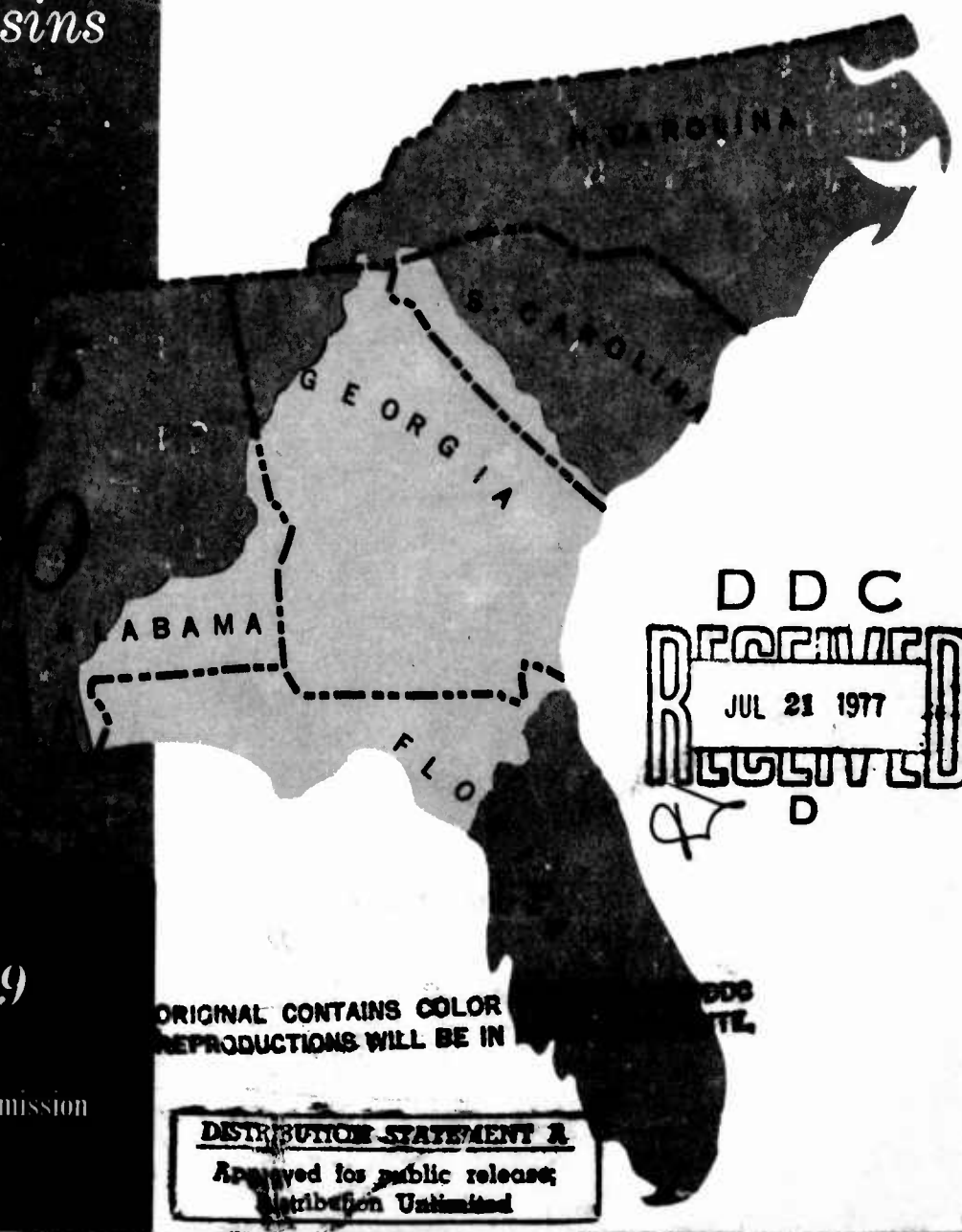
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Southeast River Basins

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FOREWORD

This Appendix provides a listing and review of the economic studies and analyses made in preparing a comprehensive, integrated plan of development of the land and water resources of the Southeast River Basins area. Throughout this Report the term economic is used in its broad sense covering many economic, social, and institutional conditions and adjustments.

This Appendix is presented in five parts. Part One sets forth the conceptual framework, objectives, controlling assumptions, criteria, and study guidelines. Part Two summarizes and describes the basic studies carried out to meet the plan objectives. Part Three contains the Economic Framework or general guidelines for planning. Some of these guidelines had their origin in recent national studies, the results of which were adopted by the Commission as general guides for regional planning. Other guidelines were developed by the staff from the basic studies. Part Four presents the principles and procedures used in making economic evaluation studies of programs and projects. Part Five discusses cost sharing and financing as important aspects of the implementation of the resource plan.

The matter contained in each part is pertinent to the comprehensive plan. The reader is urged to consider the Report in the aggregate rather than to consider selected material out of context.

The Report presents a plan made in response to the provisions of Public Law 85-850 (72 Stat. 1090) dated August 28, 1958, which established the United States Study Commission, Southeast River Basins.

The authorizing Act provided for an integrated and cooperative investigation to formulate a comprehensive plan for:

(1) Flood control and prevention;

(2) domestic and municipal water supplies;

(3) the improvement and safeguarding of navigation;

(4) the reclamation and irrigation of land, including drainage;

(5) possibilities of hydroelectric power and industrial development and utilization;

(6) soil conservation and utilization;

(7) forest conservation and utilization;

(8) preservation, protection, and enhancement of fish and wildlife resources;

(9) the development of recreation;

(10) salinity and sediment control;

(11) pollution abatement and the protection of public health; and,

(12) other beneficial and useful purposes not specifically enumerated in the Act.

Under item (12), special studies were made of beach erosion and hurricanes and low-flow augmentation.

The comprehensive plan for the Southeast River Basins area was formulated to meet the needs of the area to the year 2000. Within these long-range objectives, an early action phase is designated including programs and projects which should be completed by 1975. Projects and programs existing and under construction in 1960 are included in the plan. However, only proposals for new developments and expansion of existing developments during the period 1960-2000 are analyzed and costs and benefits evaluated.

The plan of development of the resources of the Southeast River Basins area is the result of cooperative work of Federal, State, local, and private agencies having interest in the area and knowledge of its needs and requirements. Public hearings were held early in the planning process to obtain firsthand knowledge of conditions and problems in the study area and to secure suggestions for their solution.

Throughout the study, liaison was maintained with interested groups and agencies by means of conferences, committees, and advisory groups. As soon as a tentative plan was available, public presentations were made by the Commission to inform interested persons and organizations and to request comments. These comments were considered in preparing the final plan and Report.

Although many individuals, groups, and agencies have participated in the studies, the Commission takes full responsibility for the plan and

for use of the projections, assumptions, and analyses on which it is based.

