewed the comprehensive report on the Cape Fear River Basin prepared by the district engineer, U.S. Army Engineer District, Wilmington, Corps of Engineers, Wilmington, N.C. I am impressed by the soundness of its conclusions, and particularly by the vast benefits that would accrue to the region, State, and Nation through the accomplishment of recommended projects.

The report vividly points out the need for flood protection, water quality control, water supply, recreation, and other purposes in the Cape Fear River Basin. To meet these needs over the next 100 years, the report recommends the construction of a series of large dams, a system of small- and intermediate-size dams to be built by the Corps of Engineers on tributaries of the Cape Fear River, plus watershed protection and treatment measures to be accomplished by the Soil Conservation Service under the provision of Public Law 566, 83d Congress.

I heartily concur in the recommendations contained in the report. As the initial step in the development of the basin, I strongly urge that authorization for the immediate construction of the New Hope Dam be given favorable consideration by your Board. I shall be pleased to appear before the Board in support of the proposed development, if such action appears to be necessary or desirable.

I desire to assure the Board that my administration will do everything within its capability to meet any non-Federal participation and cooperation that may be required in the construction of the New Hope Dam.

With best wishes always,

Sincerely,

TERRY SANFORD,
Governor, State of North Carolina.

RESOLUTIONS OF THE BOARD OF COUNTY COMMISSIONERS, THE INDUSTRIAL DEVELOPMENT COMMISSION, AND THE ELIZABETHTOWN CHAMBER OF COMMERCE, BLADEN COUNTY, N.C. (28,881—1960 CENSUS).

RESOLUTION

Be it resolved by the County Commissioners of Bladen County, N.C., That the comprehensive plan of development of the Cape Fear River Basin as presented in the comprehensive report on Cape Fear River Basin, N.C., by the Corps of Engineers, U.S. Army Engineer District, Wilmington, N.C., October 30, 1961, be approved and expedited by the necessary authorities.

Reasons for this action are:

(1) There is a need for flood control in the Cape Fear River Basin. A flood control pool would hold water during critical periods thereby reducing flood hazards in the entire area downstream. This would free many valuable acres of land for agricultural and industrial production.

(2) A water conservation pool would provide a water supply during drought periods. A water supply would be available for the projected great expansion of municipal and industrial users and for additional irrigation purposes.

(3) The plan would increase the minimum daily flow in the Cape Fear River. This would improve water-quality control in conjunction with sewage treatment, water areas for recreation, fish and wildlife.

(4) New industrial processes and population growth have created and will continue to create increased demands on water.

(5) The increase in the depth of the navigable portion of the Cape Fear River will insure the commercial use of the waterway by bargets, et cetera.

(6) All other reasons as described in the comprehensive report.

Adopted this 13th day of February, 1962.

G. ELLIS CLARK, *Chairman.*

Attest:

P. G. CAIN, *Secretary.*

RESOLUTION

Be it resolved by the Industrial Development Commission of Bladen County, N.C., That the comprehensive plan of development of the Cape Fear River Basin as presented in the comprehensive report on Cape Fear River Basin, N.C., by the Corps of Engineers, U.S. Army Engineer District, Wilmington, N.C., October 30, 1961, be approved and expedited by the necessary authorities.

Reasons for this action are:

(1) There is a need for flood control in the Cape Fear River Basin. A flood control pool would hold water during critical periods thereby reducing flood hazards in the entire area downstream. This would free many valuable acres of land for agricultural and industrial production.

(2) A water conservation pool would provide a water supply during drought periods. A water supply would be available for the projected great expansion of municipal and industrial users and for additional irrigation purposes.

(3) The plan would increase the minimum daily flow in the Cape Fear River. This would improve water-quality control in conjunction with sewage treatment, water areas for recreation, fish and wildlife.

(4) New industrial processes and population growth have created and will continue to create increased demands on water.

(5) The increase in the depth of the navigable portion of the Cape Fear River will insure the commercial use of the waterway by barges, et cetera.

(6) All other reasons as described in the comprehensive report.

Adopted this 13th day of February 1962.

JULIAN F. KEITH, Jr., M.D., *Chairman.*

Attest:

EDWARD M. STANFIELD,
Industrial Consultant.

RESOLUTION

Be it resolved by the Elizabethtown, N.C., Chamber of Commerce of Bladen County, N.C., That the comprehensive plan of development of the Cape Fear River Basin as presented in the comprehensive report on Cape Fear River Basin, N.C., by the Corps of Engineers, U.S. Army Engineer district, Wilmington, N.C., October 30, 1961, be approved and expedited by the necessary authorities.

Reasons for this action are:

(1) There is a need for flood control in the Cape Fear River Basin. A flood control pool would hold water during critical periods thereby reducing flood hazards in the entire area downstream. This would free many valuable acres of land for agricultural and industrial production.

(2) A water conservation pool would provide a water supply during drought periods. A water supply would be available for the projected great expansion of municipal and industrial users and for additional irrigation purposes.

(3) The plan would increase the minimum daily flow in the Cape Fear River. This would improve water-quality control in conjunction with sewage treatment, water areas for recreation, fish and wildlife.

(4) New industrial processes and population growth have created and will continue to create increased demands on water.

(5) The increase in the depth of the navigable portion of the Cape Fear River will insure the commercial use of the waterway of barges, et cetera.

(6) All other reasons as described in the comprehensive report.

Adopted this 13th day of February 1962.

W. I. LEINWAND, *President.*

Attest:

ELMON E. FIELDS, *Secretary.*

RESOLUTIONS OF THE BOARD OF COUNTY COMMISSIONERS, CUMBERLAND COUNTY, THE CITY OF FAYETTEVILLE, AND THE FAYETTEVILLE CHAMBER OF COMMERCE, INC., CUMBERLAND COUNTY, N.C.

EXTRACT FROM MINUTES OF COUNTY COMMISSIONERS MEETING HELD JANUARY 12, 1962

That whereas, the Board of Commissioners for Cumberland County have followed with keen interest the action of the U.S. Army Engineer division, South Atlantic Corps of Engineers, reporting on the Cape Fear River Basin, N.C., for the immediate and future development and conservation of water resources authorized by a resolution duly adopted by the Committee on Flood Control of the House of Representatives, and have particularly noted the favorable report of the Corps of Engineers proposing reservoir projects at the New Hope site on the Haw River and at the Howard Mills and Randleman sites on Deep River; and

Whereas the commissioners for Cumberland County, fully realizing the past flood damage on the Cape Fear River, feel that the plan of the Corps of Engineers would be of untold benefit to the Cape Fear River Basin, in which the county of Cumberland is situated: Now, therefore, be it

Resolved, That the board of county commissioners fully support the report of the Corps of Engineers, and call upon the Members of Congress to take such action as may be necessary to implement the plan as set forth in the report; be it further

Resolved, That a copy of this resolution be sent to Senators B. Everett Jordan and Sam J. Ervin, Jr., Gov. Terry Sanford, Congressman Alton Lennon, the U.S. Army Engineer division, South Atlantic Corps of Engineers, the Fayetteville Chamber of Commerce, and the Cape Fear Basin Development Association.

The foregoing resolution was offered by Commissioner R. L. Blue, seconded by Commissioner J. McN. Gillis, and unanimously passed.

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF FAYETTEVILLE, N.C., REGARDING PROPER DEVELOPMENT OF THE CAPE FEAR RIVER BASIN

Based upon our intimate knowledge and experience of the Cape Fear River Basin in Cumberland County and other related areas over many, many years, and our intimate knowledge and experience with the damages done to property in the city of Fayetteville by the flooding of the Cape Fear River;

And based further upon the report on the Cape Fear River Basin issued October 30, 1961, by the Corps of Engineers, U.S. Army;

And based further upon our reasonable expectations and our informed study of the possibilities for the future, if the development of this basin is carried out pursuant to the report of the Corps of Engineers;

We therefore join in the following which represents our unanimous opinion and the resolution of this city council that:

(1) The recommendations of the Corps of Engineers, U.S. Army, as contained in the report issued under date of October 30, 1961, be approved and followed.

(2) The New Hope Dam on Haw River below the mouth of New Hope River should be constructed as soon as possible.

(3) The construction of this dam, followed by orderly and expeditious development of the further projects called for in the plan of the Corps of Engineers will bring solid and tremendous benefits to a vast area of southeastern North Carolina, in flood protection, water-quality control, industry, navigation, commerce, and recreation.

(4) The inconvenience, discomfort, and hardship to be suffered by any persons who might be relocated due to the construction of this New Hope Dam and the other projects as recommended in the report of the Engineers will be more than offset by the benefits accruing to hundreds of people and families in the Cape Fear Basin, including 3,000 people in the Campbellton area of Fayetteville who live in an area impossible to drain because it is below the flood stage of the Cape Fear River, which fact caused the urban renewal program for this area to be turned down by the U.S. Government.

(5) The building of the New Hope Dam, and, in addition to the benefits listed above, would free much land in the Cape Fear River Basin to use and develop as farmland and as industrial sites which cannot now be used [illegible] floodings of this land by the Cape Fear River.

(6) The Congress and other related and responsible public officials should immediately and vigorously authorize, provide for, and promote this New Hope Dam and the other projects recommended in the report of the Corps of Engineers.