The Commission plan for the Southeast River Basins area is supported by data contained in 13 appendixes. Data on the plan for development of the resources in the eight geographic areas studied in the Southeast River Basins area are contained in Appendixes 1 through 8. Technical data and information applicable to both the entire study area and the several geographic areas are contained in Appendixes 9 through 12, each of which contains pertinent economic data essential to the planning process. The appendixes to the Commission Report are as follows:

Appendix	Title
1	Savannah Basin
2	Ogeechee Basin
3	Altamaha Basin
4	Satilla-St. Marys Basins
5	Suwannee Basin
6	Ochlockonee Basin
7	Apalachicola-Chattahoochee-Flint Basins
8	Choctawhatchee-Perdido Basins
9	ECONOMICS
10	Hydrology
11	Engineering and Cost
12	Planning
13	History and Organization of the Commission

U. S. STUDY COMMISSION
SOUTHEAST RIVER BASINS

APPENDIX 9
ECONOMICS

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THE SOUTHEAST RIVER BASINS

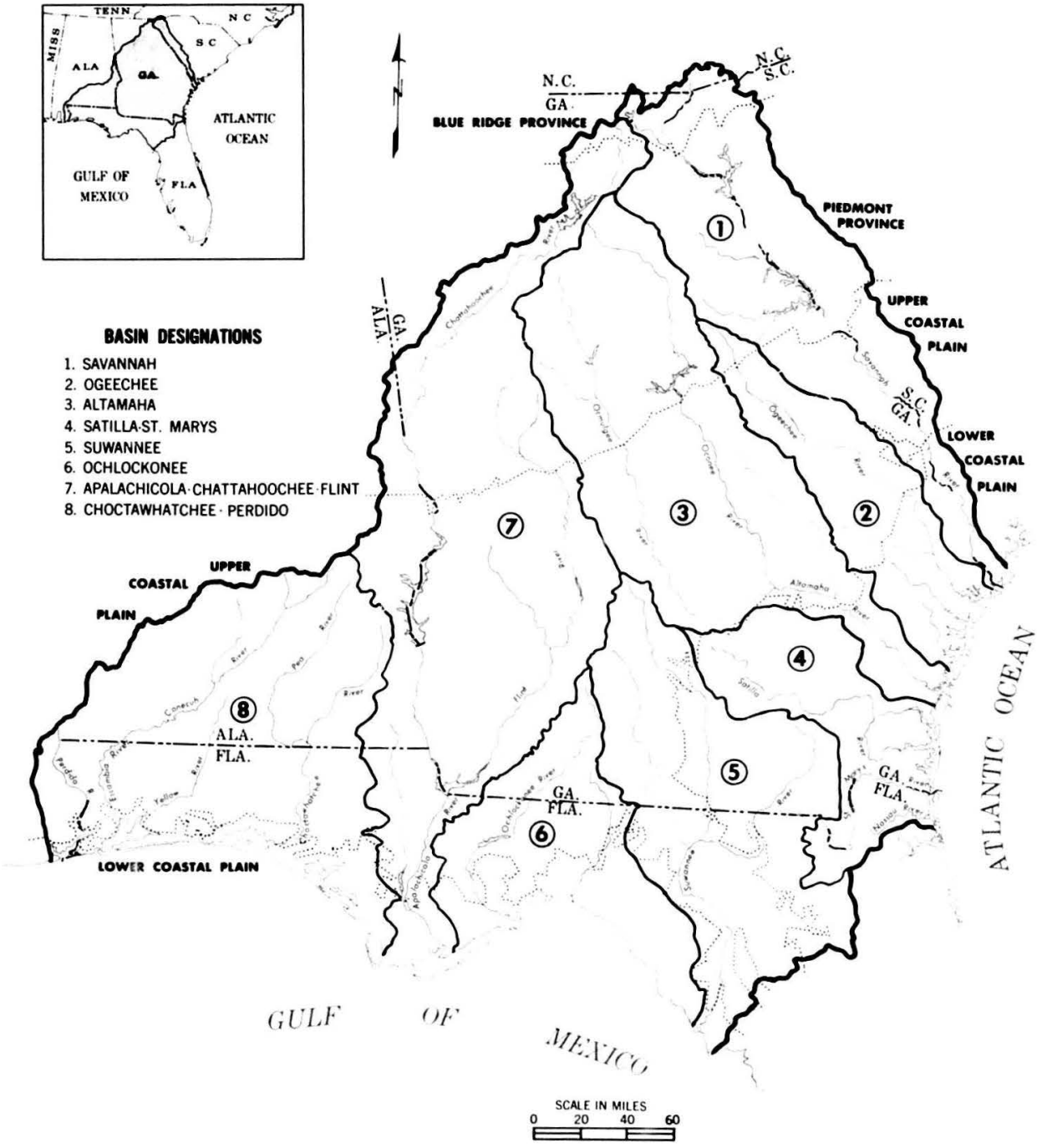


Figure 1.1

PART ONE – INTRODUCTION

SECTION I – OBJECTIVES AND GUIDELINES

Conceptual Framework

Authorizing Act

Economic studies and analyses have been carried out in accord with and in response to the authorizing Act, Public Law 85-850, which called for the development of ". . . a basic, comprehensive, and integrated plan of development of the land and water resources within the area . . ." Public Law 85-850 placed considerable emphasis on the economic characteristics of the desired plan as indicated by the instructions to ". . . seek to secure maximum public benefits for the region and the Nation . . ." and to ". . . take into consideration the financial, physical, and economic benefits of existing and prospective Federal works . . ." The authorizing Act also provided that the Commission include in its plan estimates of benefits and costs, repayment recommendations including consideration of such things as reimbursable and nonreimbursable costs, sources of reimbursement, and power rates and marketing arrangements.

These instructions indicate the general character of the plan desired for development of the land and water resources of the Southeast River Basins area. Under Public Law 85-850, the Congress sought a plan which would bring the physical and economic resources of the Southeast River Basins area into a pattern of use and degree of development consistent with optimum social and economic progress.

General Objectives

The objective of the Commission was to ascertain the maximum contribution of the resources of the study area to the future development, strength, and general welfare of the region, as well as the Nation. Specifically, this involved the making of a cooperative investigation, study, and survey, and the formulation of a comprehensive and coordinated plan as a means of assuring optimum, sustained use of the land and water resources of the region in the light of the overall requirements.

Specific Economic Study Objectives and Criteria

Specific objectives and criteria of economic analysis in the land and water resource development planning were:

(1) The goods or services to be produced by a project have value only to the extent that there will be a need and demand for the product.

(2) The most effective use of economic resources required for a project is made if they are utilized in such a way that the amount by which benefits exceed costs is at a maximum rather than in such a way as to produce a maximum benefit-cost ratio or on some other basis. Maximization of net benefits is a fundamental requirement for the formulation and economic justification of projects and programs. In determining the limit of development, the effect of each additional unit in the plan should be credited or debited with its effect on other units of higher priority in the plan.

(3) The project as well as any separable segment or increment thereof selected to accomplish a given purpose should be more economical than any other actual or potential available means, public or private, of accomplishing that specific purpose. The cost of making the product or service available by alternative means establishes a limit to the justifiable project investment for accomplishing a specific purpose.

(4) From an economic standpoint, the order in which a number of projects is scheduled should be based on their relative effectiveness in use of economic resources.[1] The economic analysis should, therefore, provide data which can ultimately be used for comparing the economic desirability of a number of justified projects. In this comparison, consideration should be given to the relative significance of effects which cannot be measured in monetary terms. It should be recognized also that the selection of a project for development may change the relationship

[1] For further discussion see: Krutilla, John V., *Sequence and Timing in River Basin Development*, Resources for the Future, Inc., February 1960.

and relative effectiveness of remaining projects in the array.

(5) Equitable distribution of project costs to the various purposes of a multiple-purpose development should be obtained by assuring that costs allocated to any purpose do not exceed corresponding benefits; by requiring each purpose to carry at least its separable costs; and, within those maximum and minimum limits, by providing for proportional sharing in accordance with the savings resulting from multiple-purpose development.

The specific economic study objectives were augmented in cost-sharing determinations with these additional goals or criteria: (1) To encourage sound resource development and economic growth and social welfare; (2) to promote maximum efficiency in use of personnel and public funds; (3) to obtain an equitable relationship between the recipient of benefits and the incidence of costs; (4) to prevent waste, unwarranted windfall gains, and inequitable competition; (5) to serve as a check on project desirability and encourage desirable types and sizes of enterprises; (6) to secure consistency between the various purposes of resource development; and (7) to promote public understanding and cooperation in resource development.

Planning Guidelines

The general objective and the specific economic study objectives were supplemented with the following planning guidelines and study procedures.

(1) A comprehensive and coordinated plan for the development of the land and water resources of the Southeast River Basins area through the year 2000 will be presented in the Report.

(2) The comprehensive plan will be recommended for the approval of the President and the Congress and the Governors and legislatures of the States of the study area as a guide to all concerned with land and water resources development.

(3) The plan will set forth an initial action phase to include projects and programs which are found to be needed, feasible, and desirable for accomplishment by 1975.

(4) The initial action phase of the comprehensive plan will be recommended for such additional studies as may be required to support the request for needed approval or authorization and funding in accordance with the normal legislative practices of the designated agency or organization and for its implementation by the Federal or non-Federal entity concerned.

(5) Generally, each of the purposes enumerated in the authorizing Act will be treated as a primary purpose and will be fully integrated into the recommended plan. Treatment of industrial development will be limited to a general indication of development under assumed rates of development of resources and the effects of the future industrial development on the other functions. Recreation studies will be limited to public outdoor recreation related to land and water resources of the type generally not provided by municipalities. Public health studies will be oriented toward determining the effects upon public health associated with the development of land and water resources. Salinity studies will be limited to an evaluation of the salinity problems.

(6) In determining the composition of the recommended plan, each separable component will be considered on the basis of the contribution that it can make in the way of net public benefits to the Southeast River Basins area and the Nation. When intangible or institutional factors play a major part in the consideration of an element of the program, they will be explained as fully as possible in narrative form.

(7) The recommended plan will provide information on benefits and costs, including monetary and nonmonetary values; include information on the expected economic impacts created by the recommended elements of the plan; include general recommendations on cost sharing, reimbursement, and project payout; designate whether recommended developments should be implemented primarily by non-Federal or Federal entities; and designate which of the Federal agencies has the major responsibility for the Federal aspects of a project or program.

(8) The recommended plan will recognize and protect the rights and interests of the States in determining the development of land and water resources and the preservation and protection of established uses.

(9) The recommended plan will include the existing, authorized, and formally proposed

works and programs of the Federal and non-Federal agencies, with proposed modifications limited to those found desirable, feasible, and consistent with the study objectives.

(10) Recommendations will be made for continuing or periodic review of the comprehensive plan at appropriate intervals with a view to keeping the plan current and to prepare a basis for subsequent action phases.

In applying these guidelines and procedures, the studies were conducted in a manner that placed emphasis on: (1) The interrelationships between the several functions; (2) the coordination and integration of those functions into the plan; and (3) the general economic and physical feasibility. The degree of detail was guided by the overall appraisal of the future economy of the area and the role of the several functional programs in the long-range development.

Application of Objectives, Guidelines, and Procedures

The economic studies undertaken including those performed under contract were, to the fullest extent practicable, responsive to the provisions of the law and the general and specific objectives and planning guidelines. The economic aspects of the planning task were developed sufficiently to provide general guidelines for the scale, sequence, and timing of development plans. Many considerations, including social, institutional, and physical factors, had an important role in shaping the plan. In emphasizing economic efficiency as a planning goal, the need to develop those projects and programs which could meet the projected resource development requirements in the most efficient manner was recognized. The general scope of studies undertaken was not of sufficient detail to establish conclusively that every project and program in the plan does, in fact, represent the most effective development possible.

General Methodology

A substantial portion of the economic analyses was made by private, State, and Federal cooperators. The Commission professional staff was limited to a small number of experienced persons who served in liaison with the numerous cooperators and arranged for needed studies. The work involved in the economic studies was performed in this manner by working with qualified individuals, consultants and cooperators, State agencies, educational institutions, and Federal departments, agencies, and commissions.

Advice, counsel, and guidance in the conduct of economic studies were obtained through the Economics Steering Group and the Industrial Economics and Agricultural Economics Advisory Committees. Economists or other qualified specialists from each of the four States and six Federal agencies represented on the Commission were included in these groups. Also, the services of special economic consultants who aided in special studies and report reviews were obtained.

Economic analyses were an integral part of the four-step planning approach as outlined in Appendix 12, Planning. The four steps are:

(1) Basic inventory of the area resources, existing developments, and current needs;

(2) projections of the future economy of the Southeast River Basins area and the Nation as a basis for determining needs and requirements for resource development in the year 2000 and intervening years;

(3) preparation of a single-purpose means for meeting the needs of each principal purpose to be served by land and water development; and,

(4) development of a unified comprehensive plan to meet recognized needs for purposes specified in the authorizing Act.

For study purposes, the total 88,000-square-mile Southeast River Basins area was divided into eight river basin areas: (1) Savannah, (2) Ogeechee, (3) Altamaha, (4) Satilla-St. Marys, (5) Suwannee, (6) Ochlockonee, (7) Apalachicola-Chattahoochee-Flint, and (8) Choctawhatchee-Perdido. Basic inventory studies, projections, and plan development were made for the total study area and for each of the eight major river basins. (Figure 1.1)

An economics work plan outline was developed with the advisory assistance of members of the Economics Steering Group. (Committees and advisory groups are described in Appendix 13, History and Organization of the Commission.) This outline provided for economic studies to be made that would: (1) Project the development of the study area as a basis for resource planning; (2) determine the overall requirements for resource development and establish an economic framework within which resource

programs are to be planned; (3) assist in the development of single-purpose and multiple-purpose plans by providing uniform standards, techniques, and procedures for use throughout the planning process; (4) present an economic evaluation of comprehensive basin plans; and, (5) study methods for the repayment of project costs and for recommending policies, techniques, and procedures for cost sharing and financing.

Specific economic studies made through the services of various State and Federal agencies and private contractors are presented in Part Two of this Appendix.

Principal Economic Guidelines

The essential starting point for resource development planning is a clear understanding of the needs to be served. The basic economic studies were designed to provide a factual basis for inventorying the area resources and to give an adequate insight into the major economic problems of the area. Through economic studies, the present and projected future economy of the Southeast River Basins area was related to the projected economic growth of the Nation and present and future needs for land and water development established. The term "need" has economic as well as physical meaning. The level of need reflects the judgment determinations of planning specialists familiar with local, regional, and national standards of living. To the extent practical, needs were expressed in quantitative terms related to units of land and water resources deemed necessary or desirable. In certain material furnished the Commission, "needs" were reported as physical needs without regard to the full economic significance of the term as used in this study. Every reasonable effort was made, in these cases, to adjust the reported needs to make them compatible with other study needs before they were adopted as planning objectives. Primary indicators used in projecting economic growth as a basis for determining needs follow.