The above resolution was duly passed by the City Council of the City of Fayetteville in meeting duly assembled.

MAURICE DOWNS,
Clerk of the City of Fayetteville.

RESOLUTION OF THE CHAMBER OF COMMERCE OF FAYETTEVILLE, N.C., REGARDING PROPER DEVELOPMENT OF THE CAPE FEAR RIVER BASIN

Based upon our intimate experience and knowledge of the Cape Fear River Basin in Cumberland County and other related areas over, literally, generations;

Based, further, upon our interested study of the comprehensive report on the Cape Fear River Basin issued under date of October 30, 1961, by the Corps of Engineers, U.S. Army;

Based, further, upon our reasonable expectations and intensive study of the possibilities for the future, if development of this basin is carried out pursuant to this report,

We record it as our unanimous opinion and resolution that:

(1) The comprehensive report on the Cape Fear River Basin, issued under date of October 30, 1961, by the Corps of Engineers, U.S. Army, be approved.

(2) The initial step in the development of this comprehensive plan, namely, the construction of the New Hope Dam on Haw River below the mouth of New Hope River should be taken as immediately as possible.

(3) The construction of this dam followed by the orderly and expeditious development of the further projects detailed in this comprehensive plan will bring solid and tremendous benefits to a vast area of southeastern North Carolina in flood protection, water-quality control, industry, navigation, commerce, and recreation.

(4) The Congress and other related and responsible public officials should promptly and vigorously authorize, provide for, and promote this dam and such subsequent development.

MONROE E. EVANS, *President.*

Mr. POAGE. Thank you very much.

Are there any questions? If there are no questions, we thank you very much and are very much obliged to you, Mr. Butler.

Our next witness is Mr. J. Bernard Stein. We will be glad to hear from you now.

STATEMENT OF J. BERNARD STEIN, FAYETTEVILLE, N.C.

Mr. STEIN. Mr. Chairman and members of the committee, ladies and gentlemen, it is a pleasure to be here in the company of such distinguished guests. We welcome you to North Carolina.

Mayor Butler has outlined for you some of the technical advantages, some of the needs for the project under consideration. I think I could say without fear of contradiction that every witness you have heard this morning or will hear is unanimous in the fact that water conservation and flood control are essential. There only seems to be a slight difference of opinion as to the procedure.

There have been many hearings, gentlemen, on this subject before. This project is not new, as all of you gentlemen know.

Only a year ago when the engineers and the conservation department brought in their report there was still a divergence of opinion. They were asked to go back and review it again. They went back and came back with the same report. Each had their own opinion. There was no unanimity of action or thought or of suggestion.

The Army Engineers who I must assume are qualified people have repeatedly over and over and over said that the only logical solution to this entire problem with everything taken into considerattion is plan A. I do not intend to debate this against some of the silvery tongues we have heard, but Randelman and Howards Mill are not overlooked in this project. They are part of this project.

The New Hope Dam is by the engineers' recommendation the first and, possibly, the most vital part of this project.

There are two other sizeable dams considered in this situation, primarily for water resources. And these will be built by the Army Engineers' recommendation following the New Hope Dam.

The water resources of these three projects will be tremendous. It will serve much of the territory mentioned by Mr. Barber this morning, and will serve it with adequate and continuing water supply.

Gentlemen, I do not want to try to impress you with the weight of numbers. I would assume that most of the people who favor plan B are present here today. I believe that if the people favoring plan A—I believe if they were to gather on Pittsboro, that this building would be filled a thousand times.

I should like to introduce into the testimony a letter which you heard from our Honorable Governor. I will not take your time to read these additional things, but would like to enumerate them.

In addition thereto we have resolutions which are in the report which I believe you gentlemen have. I would like to place them in this record. They are from Bladen County, the board of county commissioners, the industrial development commission and the Elizabethtown Chamber of Commerce.

We, also, have resolutions, of course, from Cumberland County, from the board of county commissioners, the city of Fayetteville, the Fayetteville Chamber of Commerce.

I should also like to say to you that the board of conservation and development of the State of North Carolina, of which I happen to have the honor of being a member, went on record unanimously endorsing plan A.

Gentlemen, this is a board appointed by the Governor of North Carolina who happens to be from Fayetteville, incidentally. On this board there is a member from Chatham County. This was a unanimous recommendation. And this recommendation and resolution unanimously endorsed plan A.

Basically, I do not think anybody has any argument one way or the other—I do not think any of us are qualified to say that plan A is better than plan B, or vice versa. The main thing that we want to say to you gentlemen is that time is awasting, as the expression goes. We have waited 5 years, 10 years, 20 years, and in the meantime the flood damage and the flood possibilities are continuing.

In 1945 we had a flood. I wish that I could give you a graphic picture of the silt and the dirt that accumulated in the houses of the people who lived alongside the river. Unfortunately, in most cases these people were of moderate circumstances. If I could tell you of the water moccasins, the snakes, the disease that resulted from the water covering the Cape Fear River Basin, I am sure that you would be most impressed.

In addition to the resolutions which I have mentioned, I should like also to introduce a news article from Sanford, N.C., which reads as follows:

> Lee County Commissioners unanimously have adopted a resolution endorsing the whole system of flood control for the Cape Fear River Basin as recently proposed by the U.S. Army Engineers.
>
> First step of the suggested flood control would be the erection of a $25,600,000 dam at the New Hope near Moncure.
>
> Commissioner Sion Kelly made the motion to endorse the project now awaiting the approval of the Chief of the Engineering Corps and congressional appropriations.
>
> "This is one of the most significant things proposed for our area in many years," said Kelly.

Mr. Kelly is chairman of that commission.

Gentlemen, one other thing. Recently our eminent Senator, Everett Jordan, made a statement. I should like to quote only briefly from it.

He states:

> On the basis of information in the Soil Conservation Service report, it is obvious that some basic changes would have to be made in the Federal law to enable us to harness Cape Fear with small- and intermediate-size dams. It is also obvious that a special act would have to be enacted by the North Carolina General Assembly establishing a special State agency which would have authority to acquire the necessary land, easements, and rights-of-way to build these smaller dams and levy taxes to operate them once they are built.

I quote further at another point in his statement:

> Looking at it purely realistically, it is my opinion that it would take years to set up the necessary legal machinery to accommodate such a plan. I say "years" for the simple reason that a great deal more engineering work would be required to produce the necessary information upon which the changes in the law would be based. More is involved than simple amendments to existing law and because our basic laws concerning flood control have been developed over the years on the theory that larger reservoirs are required to harness major rivers.

One other word, gentlemen: The proposed reservoir at New Hope would inundate about 38,000 acres of land at flood level as recommended. The 232 small dams would flood about 72,000 acres of land at flood level. The individual reservoirs in the small dam plan would range in size up to 1,500 acres.

On the basis of all of the information I have been able to obtain—and I have interested myself in the water resources of Cape Fear for many years—I think that we should, by all means—and I repeat, by all means—go ahead with the New Hope project. We have a choice of doing this or waiting many years, perhaps generations, to otherwise harness Cape Fear.

Gentlemen, I think that first we are all Americans. I think, secondly, those of us who live here are Carolinians. And thirdly, those of us who might live in Chatham or Cumberland I think, primarily, are Americans. I think the basic concept of our Constitution, the preamble, states that we are to do things for the common good. There are 150,000 people more now by the last census living in Cumberland County alone. I admit, and I regret possible displacement of 110 families of eastern Chatham County, but I feel that what is good for the greatest number is the thing that you gentlemen should consider.

Thank you

(The statement of the Governor of North Carolina, dated December 26, 1961, the article from the News and Observer dated January 4,

1962, a statement by the Honorable Everett Jordan, Senator from the State of North Carolina, dated February 14, 1962, the "Syllabus," the "Calendar of Events Pertaining to the Cape Fear River Basin, N.C.," and the document entitled "The Cape Fear River Basin" follow:)

STATEMENT OF HON. TERRY SANFORD, GOVERNOR OF NORTH CAROLINA

"The Comprehensive Report on the Cape Fear River Basin," prepared by the U.S. Army Corps of Engineers, reached my office on December 19, and the release date was December 21; consequently, I have not had an opportunity until now to review this report in detail. It consists of two volumes and contains a 100-year plan for the development of the water and land resources of the basin which can be truly termed a "comprehensive plan." However, a number of salient features of the report are readily apparent.

The report vividly points out the need for flood protection, water quality controls, water supply, and recreation in the basin. To meet these needs, the report recommends construction of three large dams and a system of small- and intermediate-size dams to be built by the Corps of Engineers on tributaries of the Cape Fear River, plus watershed protection and treatment measures to be accomplished by the Soil Conservation Service under Public Law 566.

The average annual flood damage in the basin is $1,487,000, of which $1,252,000, or 87 percent, occurs on the main stem of the Cape Fear River below the confluence of the Haw and Deep Rivers.

As the initial step of the comprehensive development of the basin, the district engineer recommends immediate construction of the New Hope Dam at a site on the Haw River below the mouth of the New Hope River, at an estimated cost of $25,612,000. The construction cost would be borne entirely by the Federal Government.