Population

The primary purpose of planning is to meet the needs of the people. Thus, the number of people to be served within the area and in the region and the Nation was a fundamental basis for estimating the needs for food and fiber production, leisure-time activities and facilities, water supply, pollution abatement, and other purposes included in the comprehensive plan. The projected magnitude of the population together with its characteristics and distribution was, therefore, a fundamental criterion of establishing resource development needs and plans for comprehensive project and program development.

Employment

Projections of employment for the study area reflect the anticipated activities of the projected population. Employment projections by major industry groups were utilized in estimating needs such as industrial water supply, electric power, flood control, and navigation, and for a number of other purposes. The employment projections were developed in two ways: (1) As a derivative from population projections with an assumed size of labor force and unemployment rate, and (2) by determining current numbers employed and projecting the future employment by industry groups. Both methods required a consideration of resource potentials and economic growth possibilities of the Southeast River Basins area and of the individual river basins in the area under a set of controlling assumptions. Thus, the employment projections were utilized in determining resource needs for a number of the purposes included in the comprehensive plan. Of equal or greater importance, the employment projections also became the goal or objective of land and water resource and other area development.

Income

Projections of both total personal income and per capita income are an integral part of anticipating the future economy of the Southeast River Basins area and as such are vital elements in establishing resource needs. The projected magnitudes of personal income and the levels of per capita income were used as a criteria of resource needs, particularly in terms of anticipated consumption, investment and savings as used in determining agricultural production requirements, leisure-time activities, and industrial development.

Agricultural Production Requirements

Projections of agricultural production needs are a major factor in delineating land-use requirements as reflected in the magnitude of

programs included in the plan for irrigation, drainage, soil conservation and utilization, and forest conservation and utilization. The needs for these programs are not based on the maximum physical capacity of the land to produce food and fiber but are geared to the share of future national production requirements. The share assigned to the Southeast River Basins area is based upon past relationship of the area production to national production, expected future production trends, and available resources in the area.

Economic Problems

From the basic economic studies, including the development of the preceding primary economic indicators, and other activities such as public hearings and contacts with people in the local areas, the major economic problems of the Southeast River Basins area were delineated as follows:

(1) Low per capita income, per capita disposable income, and personal savings in relation to the national average;

(2) insufficient employment opportunities in many areas;

(3) low rate of population growth compared to more progressive areas of the Nation, due largely to loss by out-migration;

(4) depressed agricultural economy with significant underemployment of resources;

(5) relatively large amount of unemployment and underemployment of both people and resources, varying widely in magnitude throughout the study area; and

(6) large numbers of low wage, low value-added manufacturing industries and community dependence on single industries of this type.

These broad economic problems were considered in developing the plan and evaluating its anticipated effects in terms of improving the area economy.

SECTION II – ASSUMPTIONS AND WORKING PROCEDURES

Assumptions

Basic Assumptions

In view of the large numbers of individuals, institutions, organizations, and agencies participating in the development of basic data, projections, and plans, it was particularly important that all studies should utilize the same guidelines and controlling criteria. The plan of the Commission is based on a set of controlling assumptions and working procedures arrived at after much deliberation and careful consideration by staff members, cooperating agencies, consultants, steering groups, and work group members.

The basic general assumption adopted concerning population was that the national population will continue to increase at a rate reflected by the following assumptions: (1) The 1955-57 average fertility level will remain constant to 1975-80, then decline to the 1949-51 level by 2000-2010; (2) there will be moderate declines in mortality to the end of this century; and (3) net in-migration from abroad will be constant at about 300,000 per year.

Projections of State and area population were made in conformance with the national population assumptions but with primary regard to conditions reflected by study and analysis of the Southeast River Basins area. This led to the conclusion that migration may be expected to shift from a negative to a positive force in the Southeast River Basins area population growth around 1980.

With regard to the general economic environment, the assumptions are that there will be a continued upward trend in employment and production, with higher per capita income, and for analysis purposes, a stable general price level is assumed at the national level. The upward trend in population, employment, and production will be accompanied by upward trends in total volume of consumption and international trade. This will be accompanied by a continued trend toward relative stability of the international situation with no significant worsening of the cold war and no widespread outbreak of hostilities. It is further assumed that government policies and programs will be consistent with the foregoing assumptions to the extent that economic growth and development of resources necessary to that growth will continue to be implemented and encouraged.

In conjunction with these basic assumptions, a further premise is that the economy of the

Southeast River Basins area and the Nation will continue to be based on a free enterprise system with the Federal Government and non-Federal interests cooperating in encouraging and implementing economic growth and development throughout all segments of society and all areas of the Nation.

Other Assumptions

Additional assumptions are as follows.

(1) Land and water will be available for the proper development of other resources in the Southeast River Basins area as a whole.

(2) A stable general price level will prevail and all cost and benefit values used throughout the studies will be expressed in constant dollars.

(3) Prices prevailing during an appropriate period ending approximately January 1960 reflect both the general level of prices as well as price relationships anticipated during the planning period, with the exception of agricultural commodity prices which it is assumed will rise to a parity level of 89. Minor adjustments were also made in anticipation of some increase in the price of a few farm production items, particularly labor.

(4) The level of education, training, and skills of the people generally and the labor force specifically will continue to improve.

(5) Investment capital required to attain projected industrial growth and resource development will be available.

(6) Consumer incomes will have risen to such a level by 1975 that most consumers in the United States will be eating the kind and amount of food they desire and changes in per capita demand for farm products due to changes in income will be negligible after 1975.

(7) An unemployment rate of about 4 percent of the civilian labor force in the Southeast River Basins area will prevail during the projection period.

(8) The per capita income gap that exists between the Southeast River Basins area and the Nation will continue to close at a rate comparable to that experienced from 1948 to 1957. Under this assumption, the per capita income gap as expressed in percentage of the Southeast River Basins area to the Nation is projected to close from 71.2 percent in 1960 to 82.9 percent in 2000.

SECTION III – APPLICATION OF POLICIES

Use of National Policy Guides

A number of national policy guides were considered in the development of projects and programs. Proposed Practices for Economic Analyses of River Basin Projects, prepared by the Inter-Agency Committee on Water Resources, May 1958, and the Report of the Select Committee on National Water Resources, 87th Congress, 1st Session, 1961, were used. Senate Resolution 148, adopted January 28, 1958, as modified by Senate Report 1154, 85th Congress, 1st Session, was considered. The Bureau of the Budget Circular No. A-47, dated December 31, 1952, and Senate Document 97, 87th Congress, 2d Session, 1962, entitled "Policies, Standards, and Procedures in Formulation, Evaluation and Review of Plans for Use and Development of Water and Related Land Resources," prepared under the direction of the President's Water Resources Council were also considered. Cognizance was also made of the paper entitled "Cost Allocation," dated March 12, 1954, expressing agreement reached by the Corps of Engineers, the U. S. Department of Interior, and the Federal Power Commission, on the procedures to be used in allocation of costs of multiple-purpose projects. Other national policy statements were used to the degree that they had a bearing on the work of the Commission. These included Land and Water Resources, A Policy Guide, U. S. Department of Agriculture, May 1962, and the two statements of national transportation policy entitled "Federal Transportation, Policy and Program," March 1960, and "Rationale of Federal Transportation Policy," April 1960. The President's Message on Transportation, April 1962, was also considered.