The New Hope Dam, of concrete and earth construction, would be 101 feet in height above the streambed and 1,220 feet long. The reservoir would consist of a permanent pool covering approximately 9,400 acres.

The immediate benefits the reservoir would produce are:

1. Flood control.
2. Water quality control.
3. Recreation.

Construction of the New Hope Dam would reduce flood damage by $1,027,000 annually.

The flood control features also would provide sufficient flood protection to create substantial land enhancement benefits resulting from increased utilization of flood plain lands due to reduced flooding. It is estimated that these land enhancement benefits would amount to $495,000 annually, of which $77,000, or 16 percent, would result from the increased utilization of agricultural land and $418,000, or 84 percent, from the increase in utilization of flood plain lands for urban and industrial development.

The low-flow regulation features of the New Hope project would increase the dependable flows below the confluence of the Deep and Haw Rivers from about 90 cubic feet (540 gallons) per second (average flow for driest month for period of record) to a minimum of 600 cubic feet (4,500 gallons) per second. The greater flows would be of substantial benefit to the State's pollution control program.

Improvement of the river's dry-weather flows would also meet the present-day water-supply requirements for municipal, industrial, and agricultural use. The report places a value of $144,000 annually on this water quality control benefit.

The use of the proposed New Hope Reservoir for recreation would undoubtedly develop very rapidly. In addition to the scenic attractiveness of the area, the impounded water would be suitable for swimming, boating, and fishing. Many miles of shoreline would be available for use as public parks, small boat harbors, camps, and other recreation uses; other areas would be suitable for vacation cottage sites. Recreation benefits are estimated to be $405,000 annually.

Future water requirements of the Cape Fear River Basin can be met by provision of additional headwater storage for municipal, industrial, and agricultural use.

These requirements are expected to grow rapidly, particularly in the next 50 years. Municipal water supply needs, which were approximately 66 million gallons per day in 1960, are expected to reach 127 million gallons per day in 1980 and 276 million gallons per day in 2010; industrial process water needs (exclusive of water used for cooling), which were approximately 45 million gallons per day in 1960, are expected to increase to 74 million gallons per day in 1980 and 155 million gallons per day in 2010; agricultural water needs, which were approximately 72 million gallons a day in 1960, are expected to increase to 108 million gallons per day in 1980 and 195 million gallons per day in 2010. Thus, in the 50-year period, the basin's total water supply needs will increase from 183 million gallons per day to 626 million gallons per day.

As the second phase of development of the basin, the report recommends the construction of the two other large dams. One would be on the Deep River in Randolph County, about 5 miles north of the town of Randleman. The other would be located at Howards Mill on the Deep River in Moore County, about 1 mile below the Randolph County line.

The comprehensive development would be completed by the subsequent construction of the system of small- and intermediate-size dams on the upper and lower Little River, in the Deep River Basin below the Howards Mill Reservoir, and in the Haw River Basin above the New Hope Reservoir.

When in full operation, the plan would produce flood control benefits of $2,246,000 annually; 600 billion gallons of water for the basin's people, industries, and agriculture would be stored.

This plan is the result of approximately 5 years of intensive work by competent technicians. It is designed to meet the basin's water-resource requirements for the next 100 years. Necessarily, periodic reviews and reevaluations of the plan to meet changing conditions in the basin will be required. The report emphasizes, however, that the New Hope Reservoir is the key to the development of the basin's water resources and will remain so, regardless of modifications in the overall plan that may become necessary.

The report, prepared by the District Engineer, U.S. Army Engineer District, Wilmington, has been approved by the Division Engineer, South Atlantic Division, Atlanta, Ga. It is now under review by the Board of Engineers for Rivers and Harbors, Washington, D.C. If approved by the Board and the Chief Engineer, U.S. Army Corps of Engineers, it will then be transmitted to Congress for action.

The report has determined that the immediate construction of the New Hope Dam is economically feasibly and is in the best interest of the region, State, and Nation. I strongly concur in this recommendation. I realize that initiation of the project will demand the cooperation and support of the interested State and Federal agencies, local groups, and individuals concerned. I hope this coordinated effort will be forthcoming.

[From the News and Observer, Jan. 4, 1962]

PLAN BACKED

SANFORD.—Lee County Commissioners unanimously have adopted a resolution endorsing the whole system of flood control for the Cape Fear River Basin as recently proposed by the U.S. Army Engineers.

First step of the suggested flood control would be the erection of a $25,600,000 dam at the New Hope near Moncure.

Commissioner Sion Kelley made the motion to endorse the project now awaiting the approval of the Chief of the Engineering Corps and congressional appropriations.

"This is one of the most significant things proposed for our area in many years," said Kelley.

STATEMENT BY HON. B. EVERETT JORDAN, U.S. SENATOR FROM THE STATE OF NORTH CAROLINA

WATER RESOURCES IN THE CAPE FEAR RIVER BASIN

The time has come when we in North Carolina must make some basic decisions about the course we should follow in developing our water resources—for the needs we have now and for the known needs we will have in the future.

The most immediate decision which must be made involves the Cape Fear River Basin, an area that reaches from the industrial areas of the Upper Piedmont through large agricultural sections of the Coastal Plain to the coast.

In recent months there has been a great deal of discussion as to how we should go about developing the water resources of this vast region of our State. The discussion has centered around a comprehensive plan of development proposed by the Corps of Engineers and a possible alternate plan on which only preliminary studies have been made by the Soil Conservation Service.

In order to make a wise decision, it is necessary to understand what is involved in both plans.

In 1957 the Soil Conservation Service, in conjunction with the Corps of Engineers, began a preliminary survey to determine whether or not it would be possible—from an engineering standpoint—to harness the Cape Fear River with a network of small and intermediate size dams. It took 4 years to compile and evaluate the data necessary to make a preliminary finding, and the Soil Conservation Service reported in May 1961, that it would be possible to control floods on the Cape Fear River with a system of 232 small and intermediate size dams.

On the basis of information in the Soil Conservation Service report it is obvious that some basic changes would have to be made in the Federal law to enable us to harness the Cape Fear with small and intermediate size dams. It is also obvious that a special act would have to be enacted by the North Carolina General Assembly establishing a special State agency which would have authority to acquire the necessary land, easements, and rights-of-way to build the smaller dams and levy taxes to operate them once they are built.

It would be necessary to make these changes in both Federal and State laws to bring to reality the program of development envisioned in the Soil Conservation Service report. Looking at it purely realistically, it is my opinion that it would take years to set up the necessary legal machinery to accommodate such a plan. I say years for the simple reason that a great deal more engineering work would be required to produce the necessary information upon which the changes in the law would be based. More is involved than simple amendments to existing law, because our basic laws concerning flood control have been developed over the years on the theory that larger reservoirs are required to harness major rivers.

Once the necessary legal authority was approved to use the small-dam approach it would take several additional years of engineering work and planning before actual construction could begin.

In any event, it is my opinion, based on the most reliable data I have been able to obtain, that it would take many years, even generations, to bring to completion a system of 232 dams envisioned by the Soil Conservation Service.

It has been argued that a network of small dams would be more desirable from the standpoint of stream pollution control, industrial and municipal water supply, recreation, and irrigation. This may be true, but the preliminary report of the Soil Conservation Service did not allow any cost or benefit factors for stream pollution control, or industrial or municipal water supply. These are factors that would have to be determined through future engineering studies and we have no way of knowing at this time what such studies would show or how long they would take.

It has also been argued that a network of small dams would bring about less hardship in respect to people being required to give up their homes and farms. I do not think it is possible to draw such a conclusion on the basis of what we know at this time. The proposed reservoir at New Hope would inundate about 30,000 acres of land at flood level as recommended by the Corps of Engineers. The 232 small dams would flood about 72,000 acres of land at flood level, and the individual reservoirs in the small-dam plan would range in size up to 1,500 acres. On the basis of these facts, it would be impossible to determine which plan would require the most people to move, particularly in view of the fact that no specific sites have been pinpointed for any of the 232 small dams. It could be that even more people would be displaced with the small dams, but again, there is no way of knowing definitely until a great deal more engineering work is done.

In considering the proposal which has been made by the Corps of Engineers, several points should be brought out.

The Corps of Engineers, which has conducted studies on the Cape Fear dating back to the late 1920's, has recommended a system of both large and small reservoirs to develop the Cape Fear Basin. The engineers' comprehensive plan of development embraces three stages: (1) The construction of a major dam at New Hope; (2) the construction of smaller dams at Randleman and at Howard's Mill; (3) the construction of small reservoirs on the upper tributaries of the Cape Fear.

Quite a number of years ago the Corps of Engineers was giving consideration to constructing a large hydroelectric, multipurpose dam at New Hope which would have created a much larger lake than the smaller dam now being recommended.

The dam currently being recommended would require 110 families to move, less than one-third the number that would have been affected by the originally proposed dam.

In recommending the smaller dam at New Hope, the Corps of Engineers has included both cost and benefit factors for flood control, industrial and municipal water supply, stream pollution control, and recreation.

In respect to benefits other than flood control, it is impossible to compare the effects of the New Hope Reservoir with the system of 232 small dams. This is true because no evaluation was made by the Soil Conservation Service of stream pollution control and industrial and municipal water supply in its study.