Commission Policy Statements

A number of specific policy guidelines were established in order to provide specific direction and guidance on the numerous subjects of concern in economic and financial evaluation. Included were policy papers on such subjects as:

Measurement aspects of benefits, secondary benefits, period of analysis, interest rates, cost allocations, and cost sharing.

A discussion and explanation of each of these policy decisions and their application are presented in Part Four and Part Five of this Appendix.

Priority of Policy and Guideline Statements

As studies progressed and the need for consistency in application of policies and procedures became more apparent, the following priority list was established for application of various policy statements, procedures, and agreements.

(1) U. S. Study Commission policy statements.

(2) Functional and basic work plans, technical supplements, and work agreements or contracts and written instructions from the Office of the Executive Director, U. S. Study Commission, within the framework of (1) above.

(3) Report of the Federal Inter-Agency Committee on Water Resources, "Proposed Practices for Economic Analysis of River Basin Projects," prepared by the Subcommittee on Evaluation Standards, May 1958, for economic aspects of planning only.

(4) Agreements between agencies having primary interest in the matter under consideration (other than jurisdictional).

(5) Manuals or other policy and procedural statements of the cooperating agencies.

(6) Current practice of the cooperating agency.

SECTION IV – PRACTICAL CONSIDERATIONS IN CARRYING OUT WORK

Limitations of Data, Facilities, and Time

Much of the information essential to developing a sound economic framework as a basis for resource planning was available but not in the form required for the Commission studies. Organizing the planning effort around the eight principal river basins, the physiographic provinces, and by States made it necessary to rework much of the published basic data. Several basic studies such as the 1959 Census of Agriculture, 1960 Population Census, the U. S. Department of Agriculture Conservation Needs Inventory, and the U. S. Senate Select Committee studies on water resources were in process but not available for use in the early stage of the study undertaken by the Commission.

Certain basic data for economic studies were not available in usable form. For example, current year-county summaries of personal income data were not available for all States. No information was available by counties on construction activities as reflected by value of building permits. Data concerning industry location were meager. Research findings on relative economic efficiencies and comparative area advantages of pertinent commodities and economic endeavors were not available. Interpolations, extrapolations, and judgment determinations were used to fill gaps or voids in basic data.

A further limiting factor in the economic studies was that personnel were not available in several of the key cooperating agencies at the time the studies were getting underway. Prior commitment of personnel in these key agencies to other studies made it impossible for them to take on assignments for the U. S. Study Commission.

The limits of a tight schedule necessary for completing the Report by the date established by the Commission were at times critical. Although it would have been desirable to have firm and final economic framework data including projections available at the start of planning activities, this was not possible. It was necessary for plan formulation and other planning activities to proceed more or less concurrently with the development of basic economic studies. This led to early decisions which required adjustments later in the studies.

Coordination of Data

During the course of the studies, it was inevitable and yet desirable that there be some overlap of studies by different contracting agen-

cies. As a result, several viewpoints were received on a given subject and in a few instances there were divergent views. In such instances, an attempt was made to be fully objective and to resolve any such differences of opinion or to document the basis for the final decision reached.

One difficult aspect of the work of coordinating study results secured from different agencies was to maintain a quality control that would make the combined studies of uniform value. Some studies were of detailed nature whereas others were necessarily of reconnaissance type. Limitations of time and funds made it necessary to work out these disparities in depth and quality.

Details regarding comparability of data and procedures by which coordination was affected are further discussed in Appendix 12, Planning.

PART TWO – BASIC ECONOMIC STUDIES

The initial step in developing the plan was to obtain an inventory of the land and water resources and resource problems of the area and an approximation of the potentialities and need for further development and utilization of these resources. This inventory was acquired from many sources at the local, State, and national levels in order to assure recognition and consideration of all interests involved.

The studies in this Section were designed to provide basic data relative to the current and future economy of the area. Results from these basic studies and the single-purpose studies, as well as information and counsel of the functional committees and advisory groups, were used in developing the economic projections. The basic data together with procedures by which they were assembled are presented as the Economic Framework in Part Three of this Appendix.

The basic economic studies described in this Part are arranged generally in the order of their initiation. Although the sequence of completion varied to some extent, the use of data and information from the studies was generally in the same order.

SECTION I – INITIAL ECONOMIC FRAMEWORK STUDIES

The purpose of the basic studies was generally threefold: First, to furnish a general inventory of information concerning the resources of the area; second, to furnish an evaluation of the potentialities of the resources of the area and to provide information concerning problems associated with developing and utilizing these potentials; and third, on the basis of analyses of the resources and potentials of the area, to project the broad parameters of the future economy of the area. These projections provided the broad overall framework within which many of the single-purpose needs were estimated and long-term comprehensive plans formulated for optimum utilization of resources.

The work of the initial studies was divided between the agricultural portion of the area economy and the nonagricultural portion. Contracts were made with the land-grant colleges in Alabama, Georgia, Florida, and South Carolina for data on the agricultural resources and with the Georgia Institute of Technology for the nonagricultural activities and resources. The other initial agricultural studies were done by agencies of the U. S. Department of Agriculture.

Agricultural College Studies

These studies provided basic inventory data of the agricultural characteristics of the study area and the basin segments. The studies consisted of three major parts. The first part was a detailed summary of inventory data by individual river basins, counties, and physiographic provinces. All inventory data were appropriately delineated by these component areas and summarized by States.

The primary source of data was the 1954 Census of Agriculture, but other sources were utilized including the files of the colleges as well as other State and Federal agencies.

Inventory data were assembled on pertinent characteristics of agricultural, forest, and related land and water resources. This included detailed characteristics and statistics of the distribution and use of these resources. Also included were detailed characteristics of farm people, farming activities in relation to the use of land and water resources and production, gross receipts, and net income.

The second part was concerned with an enumeration and evaluation of certain resource development prospects and problems. The technical resources of the institutions were drawn upon for information and data. A wide variety of information was assembled on land-use adjustments, production technology, tenancy and own-

ership patterns, and legal, social, and institutional factors involving land and water resources use primarily relating to agriculture.

The third part was concerned with projections to 1975 and 2000 of future agricultural land and water utilization based on past trends and an evaluation of the potentials of the area. The facilities of the institutions and other cooperating local, State, and Federal agencies were drawn on heavily in this phase of the work. Therefore, the projections of future land and water resources use and needs for agricultural purposes represented, to a large extent, a consensus of professional knowledge of specialists familiar with the local area.

These data, when coordinated and adjusted by subsequent studies, were used in developing the agricultural component of the Economic Framework presented in Part Three.

The reports prepared for the Commission by the four land-grant colleges are:

(1) *Agricultural Resources in the Savannah River Basin of North and South Carolina,* Part I, Survey Report and Projections; Part II, Inventory Tables, Department of Agricultural Economics and Rural Sociology, South Carolina Agricultural Experiment Station, Clemson College, Clemson, South Carolina. G. H. Aull, Project Coordinator; W. H. Faver, Jr., Project Leader.

(2) *Agricultural Resources in the Southeast River Basins of Georgia,* Department of Agricultural Economics and Georgia Agricultural Experiment Stations, University of Georgia, College of Agriculture, Athens, Georgia. J. W. Fanning, Project Coordinator; Dr. Roy Proctor, Project Leader; Robert Miles and Kelly White, Assistant Project Leaders.

(3) *Agricultural Land and Water Resources, Uses, Needs, and Potentials, SERB*[1] *Sub-Areas 7 and 8—Alabama,* (Appendix tables in two volumes), Department of Agricultural Economics, Agricultural Experiment Station, Auburn University, Auburn, Alabama, July 1960. Ben T. Lanham, Jr., Project Coordinator; J. Homer Blackstone, Project Leader; Harrison M. Bryce, Assistant Project Leader.

(4) *An Economic Evaluation of Agricultural Resources in Five River Basins of North and West Florida,* A report to the United States Study Commission, Southeast River Basins, Department of Agricultural Economics, Florida Agricultural Experiment Stations, Gainesville, Florida, August 1960. Dr. H. G. Hamilton, Project Coordinator; Charles D. Covey, Project Leader.

[1] Southeast River Basins.

Coordination and Adjustment of College Studies

The preliminary college studies, together with the associated extension of these studies, were related to a coordinated set of objectives, working procedures, and methodology. However, each of the four land-grant colleges carried out its study for its respective area independently.

When the results of the four agricultural studies and the results of the Georgia Institute of Technology study of the nonagricultural part of the area economy were submitted to the Commission, coordination of all related data was necessary. The coordination primarily involving the agricultural studies was done by contract with Auburn University under the direction of Professor J. Homer Blackstone.

In addition to coordination and adjustment of the data developed by the agricultural studies, this work also included coordination of more recently available data. As soon as the data of the 1959 Census of Agriculture were available, the preliminary data based on the previous Census were appropriately updated.

Coordination and integration of the data of the preliminary agricultural studies provided a basis for assimilation of basic data for the Southeast River Basins area as a whole as well as all its component areas. The data were assembled by river basins, physiographic provinces, and State portions of the area.

Final coordination of these data covered all basic data which had been completed. This involved coordination and adjustment of data from the college studies with data subsequently furnished by the special studies done by Economic Research Service, Forest Service, Soil Conservation Service, and other agencies. This coordination and final adjustments of the basic data provided most of the agricultural component of the Economic Framework presented in Part Three.

Nonagricultural College Studies

Work plans and procedures for these studies were developed in conjunction with the agricul-

tural college studies, and with these, constituted preliminary coverage of most all basic economic activities. The purpose and procedures for the nonagricultural college studies were essentially the same as for the agricultural college studies. Basic economic data were assembled by the contractor and compiled and arranged in a form readily usable and directly related to the study area and its component river basins.

The Industrial Development Branch of the Engineering Experiment Station of the Georgia Institute of Technology carried out the initial basic economic studies of the nonagricultural sector of the economy of the study area.

First, these studies included an inventory of resources and economic activity including urban land and water use, population, employment, income, and other aspects of industrial activity. This phase of the studies included not only current data but also data reflecting trends over recent decades. The data were not limited to the study area but, where appropriate, were related to regional and national levels of the economy.

Second, these studies covered an evaluation of problems and potentials relating to development and utilization of the resources of the study area. Both the inventory data and information relative to problems and potentials were drawn from a variety of sources. Under the provisions of the contract, the facilities of the Georgia Institute of Technology, including several departments and faculty specialists, were available for consultation and cooperation. In addition, both data and information were obtained from other local, State, and Federal agencies whose work and interests are related to the various subject-matter fields.

The last phase of these studies constituted development of projections for the years 1975 and 2000. These projections were the product of all the work and were based directly upon the assembled data and analyses of potentials. These projections were the first approximations of resource requirements, use, and related economic activities over the planning period to the year 2000.

The results of these studies, when coordinated and adjusted by subsequent studies, were used in developing the Economic Framework. The report of this study is entitled:

Industrial Resources and Potentials of the Southeast River Basins, Industrial Development Branch, Engineering Experiment Station, Georgia Institute of Technology, August 1960. Dr. Kenneth C. Wagner, Project Coordinator; Lamar White, Project Director.

Section A—Land Use Patterns and Planning Activity, Thera H. Richter.

Section B—Mineral Resources Review, John E. Husted.

Section C—Water Resources, Robert S. Ingolls.

Section D -Population and Labor Force, John L. Fulmer.

Section E—Employment, Lee A. Dudley, John L. Fulmer, Walter Kennon, Lamar White.

Section F—Personal Income, John L. Fulmer.

Section G—Disposable Income, Consumption, and Savings, Walter Kennon, Lee Dudley.

Section H—Economic Indicators for Major Functional Segments of the Economy, Lamar White.

Section I—Summary of Recent Trends in Economic Growth and Development, Lamar White.

Section J—Economic—Statistical Projections, John L. Fulmer.

Section K—Mathematical – Economic Projections, Ernst W. Swanson, Walter Kennon, Thera Richter.

Section L—Economic Development Potentials by River Basins, Lamar White.

Special Forestry Studies

As a part of the basic inventory of the resources of the study area and an analysis of the potentialities, the Forest Service of the U. S. Department of Agriculture furnished basic information relating to potential timber supplies and forest industrial development in the Southeast River Basins area.

This study was carried out in general conformance with assumptions and procedures established by the Commission for all basic studies. In summary form, the study was designed to furnish data and information of the following nature.

(1) Background information on the present forest resource situation and forest industries pertinent to the development of growth projections;

(2) projections of potential growth and the character of the timber that might be achieved in the Southeast River Basins area by 1975 and 2000 under alternative management assumptions, including a comparison with the growth needed to supply a reasonable share of potential national demands for timber; and,

(3) projections of the potential growth of forest industries measured in terms of employment, payrolls, and value added by manufacture that could be supported in the Southeast River Basins area by the timber growth achieved under the alternative management assumptions.

The alternative assumptions referred to above indicate the assumed management levels used for all projections of growth and forest supplies. These were (1) prospective management and (2) high-level management. These basic projections were also analyzed by the various forest types and by the following site categories.

(1) Good – capable of producing 85 or more cubic feet per acre annually.

(2) Fair – capable of producing 50 to 85 cubic feet per acre annually.

(3) Poor – capable of producing less than 50 cubic feet per acre annually.

The basic projections of forest production were further converted to an average per acre basis in order that adjustments might be conveniently made if the results of all basic studies warranted some adjustment of land-use distribution anticipated over the planning period.

This study also provided information on the output of timber products in the Southeast River Basins area, the economic importance of forest industries in the area, and projections of the employment and income that might be supported if the projections of timber growth are realized.

This analysis and the projections covered the following major forest industries.

(1) Logging or other harvesting of forest products and management of forest lands,

(2) lumber and other related wood products plants, and

(3) pulp and paper plants.

Estimates of employment, payrolls, and value added by manufacture were provided for the years 1975 and 2000 under the assumed conditions. These data were supplemented by a narrative discussion of trends in the major categories of economic activities relating to forestry. These were (1) pulpwood, (2) lumber, and (3) other products.

These basic data and supporting information were used in developing the Economic Framework. Results of this study are summarized in a report entitled:

Potential Timber Supplies and Forest Industrial Development in the Southeast River Basins, prepared by the Forest Service, U. S. Department of Agriculture for the U. S. Study Commission, Southeast River Basins, February 1961.