Under the law, we have reached the point where in a matter of months it would be possible for the Congress to authorize the New Hope project. We must make a decision as to whether to go ahead with the New Hope project.

On the basis of all of the information I have been able to obtain, and I have interested myself in the water resources of the Cape Fear for many years, I think we should by all means go ahead with the New Hope project.

We have a choice of doing this, or waiting many years, perhaps generations, to otherwise harness the Cape Fear.

A fair appraisal of the facts will show that we are already many years behind in developing the water resources of the Cape Fear. There is no way to get back the years we have already lost, and in my opinion it would be most unwise to lose more.

SYLLABUS

The district engineer finds that there is an immediate and urgent need for improvements to provide flood protection, water-quality control, and recreation in the basin of the Cape Fear River, N.C. He also finds a strong need to provide storage for future municipal and industrial water supply and irrigation, and additional storage for floor control, water-quality control, and recreational needs to keep abreast of economic growth in this region. Without projects he estimates the average annual flood damages in the area over the next 100 years to be $1,736,000; he finds that the present minimum streamflow of 19 cubic feet per second at Lillington, N.C., is inadequate for present-day water-quality control, and that by the year 2065 the storage needs are estimated to be 1,844,000 acre-feet. He has determined that the most practical, feasible, and economic means for providing for the needs of the Cape Fear River Basin over the next 100 years is a plan consisting of reservoirs, local flood protection projects, and watershed-treatment measures. He has developed a general plan of improvement and sequence of contruction which would include reservoirs on major and minor tributaries of the Cape Fear River above Fayetteville, N.C., and complementary conservation programs by other Federal and State agencies. Accordingly, as the initial step of development, he recommends construction at this time of the New Hope Dam located on the Haw River below the mouth of the New Hope River; and that further studies be made of the Randleman and Howard's Mill Reservoirs sites and of other local flood control and water-supply reservoir sites to verify and/or modify the sequence of construction of the future projects so as to provide for the progressive development of the water resources of the Cape Fear River Basin. He further recommends continuous and vigorous action by Federal and non-Federal agencies in prosecution of programs for land management, controlling and regulating the use and development of flood plains, preservation and development of recreational and fish and wildlife resources, improvement of water quality, conservation of ground and surface waters, and selection and preservation of sites for the projects that comprise the ultimate plan. He notes that the recommended New Hope project would fit

into any plan of development for the Cape Fear River Basin and should be the initial project to be constructed, and that it would prevent 72 percent of the average annual flood damages occurring in the Cape Fear River Basin and furnish benefits from water-quality control and recreation. He estimates that the total construction cost, at 1960 prices, of the New Hope project will be $25,612,000 with annual costs of $100,000 for operation, maintenance, and replacements, and that the average annual benefit will exceed the average annual costs by 160 percent.

CALENDAR OF EVENTS PERTAINING TO THE CAPE FEAR RIVER BASIN, N.C.

September, 1945: The most severe flood on record in the Cape Fear River Basin.

May 2, 1946: Board of Engineers requested by Congress to review report on Cape Fear River with view toward flood control.

July 25, 1947: Preliminary examination report submitted by Engineers recommending a comprehensive survey report.

November 1947: Chief of Engineers authorized a survey report on basin.

1948–50: Studies for that report initiated in 1948, but were suspended in 1950 because of general curtailment of the reports program.

September 1955: Work resumed on comprehensive survey report. Included studies of flood control reservoirs at Randleman and Howard's Mill sites on deep river; the New Hope site on Haw River for flood control, power, and other studies.

February 8, 1957: Public hearing held in Fayetteville, N.C. for proposed New Hope Dam as first step in basin flood control program. Opposition to dam proposed substitution of system of small dams. Congressional representatives subsequently requested joint study of the basin area by Corps of Engineers, Soil Conservation Service and the State of North Carolina. To determine how system of small dams would fit into overall development plan. Later authorized in 1957.

May, 1961: Joint study completed with Corps recommending 3 dams; Soil Conservation Service, 232 dams.

October 30, 1961: Comprehensive report released by Corps of Engineers. Some modification in original proposal with three dams to be completed over 25 years.

January 4, 1962: Meeting in Pittsboro of Congressman Cooley with citizens of Chatham County.

January 25, 1962: Announcement by Congressman Cooley of a joint hearing in Pittsboro, February 16 of two House subcommittees on the Cape Fear River. Agricultural subcommittee headed by Representative W. R. Poage of Texas and Public Works Subcommittee heads.

January 26, 1962: Army Board of Engineers for Rivers and Harbors deferred action on Cape Fear River Basin project.

January 1968: Earliest date at which New Hope Dam could have been completed if approved and started immediately.

Sixteen years have elapsed since the disastrous flood of 1945. Yet more hearings and more study?

"The Cape Fear River Basin"

Alphabetical county	1960 population	Land area	Alphabetical county	1960 population	Land area
		Square miles			*Square miles*
1. Alamance	85,674	434	11. Lee [1]	26,561	255
2. Bladen [1]	28,881	879	12. Moore	36,733	672
3. Brunswick [1]	20,278	873	13. New Hanover	71,742	194
4. Chatham [1]	26,785	707	14. Orange	42,970	398
5. Cumberland [1]	148,818	661	15. Pender [1]	18,508	857
6. Duplin	40,270	822	16. Randolph	61,497	801
7. Durham	111,995	299	17. Sampson	48,013	963
8. Guilford	246,520	651	18. Wake	169,082	866
9. Harnett [1]	48,236	606			
10. Hoke	16,356	414	Total	1,248,919	11,352

[1] Part in 1945, 7 counties, population 318,067, 4,838 square miles.

Mr. POAGE. Thank you, Mr. Stein.

Are there any questions of Mr. Stein?

If not, we are very much obliged to you.

Our next witness will be Mr. George Covington of High Point.

STATEMENT OF GEORGE COVINGTON, HIGH POINT, N.C.

Mr. COVINGTON. Mr. Chairman and members of the committee, I have no written report. My name is George Covington. I live in High Point. I am a lifelong resident of Guilford County, and anything that is done downstream we can only benefit from indirectly.

I do feel and have felt that it is the responsibility of Government to provide the leadership in developing water resources and flood control. How these measures and projects are financed, of course, vary and differ and remain a matter of negotiation. I do hope that plan A and plan B will not neutralize your efforts, so that nothing is done.

With the increase in water consumption per capita I judge that in North Carolina it is nearly 130 million gallons per day. It is evident that we will need greater water resources in the years ahead. This is not being stressed and overstressed enough.

I remember that our former Governor and later Senator Scott once said here in North Carolina that we have to keep going in a positive direction if we are to accomplish these things that our civilization must have and deserves.

Thank you very much.

Mr. POAGE. Thank you very much, Mr. Covington. I wonder if anyone wants to question Mr. Covington. If not, we are very much obliged to you.

FROM THE FLOOR. I think that the record should reflect that Mr. Covington is the former mayor of High Point.

Mr. POAGE. The record will so reflect.

Our next witness is Mr. Harold Cheek. Is Mr. Cheek here? I thought that he answered awhile ago. I do not believe he is present. We will strike him from the list.

Our next witness then will be Mr. Jerry Berkelhammon, representing local industries in Randleman.

STATEMENT OF JERRY BERKELHAMMON, RANDLEMAN, N.C.

Mr. BERKELHAMMON. Mr. Chairman and members of the committee, my name is Jerry Berkelhammon. We are relative newcomers and have only been here since 1958, so we do not know much about the problems of flood control, but we do know that in August of 1960 our industrial neighbor was flooded out and had extensive damage on the Deep River. We saw this damage. We saw the problems that evolved from it. And we know that something has to be done rapidly, because millions of dollars are going down the drain just from flash floods.

But flood control is only one problem. One is good water control. We think we have another objective. We believe that we have to have water for an expanding economy in North Carolina.

The northern Piedmont area, around Randleman, which consists of Greensboro, High Point, Winston-Salem, these three cities have experienced an increase in the 5-year period of 1954–59 of 40 percent. This increase can be traced almost directly to industrial expansion in this area. And this industrial expansion to date has just about depleted the available surpluses of all water.

Greensboro, for example, has to look to the Yadkin for water supply 75 miles away.

The damsite proposed at Randleman would give a water supply only 15 miles away. New industry is not going to use the raw water.

Our present industry in the State is growing. Our company alone, which is relatively small, has increased its water usage 35 percent in 1 year.

We know that to get heavy industry in North Carolina it will take a lot of water. For instance, 65,000 gallons of water for 1 ton of steel, 67,000 gallons of water for 1 ton of woodpulp. Some large papermills use as much as 50 million gallons per day.

North Carolina consumes an average between 300 million gallons of water per day and in 1970 it is estimated that this figure will reach 700 million gallons per day.

So the welfare of our State is dependent upon doing something right now. We cannot wait.

And the Corps of Army Engineers has a program ready. Action must be taken. We believe this is the only answer to getting the problem solved immediately.

Thank you.

Mr. POAGE. Thank you very much.

Are there any questions? If not, we are very much obliged to you.

Our next witness will be Mr. C. Reid Andrews, of the Randleman Deep River Association.