Soil and Water Conservation Needs Inventory

An inventory of study area agricultural lands was carried out during 1957-59 as a part of a Nationwide Inventory of Soil and Water Conservation Needs made by the U. S. Department of Agriculture. It reflects land conditions as of January 1958. The inventory was scheduled for completion during the latter part of 1959 when the Commission basic studies were being initiated.

Arrangements were made with the U. S. Department of Agriculture to provide these basic data as early as possible in order that they could be used in conjunction with the college studies and subsequent Commission work.

Arrangements were made for the statistical laboratory of Iowa State University to make special tabulations of the basic data for the Southeast River Basins area by major river basins, State segments, physiographic provinces, counties, and county segments.

The basic data tabulated and arrayed for the area and its component parts consisted of (1) land capability units and land-use combinations, and (2) soil type and slope, erosion, areas of unfavorable soil and moisture conditions, and land-use combinations.

The Soil Conservation Service assisted with the analyses and interpretation of these data and provided relevant evaluations including such items as definitions, basin summaries of land physically suitable for irrigation, and listing of acreages needing conservation treatment by land uses, natural drainage conditions, land use, erosion conditions, and other physical soil limitations.

The national and local assumptions, under which the National Inventory of Soil and Water

Conservation Needs was carried out, were generally compatible with the Commission assumptions. Appropriate adjustments were made to make all basic data compatible.

Tabulations summarizing these basic data were provided the college cooperators for use in the preliminary studies, and these data together with additional information from the national inventory were provided by the Soil Conservation Service for use in subsequent studies and analyses involving the planning and evaluation procedures.

In addition to the basic tabulations provided by the statistical laboratory, the Soil Conservation Service provided inventory summaries for each of the States of the study area.

SECTION II – SUPPLEMENTARY ECONOMIC FRAMEWORK STUDIES

Supplementary Agricultural Studies

The initial college studies provided preliminary estimates which were useful as broad overall guidelines for the single-purpose functional studies. However, additional studies designed to complement the initial studies were completed as early as possible. The research facilities of the Economic Research Service of the U. S. Department of Agriculture were utilized to carry out several phases of this work.

Projections of Agricultural Production Requirements and Agricultural Prices

In conformance with the recognition by the Commission of the close relationship of the area economy to that of the Nation, basic studies included the development of major economic parameters at the national level. The Economic Research Service developed initial projections of agricultural production requirements under the basic assumptions of the Commission. These projections were developed for the national level and then derived for the Southeast River Basins area for the years 1975 and 2000.

The projections of agricultural production needs were a result of a compilation and analysis of secondary data and consultation with numerous agricultural commodity specialists in the Agricultural Marketing Service and the Economic Research Service. Some material was derived from the report on *Land and Water Potentials and Future Requirements for Water,* Committee Print No. 12 of the Select Committee on National Water Resources, United States Senate, December 1959.

Ideally, a regional projection of production needs would specify the quantity of given products from the region that would permit and facilitate the achievement of national production requirements at minimum cost. It would specify a pattern of production and distribution that would satisfy future markets at the lowest expenditure of economic resources. Economic data, currently available at the time, were not adequate for a comprehensive and detailed analysis. For this reason, information was obtained by judgment considerations based on (1) national and regional production trends and (2) consultation with commodity specialists concerning prospective shifts in production and distribution.

In the analysis and evaluation of the agricultural resource potentialities of the study area, it was necessary that projected agricultural prices be developed in conformance with the basic assumptions of the Commission. In order to fulfill this need for projected prices, the Economic Research Service adjusted price and cost projections which are outlined in the price projection pamphlet issued by the U. S. Department of Agriculture dated September 1957. Adjustments were made to reflect Commission assumptions and to reflect significant changes in wage rates.

Projections of Georgia prices were used rather than projections of individual State prices for the portions of other States in the study area. Georgia price projections were updated based on current price deviations of average commodity prices from the index base used in the 1957 pamphlet for the Nation as a whole.

These projections of agricultural prices paid and prices received by farmers were utilized in subsequent work of the Commission and were the basis for pertinent computations of values included in the Economic Framework.

The report submitted by Economic Research Service is:

Projections of Agricultural Production Requirements and Prices for the Southeast River

Basins, 1975 and 2000, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture, prepared by William A. Green and Wayne F. Ehlers.

Development of Normalized Yield Data

Normalized yields were developed to provide a basis for evaluating planning efforts. Normalized yields as expressed in the Report are individual farm enterprise yield estimates from which annual and short-run variations were removed. The Economic Research Service developed these basic data which were used to assist in the formulation and evaluation of plans for development and utilization of the agricultural resources of the study area.

The yield data were prepared for the year 1960 and projected for 1975 and 2000 for major soil groups and three levels of farm management by physiographic province for major enterprises.

The normalized yields represent averages for each management level group and each soil group. Individual variations about the averages may be great; however, adequate data were not available for delineating this variability over the planning period.

Normalized yield data were used in the development of other study items and were especially useful in determining total production. They were used as a basis for subsequent analyses leading to development of the agricultural components of the comprehensive plan.

The report summarizing results of this study is:

Normalized Crop and Pasture Yield Estimates (Current 1960, and Projected 1975 and 2000), Southeast River Basins Study Area, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture, prepared by C. V. Lyle and T. G. Toon.

Development of Agricultural Production Cost Data

The Economic Research Service developed production cost data which were used to assist in evaluating potentials and in deriving benefits from agricultural programs. The data were provided in the form of curves in order to assure flexibility of use.

Current production cost data available from land-grant colleges and cooperating agencies were summarized and translated in terms of the Southeast River Basins area projected unit prices. They reflect total production costs, except land and management charges, for each of the major crop and pasture enterprises, or groups of enterprises, found in the Southeast River Basins area. In addition, it was assumed that:

(1) Technological advances will continue—in terms of new inventions or discoveries as well as in improvement in the existing practices;

(2) the percentage of farm operators adopting new and improved technology at all management levels will continue to increase to 1975 and the year 2000;

(3) farms will continue to increase in average size in such a manner as to realize certain efficiencies in production due to size;

(4) continued advances in the general education level among all farm operators and similar influences which increase the efficiency with which farm operators at all management levels utilize production inputs will continue to increase; and,

(5) the present relationship among average management level, average yield, and average production cost will continue.

Estimates of average production efficiency expected to occur in the area by 1975 and the year 2000 due to technological advances were estimated jointly by Economic Research Service personnel participating in this study and appropriate members of the staff of the Georgia Experiment Station, Experiment, Georgia.

The direct costs of drainage, irrigation, flood control, and similar items which were designated by the Commission as functional study items were not reflected in these cost data. Efficiencies due to farm size are shown in a table of factors by basins and physiographic provinces. By applying these factors to the appropriate cost data, increases or decreases in production costs due to efficiencies of farm size were reflected.

These basic data were furnished to the Commission for use in the functional studies and subsequent formulation and evaluation of the comprehensive plan. The data were summarized and submitted to the Commission in a report entitled:

Projected Production Costs, Major Crops and Pasture Enterprises, 1975 and the Year 2000, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture, pre-

pared by C. V. Lyle, T. G. Toon, and J. P. Biniek.