STATEMENT OF C. REID ANDREWS, RANDLEMAN DEEP RIVER ASSOCIATION

Mr. ANDREWS. Mr. Chairman and members of the committee, this map will help to bring this out a little better. I am representing a group of, factually, 10,000 people who are unable to come down here for various reasons.

First of all I want to say that we have a high respect and high regard for all the people of Chatham County. I was born in Chatham County. I am a friend of most of the people who have spoken, have a high respect for our friend, Mr. Barber. It so happens that we are, certainly, aware of what has been going on, because we have had a very active part in this whole procedure for the past, well, ever since the first hearing in 1957 at Fayetteville.

I do not bring any additional papers to enter into the record, because we have added, it seems like, several hundred pounds already.

I come speaking on the grounds of what Mr. Stein has said to some degree. In 1958 a group of our people, realizing the importance of getting something done, took our time and at our own expense visited Washington and appeared at that time before Mr. Cooley and the members of the North Carolina group and the other people he could get who were kind enough to listen to our sobs. But, I would like to remind you of the other side of the picture.

Actually, the Corps of Army Engineers, of course, have not been called on to speak. And this thing actually confronts a larger area than Chatham County.

If you will look at this map you will find that there are 17 counties that touch directly onto this project. We feel that up in our area that, actually, there are 25 counties that would be affected, or 25 percent of the population of North Carolina or even more than that, because in Guilford County and in our area, up through there, we have a larger population than you do down in the coastal plains.

I will not take your time to mention anything further on that because it is in your record. We have already submitted it. You can go back and find that any town of any size in Guilford County has endorsed plan A. You will find that Randolph County is listed by towns on this map and unanimously approved this thing with the exception of 10 people, some of whom are here today. We respect their opinions. If I lived in that area, certainly, I would not want to move. But if you look this over on the overall plane, just the benefit and want to make the State of North Carolina go forward, you are going to have problems with a few people. Any time you have a road and you make somebody move he feels like that road should be somewhere else. I agree with that. But when progress is made it inconveniences people.

I will not bore you with these problems, with the problems about tobacco laying all wet. Harold Cooley has a problem right now with overproduction of tobacco in his committee, and every farm product that is on the market. The latest report I have seen states that they will have 50 million acres of land, that is, farmland, to be taken out of production because production is over.

Water is another thing. If you go back to check, you will find not only in North Carolina, but all over the United States if our industry is to continue to grow there will have to be more conservation of water. Basically, that is what this will do.

We feel like if we go along with the Army Engineers on that basis, it will help.

Four years ago when we were in Washington the Soil Conservation Service was going to make a report. They have not yet made a report. They do not say where 1 dam of those 232 dams will be located—not 1 of them.

Another thing, they say that you are going to move 110 families in Chatham County. Certainly, I dislike to see them moved. How many did they say would be moved by the 232 dams? They have not told you how many it would be.

You are going to run into opposition from that.

Certainly, time is of importance to this State if we are to go forward. Everybody from the Governor on down just about, if it would come to a popular vote—if it would come to a popular vote, I repeat, in this State today, if everybody voted on it, about 4.5 million people, I will guarantee you, that 4.25 million people would vote for this Cape Fear project.

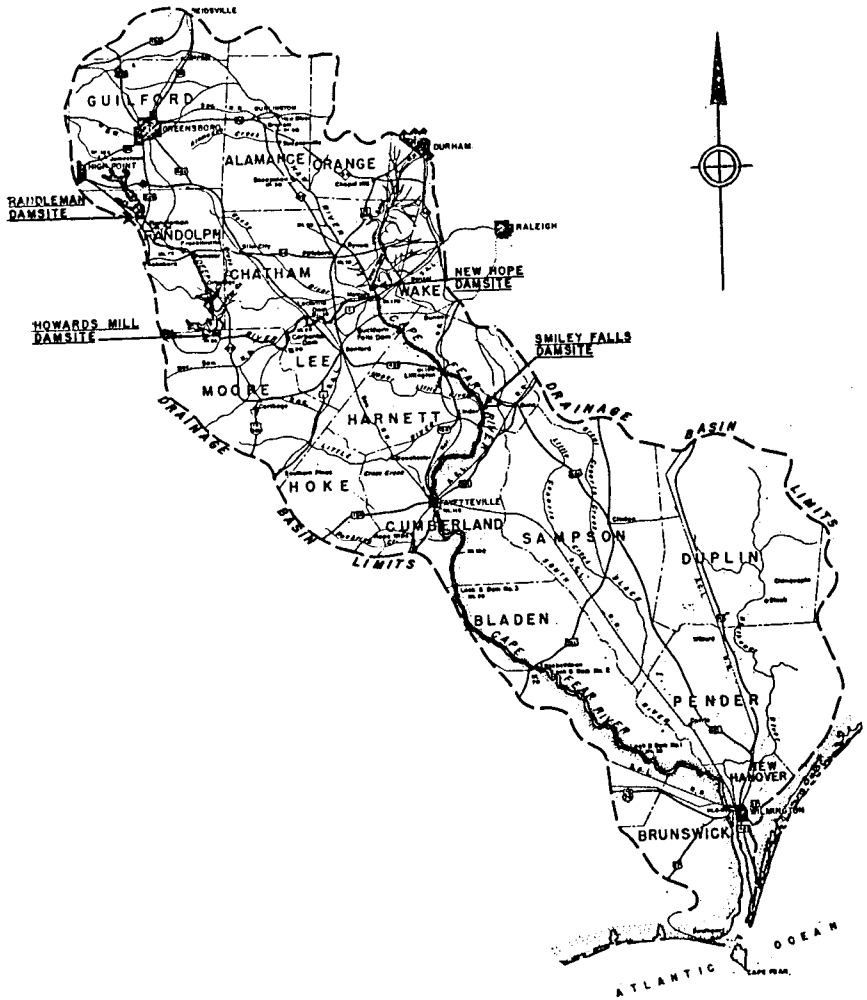
The Army Engineers have something. They have studied it ever since 1920. They know more about it than a group of people who have studied it for 4 years and cannot even locate the damsite for one dam. How are they going to locate 232?

We in Randleman and that area feel like Randleman is the head of this project. Our dam should be built first. Our people want it. They have opposition to it. Those people actually at heart are in favor of it. So while these people discuss this problem down here and iron out their problems we invite you to come up to our end of the county and show them what this thing would do. And after we have built ours, we invite all of you to come and have a picnic dinner with us and see what we have done. And maybe then you will see what this thing will do.

I will not take any more of your time. I feel it an honor to have come before you. I feel it of the utmost importance. I have tried to present the facts as our people feel about it in our area.

Thank you a lot.

(The map entitled "Flood Control Is Coming to Deep River Valley and the Cape Fear Basin" follows:)



Mr. POAGE. Thank you very much.

Are there any questions of Mr. Andrews? If not, we will now hear from Mr. John W. Clark, president of Randolph Mills, Inc., Franklinville, N.C.

STATEMENT OF JOHN W. CLARK, PRESIDENT, RANDOLPH MILLS, INC., FRANKLINVILLE, N.C.

Mr. CLARK. Mr. Chairman and members of the committee, it is a pleasure to be here.

This is a matter I have been interested in for quite a number of years. In 1923 I moved from Durham to Randolph County on the banks of the Deep River which is in the Cape Fear Basin, and took over the management of two cotton mills. And there we had what you would call small dams. Neither one has been of any advantage in flood control in those 39 years.

It is mighty hard to control floods with small dams.

Some years ago I attended a meeting in New York of the Rotary Club. I happen to belong to it in Randolph County. I was at the visitors' table and sitting next to me was a gentleman from Colorado. We got to talking about rain, and he said that they averaged about 16 inches of rainfall in Colorado a year. Across from him was a gentleman from Nebraska. He said, "We have about 35 inches or more," than they had in Colorado, that is. It was twice as much.

I said, "Well, I am in the Cape Fear Basin in North Carolina, and we have about 52 inches of rainfall in the Cape Fear Basin and a little more in the basin back from it." They could hardly believe that we had that much rainfall in this section. That is of tremendous advantage to North Carolina in its future development industrially.

You take in 1910, 50 years ago, North Carolina had 2,200,000 people; today we have, approximately 4,600,000 people. We have more than doubled in 50 years.

As the State grows industrially we have got to use these water resources. My people settled in North Carolina back on the Roanoke River in North Carolina about 160 years ago and are still on the banks of the Roanoke. Naturally, I was very much interested when the question arose about 20 or 25 years ago about flood control and the building of the John Kerr Dam. I attended meeting after meeting at Danville, Clarksville, at South Hill—all up and down the Roanoke River. At that time everywhere we went the power companies were there opposing the development of the power dam, the John Kerr Dam. The railroads were there. The chief counsel of the Southern Railroad was there, and he said, "You cannot build it—it will not do it. We believe in the great American competitive system."

I got up and asked him, "If the Southern Railroad is such a great believer in the competitive system, why is North Carolina having such a hard time getting competitive freight rates? We have been trying to get them for 40 years."

He was never quite able to tell us just why that was.

We, also, had the Highway Commission of Virginia there. The Roanoke comes through Virginia and then down into North Carolina and then out at Albemarle Sound.

They went ahead and built the John Kerr Dam. He was a Member of Congress. He advocated it, although the dam is in Virginia.

We do not have these floods like we used to have them. Last year 2.5 million people visited the John Kerr Dam. It is quite an asset to that section.

Down the river from there—I am some distance down the river—it controls those floods.

In addition to that they built power dams there to produce power from the water as it flows down the river. It has been of a great advantage to them.

In connection with power I might mention that 3 years ago I was approached by a party to go out into the Tennessee Valley and start a textile mill out there. I went and checked the power rates out there. Do you know what they amounted to? I would have saved, if I was operating out there, $40,000 a year. That is the difference in power rates in the Tennessee Valley and where I am now. I am getting along in years, so I did not try to move.

All of those things are important. Of course, I can see that, naturally, people doubt the advisability of raising these dams for flood control. You take down the river from here to Wilmington those lands are overflowed just like the Roanoke overflowed from the Virginia line clear on to Albemarle Sound.

The future of an industrial development in North Carolina, in my opinion—and I am interested in seeing everybody treated right—is dependent upon such developments. I think the Government when they built that Bugs Island Dam, at flood stage it cover 80,000 acres today, but the people who lived in the Roanoke Valley were well pleased. The Government treated them right. They built the roads, the highways. The railroads are not complaining.

What did the power companies do? They moved down the river to Gaston and built two new powerplants. And where the Government now controls the flow of the Roanoke they get the advantage of it. That is a very nice thing for them.

Of course we need power. I could talk on and on. I am deeply interested in seeing the water resources of the Cape Fear Basin preserved and that all of the people in the Cape Fear Valley be treated fairly; that they are given a square deal. I think they will be as well pleased if it was done as they were in the Roanoke Valley.

I thank you.

Mr. POAGE. Thank you, Mr. Clark.

Are there any questions of Mr. Clark? If not, we are very much obliged to you.

I do not have any additional names on the list. Is there anyone who wants to testify?

Mr. FARRAR. Do you mind if I say a word?

Mr. POAGE. If you will come up and give your name to Mrs. Gallagher and get on the list, we will be delighted to have you say a word.

And let me say that, if anyone else wants to testify, they should do so, too. We do not want you simply to rise up in the audience, but to come up here and give your names to Mrs. Gallagher, and get on the list. And we will be delighted to hear from you then, regardless of your view or regardless of whatnot.

STATEMENT OF BILLY FARRAR, APEX, N.C.

Mr. FARRAR. Mr. Chairman and members of the committee, I am a dairy farmer. I live on New Hope Creek, Apex, N.C.

I and my brothers have about 600 acres of land. Our farm is bottomland. About 60 acres of it suffers from flood. Every time we have a flood down the Cape Fear River we have one at home. In the past few years we have had floods.

In 1945 we had a flood. I was not there then. I was in the Armed Forces.

Anyway, I came home in 1946 and at that time my daddy was chiefly a tobacco farmer. We wanted to start something new. So I suggested that we start a dairy farm. At that time it was flooding. They said that there was not any need to put in the dam; that is what he said. I told him that we could not always wait. So we started. I reckon that we have invested, probably, between $50,000 and $100,000, plus our time and energy, in dairy farming.

I am not really against flood control. Since then we have had a burden on our heads because we read things in the paper, hear them on the radio that they are going to build something, and take all of the land we have. We would not have a foot of land left.

There is one thing that is almost worse than being flooded, and that is the fear of having your home taken away from you all of the time. But it seems to me that we ought to do something to get it done. Then, if I have to relocate, I will have enough money set aside to make a better crop, and the next person will produce it. There will be a challenge to move.

Of course, I understand why some of our neighbors feel as they do. They do not want the challenge. I am a young man 34 years old; and, if I have a challenge presented to me now, it would be the time while I am young, while my family is young, and we could relocate.

The farm we are living on was a land grant from the King. It has been in the family hands ever since. It was from the King of England. We have purchased some additional land and have paid high for it. Of course, 10 years ago what we thought was high is not very high now, and 10 years from now it might still be higher; that is, to buy additional land.

I do some work on the side. I just finished cutting 10 acres of timber that I and my brother-in-law jointly have. We cut 200,000 feet of timber off of 10 acres of bottomland. The land would not be used for anything but timber. It is flat. It is bottomland. It raises timber.

As one of my neighbors said, who is about 67 years old, he cut meadowgrass off the land when he was a boy. So you can see what 10 acres would do, say, in 50 years—grow 200,000 feet of timber.

I appreciate having had the opportunity of speaking. Thank you.

Mr. POAGE. Thank you, Mr. Farrar.

Are there any questions?

[No response.]

Mr. POAGE. If not, do we have anyone else?

Did you get anyone else, Mrs. Gallagher?

Mrs. GALLAGHER. No more.

Mr. POAGE. I see that the Army Engineers are here. Would you like to have—would you like to say something?

STATEMENT OF COL. R. P. DAVIDSON, DISTRICT ENGINEER, U.S. ARMY ENGINEERS, WILMINGTON, N.C.

Colonel DAVIDSON. Mr. Chairman and members of the committee, ladies and gentlemen. I did not really come prepared to make a statement as such. I have sort of been on the spot, so to speak, this morning, which is, certainly, as it should be. I have no complaint on that score at all.

I am, certainly, sympathetic to the people who live in the valley or would be involved in having to move from their homes.

I would like to make one statement, though, just to clarify one small item which I am well aware the committee knows, but for the benefit of the people here. We in the Corps of Engineers (I happen myself to be in uniform which indicates that I am Army officer and have been in the Army almost 30 years) only make recommendations and this is a part of the work that we do. My job in this particular study has been to make a study and recommendations concerning flood control or any measures to alleviate floods or any other benefits that might evolve from such a flood control project in the upper Cape Fear River Basin.

The point I would like to make is that this is exactly what I have done. And when I say "I," I am speaking of my office.

I would like to point out that I do not decide what is to be done. As the members of the committee well know, you people will decide which dams will be built, where they will be built. We make recommendations.

We made a very thorough study of the basin and the committee has been furnished copies of this report.

I will correct one statement made this morning. Back in the 1930's under the old field work report there was an investigation of the river made, and at that time the project was not justified and it was so indicated. That was the only time, however, that it was ever indicated that the project was not justified.

Someone, I believe, mentioned 1946. The project was restudied back in those days, and due to the war in Korea and various other things, it sort of slid along so far as getting money to actually complete the study.

We have only had one recommendation which was against it which was back in the 1930's. This is the first recommendation, really, that we have made based on a complete study since that time.

You will recall Mr. Dailey's statement that in the joint report neither agency really made a recommendation. Each agency presented a plan which has been spoken of as plan A and plan B. This is in the joint report. No recommendation was required, actually, as far as the two agencies were concerned.

That report did not override the requirement laid down on the Corps of Engineers by the Congress to make a study and to make recommendations for or against or whatever it may be to the Congress.

The corps, or the agency represented by the Corps of Engineers still has that responsibility, and that is the stage which we have reached now. We never stopped that study.

The things that we have referred to in our study I will not go into again or review those, because the study stands on its own feet. It has been thorough, factual, and the estimates are good. The recommendations are sound. We stand by those. And we refer you, if there are any specific questions, to the report itself.

The actual position of the report right now is in the office in Washington, in the Chief of Engineers' office, where it is being reviewed by the Rivers and Harbors Board. After that review they will submit their recommendations (that is, the Board) to the Chief of Engineers who, in turn, will submit his recommendations to the Administration, thence, to the Congress for the authorization if such is recommended.

Actually, I point this out because this recommendation has not yet been made to the Congress, that is, the report is now in the Office of the Chief of Engineers.

Again, we stand upon our report and the fairness with which it was accomplished and the soundness of its recommendations. And we would assume unless there is something basically wrong that our people would agree with our recommendations, because we work closely together from there all the way down to the district level.

I believe that is all I have to say, Mr. Chairman, unless there are some questions.

Mr. POAGE. Are there any questions of Colonel Davidson?

[No response.]

Mr. POAGE. If not, we are very much obliged to you, Colonel Davidson.

Is there anyone else who wants to speak for or against this project?

Mr. Dailey, I wonder if you would like to sum things up now that you have heard the discussion? Would you care to have any further—anything further to say?

Mr. DAILEY. I would not attempt to sum up what has been presented here today.

If there are any questions that any member of the committee would like to address to me I will do my best to try to answer them, however.

Mr. COOLEY. Let me ask you one question about the number of acres involved in each plan. One figure is something like 72,000 acres. Where would that be located?

Mr. DAILEY. The 72,000 acres, as some of you may be aware, in the approach that we have used, would be located at sites that we think are of less value and that have some degree of flexibility, that is the structures can be moved upstream or downstream as the case may be. In other words, in the small watershed program our philosophy is that we are trying to protect the valuable land and trying not to inundate it. The less valuable land would be inundated.

Mr. COOLEY. It would be all up and down the basin, would it not, from one end to the other?

Mr. DAILEY. Yes.

Mr. COOLEY. Whereas on plan A it is in one area?

Mr. DAILEY. That is correct.

Mr. COOLEY. Why is it necessary to have 232 small dams in this conservation plan—is it necessary to have that many dams?

Mr. DAILEY. Well, it might be possible to get by with some fewer dams than that. Again, we have tried to locate these dams so that all of the areas in the basin would be better served. For example, some of these dams will be located in the upper reaches of the Haw

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River near Greensboro, where there would be a possibility of obtaining additional storage for that municipality. They are, also, located with a view to irrigation needs and things other than flood prevention.

Mr. COOLEY. Well, now, is there any incompatability between plan B and the Randleman Dam and the other dams that we have talked about?

Mr. DAILEY. Would you be more specific?

Mr. COOLEY. The Howards Mill Dam and the Randleman Dam in this area, can they be taken care of without clashing head-on with the program you present?

Mr. DAILEY. I think, perhaps, they could. I would not want to answer that either affirmatively or negatively without being sure that they could be. If Mr. Hanna were here he could answer that more specifically.

Mr. COOLEY. I think it would be well to clear that one point up, because the people in Chatham if I understand it, have no objection at all to the Randleman Dam, is that right, Mr. Barber, or to the Howards Mill Dam Site—there is no objection to these two dams?

Mr. BARBER. No.

Mr. COOLEY. If plan B should be accepted is there any reason why the Randleman and Howards Mill Dams might not go on and be built, anyway?

Mr. HANNA. There is no reason why they could not be included, at least the Randleman Dam.

Mr. COOLEY. In other words, if you accepted plan B you could have the Randleman Dam and the Howards Mill Dam?

Mr. HANNA. I have not investigated the Howards Mill Dam. We did look into the possibility of the Randleman Dam.

Mr. COOLEY. I think that is all, Mr. Chairman.

Mr. POAGE. I just wondered about the comparison of these things. Just assume that this project, your plan B, is something on the magnitude of the Washita River, project, is that about right?

Mr. DAILEY. Mr. Poage, I do not know if it is that large or not. Mr. Phillips may have something on that. As a matter of fact, it may be larger than the Washita.

Mr. POAGE. If that is the largest in the United States.

Mr. DAILEY. I am not sure of the acreage.

Mr. POAGE. That is in Oklahoma.

Mr. DAILEY. Yes.

Mr. POAGE. It involves quite a large acreage.

Mr. DAILEY. Is Mr. Graham still here? He is my assistant.

Mr. POAGE. That is all right.

Mr. COOLEY. He is back there.

Mr. GRAHAM. That is 5 million acres. The Washita River project cover 5 million acres of land.

Mr. POAGE. Five million acres of water?

Mr. COOLEY. You mean 5 million acres of land.

Mr. GRAHAM. That is correct.

Mr. POAGE. Do we know what it is here?

Mr. DAILEY. This is between 7,000 and 8,000 square miles, I believe—8,000 square miles drainage area.

Mr. POAGE. The drainage would have to be more than 8,000 square miles.

Mr. DAILEY. That would make it somewhat comparable in size to the Washita.

Mr. POAGE. I think it is somewhere near. That is of no great importance, I don't think.

Are there any other questions?

Mr. STUBBLEFIELD. I would like to ask a question. If plan B is adopted what kind of a program is envisioned, will it be a series of conservancy districts or one big district?

Mr. DAILEY. Well, I think if that avenue were used, that one big convervancy district for the entire basin, or part of the basin affected, would be, perhaps, desirable. That is purely a personal opinion.

Mr. SMITH. Mr. Chairman, let me ask this question:

If this program be modified, if the SCS could modify it to include two projects after having studied it for 4 years, there is serious question in my mind about the value of their work. I just wonder what is the basis of it. Why does it take so long to figure out the rest of it, Mr. Dailey, if in 2 minutes, perhaps, you could modify it to include the other one?

Mr. DAILEY. Mr. Hanna can answer that.

Mr. HANNA. First of all, I said that we had studied the inclusion of the dam at Randleman in this. We have not studied the dam at Howards Mill. If you will bring that map out here again I can better explain it.

Mr. SMITH. Very well.

Mr. HANNA. We did not make a complete study of the entire basin. This is a sampling method. Sample 1 here, sample 2 here, sample 4 here, samples 5 and 6 here.

[Indicating.]

These samples were studied in detail. The dams are located right in the samples shown. Then the whole thing was put together to cover the entire basin.

There is a lot of flexibility in this. Say, for instance, in sample area No. 2 here, there are 15 sites required to give us the storage needed to take care of the overflow.

In that same area there were 58 sites available.

And in area No. 1 there were five sites used to give the degree of control needed. There were 17 sites available.

In sample area No. 4 there were three sites used to give us the degree of control needed. There were 13 sites available.

We could go right on through that in the other areas. In other words, the sites available that we did locate in the various sample areas greatly exceeded the sites used. Therefore we feel that the plan would be very flexible.

Mr. SMITH. Do you use the New Hope Valley as a sample area?

Mr. HANNA. A portion of it.

Mr. SMITH. What size are the sites that you propose there?

Mr. HANNA. The largest one—I do not remember—but offhand the largest one in that sample area—I do not have the information with me—is around 4,000 to 6,000 acre-feet, involving one of the sites. The other two were smaller.

Mr. SMITH. Thank you.

Mr. POAGE. Are there any further questions?

(No response.)

If not, we are very much obliged to you again. Thank you, Mr. Hanna.

I do not want anyone to feel that they are denied an opportunity to express their views here. I have tried to make it plain at the beginning and several times in between, and I want now to make it plain again that I want to call on anybody who wants to be heard, to step up here now, because I do not want you going away from this meeting and saying that Harold Cooley did not let you have a hearing here.

All right, we will be delighted to hear you.

STATEMENT OF CHARLES CLARK, FAYETTEVILLE, N.C.

Mr. CLARK. Chairman Poage and members of the subcommittee, we are naturally interested in this situation, being from Fayetteville, because of course we have the flush water, and what-not that comes down the stream. I can be corrected, because my mind does not carry all of the statistics, but in studying the report of the engineers I believe it says that the New Hope Dam reduced the flood level of 1945 by some 9 feet; that the construction of Howards Mill and Randleman Dams would only cut it another 6 inches. Naturally, we are concerned about the other 9 feet that is the difference between having one side of our community of, say, 3,000 people washed away and under water. So we are naturally curious as to how long it would take the Soil Conservation Service to prepare an overall program to make this program effective. In other words, we are not being difficult—we are not trying to argue about anything—we are just curious because we do not want to be washed on down into the Atlantic Ocean. I am wondering if we could get an answer as to about how long that would take.

Mr. POAGE. Does anybody want to volunteer an answer to Mr. Clark? The committee has no objection to your offering the answer.

Mr. CLARK. I do not mean how high is up. It is just one of those things. Have you given any thought to that, that is, under plan B?

Mr. POAGE. The committee cannot answer you, Mr. Clark.

Mr. CLARK. I realize that. I just wanted to put out the question, because we have had some 16 years of grace so far without a flood. We have sort of been living in hopes that the 9 feet would be cut off by the New Hope Dam, because the other dams would only cut off an additional 6 inches. Naturally, we would like to see those dams built, too, but we would hate to be washed on down by 9 feet while they are attempting to straighten it out.

Mr. COOLEY. I do not want to try to answer the question, except that I do want to point out the fact that, apparently, whether we have plan A or plan B you have to have legislation. That means the legislative committees of the Congress will have to consider it. You may have to put in a bill, and we do not act too promptly on legislation. You know, sometimes it is delayed.

Mr. CLARK. You have a lot of work besides this, I know. I was thinking purely of the technical and engineering end.

Mr. COOLEY. I do not have any idea on that.

Mr. CLARK. How long after it was approved would it be before you would actually have it?

Mr. COOLEY. Could you answer that, Mr. Dailey?

Mr. DAILEY. I can answer it in part, and I think that in answering it I might clear up some of the things that I would say have been misrepresented, and are not actually facts. I would not attempt to say today how long it would be before plan B could be put into effect and provide flood protection for Fayetteville, but on the basis of the sample area studies, and the information we have in those sample areas the Soil Conservation Service with sufficient personnel and with other facilities provided, would be able to go to work in a relatively short time—a year or so, in my opinion. That is not to say that the 232 dams, or whatever is required, would be built in a year or so, but in the sample areas I would say that we have enough information to go to work.

Mr. CLARK. That is the answer to the question.

Mr. POAGE. Thank you, Mr. Clark.

We will next hear from Mr. R. Albert Rumbough.

STATEMENT OF R. ALBERT RUMBOUGH, CITY PLANNING DIRECTOR, FAYETTEVILLE, N.C.

Mr. RUMBOUGH. Mr. Chairman and members of the committee, I am the city planning director of Fayetteville. As a planner I guess that I am about as much interested in the conservation of all types as anybody or as almost any profession could be.

One question has concerned me very much about the two reports. I am afraid that I am asking the committee a question, instead of answering a question and, that is, that the soil conservation program seems to give more thought to minimum floods and, in fact, I see their program possibly could decrease the amount of water that we might have in the river downstream in drought periods, rather than an increase. Actually, it is as to much water in the Cape Fear River Basin that we are now concerned with for our municipal water supply sources.

Mr. POAGE. I think that the question you are asking the committee is, probably a technical one, but it is one that has become a political one in my part of the country where we do not have 52 inches of rainfall and where some of our very large cities have felt that they wanted to pave the upstream, put a shingle roof or something of that kind over it and make every drop of water run off as fast as possible into the lakes. That question has been discussed in the Southwest a great many times.

To me it is quite clear that an upstream flood prevention program does not decrease the runoff of any stream, but on the contrary substantially increases the effective runoff, the usable runoff for municipal purposes.

The reason I say that is that the upstream programs, of course, contemplate a great deal more than what has been talked about this morning, although there has been some mention of the fact that about 40 percent of these costs fall on the local people. And that is not all for rights-of-way by any manner of means, but involves land treatment.

You cannot establish a program under Public Law 566 without signing up, at least, 50 percent of your upstream land for soil conservation practices. If you conduct those practices you will have a larger amount of the rainfall sink into the ground than you will if you do not conduct them.

Water that goes into the ground does not stay there. It reappears as springs and seeps and goes down the stream. It does it, however, over a much longer period of time than when you have the surface paved, as it were.

You do not get all of your water running off in one night. The crest of your floods are somewhat reduced as the result thereof. And, also, reduced as the result of the reservoirs that withhold it. So that you have a much longer period to remove the same runoff. The runoff is there.

If you get 52 inches of water falling, part of it is going to evaporate. In the Southwest a much larger percentage than it will be here, but a definite percentage will evaporate. That will go up in the air and come back again somewhere. As Mr. Stone said this morning, water is not destroyed, but it will come back.

Another percentage of it will run either under the ground or on the ground. If it runs on the ground it will, probably, cause floods. If it runs under the ground it will, probably, simply provide for a 12-month flow in your stream.

Even though it is running on the ground and you are getting a discharge from these upstream reservoirs where it takes a period of 2 weeks to discharge the reservoir, whereas it might run out in 2 days without it, you will find that the flow of your major streams are much more regular, there is much less fluctuation from the high to the low point, and with a uniform streamflow you can supply any city or any industry with a much smaller reservoir than you can if you do not have it. Even though you get the same volume of water coming in over the year, if you get it all within a period of 2 months, as they do in certain places in India and in Africa, where they have their heavy rainfalls, but have 10 months of drought—you get the drought conditions just the same—but if you can spread that water over a long period of time you can take the same amount of water and achieve a great deal better result from it.

So speaking for myself, and neither for the Engineers nor the Soil Conservation Service, nor the committee, but as one who has been through this rhubarb before, I do not think there is a thing in the world to this argument that you will be deprived of any water by a sound upstream flood prevention program. On the contrary, you will get your water more regularly over the year. We are not going to drink it up when you put it in those reservoirs. It will come down that stream.

Mr. RUMBOUGH. I wondered about the people, though, in the drought periods—the people would be pulling it out.

Mr. POAGE. The people cannot pull it out. Water that goes into the ground, except to the extent that somebody dug a well will take out about the same amount, anyhow. To that extent the water will flow out in springs and seeps. That stream is going to maintain a much more uniform flow. It will have more water in dry periods and have

less water in flood periods. And that is exactly what it seems to me is what we want.

Mr. RUMBOUGH. We have one problem. We cannot build a dam down there, because we have or would have to make the dam about 40 miles long.

Mr. POAGE. You want that stream to flow as uniformly as possible.

Mr. RUMBOUGH. Yes, that is it.

Mr. POAGE. You could have x acre feet of water in that stream in a year—you will have the same amount of water over a year's period, but if you get two-thirds of it in 1 month you are going to have trouble the other 11 months.

Mr. RUMBOUGH. We have enough faith in the engineering proposal that we have put up $2 million for continued water supply. I am just asking the question, would the other satisfy that need. That is what I am really interested in.

Mr. SMITH. There is no question but what a certain minimum flow can be assured better by a dam which is opened at proper times to achieve it.

Mr. RUMBOUGH. That means 1 dam or 132?

Mr. SMITH. I said a dam. That is not the major factor involved in this.

Mr. POAGE. Are there any further questions?

Mr. RUMBOUGH. Thank you very much.

Mr. POAGE. Is there anyone else who wants to be heard? Mr. Scott would like to be heard as a private individual We will be glad to hear him now.

STATEMENT OF ROBERT W. SCOTT—Resumed

Mr. SCOTT. Mr. Chairman and members of the committee, I do not want to take your time and will not except that I want to stress a couple of things that have been brought out here in later testimony. I want to clarify my position a little bit.

I should say to the members that the members in the North Carolina State Grange and my own personal feelings are in complete harmony.

I share with Mr. Stein a membership on the board he mentioned. I have had an opportunity to participate in these meetings. The point was raised about the board unanimously endorsing the plan A. It was a voice vote. I can tell you that there was one person who abstained. This was the last item of business; everybody wanted to go home.

I think, of course, there is no inconsistency here, because the board of conservation and development is interested in the total overall development of our State. I would question whether the board members, all of them, had the detailed knowledge that Mr. Stein and I have, because we are closely identified with it.

Another point I want to bring out is this: Mr. Cooley, of course, would know this very well, that back in 1957 and 1958 when my father was serving as a Member of the Senate, this whole matter of having a joint study came into being, and as I brought out in my testimony, it evolved as a result of conferences held in his office.

Those who were there tell me in no uncertain terms that it was quite a real knockdown, dragout affair, lasting a whole day, getting the two agencies together, or, let us put it this way, getting permission for the Soil Conservation Service to conduct a joint study.

This is a philosophy that the Grange has had for many years. This is a philosophy that the rural people have had for a long time. And all agencies should be brought into the planning of any such program as this.

It was not an easy thing to do. It was done for this one study only. I think it ought to be done for all river basin developments. It has been pointed out that either directly or indirectly my father was very much interested in this thing.

Some have said to me that you ought to go along with this plan A or this large dam approach, because this was your father's favorite project. At that time, of course, there was being considered the possibility of power supply for this area. Of course, he was very much interested in developing industry and what not in the area where power would have played a part.

This is no longer a consideration. Those who knew him would say quite clearly that if the time ever came that he would be in favor of a plan that would not utilize the total resources of an area, I do not know what he would do. I would simply say to you just that I do not think that we should consider the fact that this might have been a pet project of his, because I think his idea was that it should be a total, overall thing. But let us do something.

I heartily agree with the gentleman who got up here and said, "Let us do something." I think a decision should be made.

I wanted to bring those two or three minor points out. Of course, as a resident of the upper region of the Cape Fear we are very much concerned. We have flood control in our area, too. We do not live in the valley, as you know. We share in some of the problems that are concerned here.

The point seems to me that we have two plans. Both will provide flood control downstream. It is just a question of whether we want to have one or the other.

Thank you.

Mr. POAGE. Thank you, Mr. Scott.

Are there any questions of Mr. Scott?

We are again very much obliged to you.

I take it that we have no one further who desires to speak. If so, we have appreciated the attention of this audience. We have appreciated your contributions and statements that you have made. I think that we can all agree there has been a good deal of thought given to this problem here; that it is a tremendously serious problem to the people who are concerned, and that while this committee, that is, neither one of these committees can solve the problem—we do not do it that way in our Government, we do not just hand down instructions and orders—this thing has got to be handled through a long process in which a great many people are involved, but it is certainly helpful for the committees of the Congress to understand a little better the problem of the people.

Again, we thank you.

Mr. BARBER. We cannot let you go without a word of appreciation from these good people in Chatham County stating that we appreciate very much your coming down here.

Mr. POAGE. Thank you very much.

The committees stand adjourned.

(The following letters and resolutions were also received by the subcommittee:)

APEX, N.C., *February 16, 1962.*

To Congressional Committees Appearing in Pittsboro, N.C.:

It is considered an honor and a duty for me to protest the construction of the proposed New Hope Dam, dislocating hundreds of people by breaking up their established homes for reasons not vital to the defense of the United States nor to the growth and progress of North Carolina.

Long live New Hope Valley.

DENNIS N. BUNKER.

To Whom It May Concern:

I want it to go on record that I am in favor of the small dams and against the large one. It will be unfair to the people of Chatham County to cover so much fertile land with water.

Sincerely,

Mrs. V. R. DRY.

The board of supervisors of the Chatham County Soil and Water Conservation District, wish to present the following resolution to the congressional subcommittee:

"Be it resolved that after considerable thought given to both sides of the two plans offered for flood control on the Cape Fear River, that they go on record as favoring the plan proposed by the Soil Conservation Service, and urge this committee to use all resources available to speed the development of this plan."

JESSE O. FEARRINGTON, *Chairman.*

RESOLUTION, NEW HOPE VALLEY GRANGE NO. 1204, CHATHAM COUNTY, FEBRUARY 13, 1962

To the House Agricultural Committee:

We, the patrons of New Hope Valley Grange No. 1204, Chatham County, hereby go on record favoring the soil conservation plan of small dams in the development of the Cape Fear River Basin for flood control, recreation, and the storage of a quality of water that would be usable for industrial and municipal water supply.

We feel that the impounding of the waters by this plan will have a far better long-range effect on the development of the economy of the Cape Fear watershed without the displacement of so many families and the destruction of many thousands of productive acres of land.

(Whereupon, at 3:20 p.m., the committee adjourned.)

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