Tabulation of Land Use by Soil Group Distribution

The initial land-grant college studies provided a wide range of information and data concerning the agricultural resources of the study area. These data were assembled and coordinated into a preliminary framework as a general guideline for the single-purpose studies. The data were based primarily on the 1954 Census of Agriculture and other secondary data.

Although this provided detailed data on agricultural production and land use by acreage and farm enterprises, it did not provide land-use data by soil group distribution. Inasmuch as land-use adjustment to the most efficient and adaptable soil types was a major consideration in planning for development and utilization, this type of basic data was essential.

It was anticipated that certain land-use adjustments would be the most economical and desirable method of meeting the increased production requirements. In order to evaluate these changes in land use, an analysis of land use by soil groups was made.

The Economic Research Service of the U. S. Department of Agriculture tabulated the major land uses by soil groups in accordance with the relationship found in the Conservation Needs Inventory of the U. S. Department of Agriculture. The distribution of individual crop enterprises by soil groups was a further refinement of the cropland category of the major land-use distribution. This was utilized by the Economic Research Service in developing estimates of total production in the study area based on soil groups — enterprise relationships and normalized yields.

The soil group distribution tabulations were submitted to the Commission in a report entitled:

Projected Land Resources Expected to be Available for Production in the SERB Area for Years 1975 and 2000, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture, prepared by C. V. Lyle, J. P. Biniek, and T. G. Toon.

Other Work by Economic Research Service

In addition to the basic studies, the Economic Research Service of the U. S. Department of Agriculture developed data and information helpful in plan formulation and evaluation. These items of work were:

(1) Production Potentials for the Agricultural Functions—Preliminary agricultural studies indicated that food and fiber production requirements could be met with continued improvement in the development and utilization of the agricultural resources. As the single-purpose studies progressed, alternatives for resource development were proposed to assist with the evaluation of individual planning functions. Data were developed to reflect the production response of flood control, drainage and reclamation, irrigation, and soil conservation and utilization proposals. With the use of basic data on normalized yields and land use and crop distribution by soil groups, total production was computed for the functional proposals in combination.

The computations reflected total production and the magnitude of the contribution of each functional alternative. Thus, technological improvements and other factors were considered. Production response due to the individual functions (flood control, drainage, etc.) was based on estimates made by a group of specialists familiar with conditions existing in the area.

These data were used to assist in selecting alternative functional activities considered to be the most practicable and efficient ways of meeting production requirements and utilizing resources.

These data are contained in a report entitled:

Total Production With and Without Accelerated Program, Economic Research Service, U. S. Department of Agriculture, prepared by T. G. Toon, J. P. Biniek, and C. V. Lyle.

(2) Net Returns and Maximum Resource Investment—To assist in evaluating further the effects of the various functions, the Economic Research Service developed data showing net returns due to drainage, irrigation, flood control and/or drainage, and to capitalize these returns to reflect a maximum resource investment amount. The maximum resource investment values or capital values of the annual returns served as a guide in formulating agricultural functional plans within the realm of economic feasibility.

The residual returns were based on responses due to specific functions such as drainage, irrigation, and flood control. The data were based

on yield responses and average costs of production at the various production levels. Data were developed by crop enterprises, soil groups, and basins.

The data were considered in making adjustments in acreage which would be affected by irrigation, drainage, and flood control as the comprehensive plan was formulated. The report summarizing these data is:

Maximum Resource Investment Based on Capitalized Residual Returns, Economic Research Service, U. S. Department of Agriculture, by J. P. Biniek, T. G. Toon, and C. V. Lyle.

(3) Illustrative Farm Budgets — A series of farm budgets was developed by the Economic Research Service to illustrate changes in farm size, organizational changes, and the adoption of technology.

Data obtained from a mimeographed publication Series NS 74, entitled, *Resources and Incomes of Rural Families in the Coastal Plain Area of Georgia,* were utilized in developing these farm budgets. Other sources included: *Normalized Crop and Pasture Yield Estimates (Current 1960, Projected 1975 and 2000), Southeast River Basins Study Area,* and *Projected Production Cost, Major Crop and Pasture Enterprises, 1975 and the Year 2000* which are previously mentioned reports of the Economic Research Service, and estimates made by a group representing the U. S. Department of Agriculture and the University of Georgia.

These data are illustrative and are designed to assist in evaluating the overall effects of functional alternatives considered in formulating the agricultural plans.

The report summarizing results of this work is:

An Analysis of Costs and Returns on Selected Farms by Size, Type and Production Level (Projected Conditions 1975), Southeast River Basins Area, Economic Research Service, U. S. Department of Agriculture, by C. V. Lyle.

Supplementary Industrial Studies

Georgia Institute of Technology

When the preliminary nonagricultural studies were completed, the Georgia Institute of Technology continued work on supplementary industry studies designed to provide more detailed data and information for seven major industrial categories.

The studies covered three broad areas of work. First, they provided detailed information concerning the current status of each of the major industrial categories with respect to the study area and its component river basins areas. Data concerning various aspects of economic activity in these industrial categories were compiled and arranged to reflect historical trends and the present status of activity.

Second, the studies included a detailed analysis of factors relating to growth and an evaluation of study area potentials. This included not only an analysis of trends reflected in the basic data but also the consensus of management and other experts in the various industries. This part of the studies also included evaluation of some of the problems directly relating to operation, development, and growth in the major industrial activities.

Finally, these studies included projections for the years 1975 and 2000. The benchmarks established by compilation of time series data were used as a primary basis of projections. In addition to the present benchmark, the projections were based on detailed consideration of all major factors related to future growth potentialities in the study area and its basin segments.

Basic data and projections were developed for most of the following items for each major industrial category.

(1) Number of establishments
(2) Number of employees
(3) Volume of payroll
(4) Value of output
(5) Value added by manufacture
(6) Annual capital expenditures
(7) Volume of raw materials used
(8) Estimated total water requirements

Data and projections were appropriately developed and arranged by components most useful to the purposes of the Commission. The seven major industrial categories covered are indicated by titles of the various sections. The report of this study is:

Studies of Selected Industries in the Southeast River Basins, Industrial Development Branch, Engineering Experiment Station, Georgia Institute of Technology, March 1961. Dr. Kenneth C. Wagner, Project Coordinator; Lamar White, Project Director.

Section One – Pulp and Paper, Charles H. Sewell.

Section Two – Textiles, Harvey Diamond, R. L. Yobs.

Section Three – Chemicals, William C. Eisenhauer, Ben W. Carmichael.

Section Four – Wood Products, Tze I. Chiang.

Section Five – Fabricated Metals and Fabricated Plastics, George A. Lafitte, Jr.

Section Six – (a) *Nonelectric Machinery,* Keith French,
(b) *Electric Machinery,* Lucy Jeff Heierman.

Section Seven – Transportation Equipment, John R. Peterson.

U. S. Department of Commerce

The specialized facilities of the U. S. Department of Commerce were utilized to aid in developing the projections of the Economic Framework, particularly for those components related to industrial activity and economic growth. Although this Department furnished assistance through consultants and representatives on advisory committees throughout the course of the Commission work, other major contributions of this agency in carrying out the basic studies are summarized as follows.

Review and Critique of Economic Projections

As soon as preliminary nonagricultural projections were developed from information furnished by the college studies and other available sources, the U. S. Department of Commerce reviewed these projections. Staff specialists in the various fields of activity reviewed the preliminary projections and made many helpful comments. This assistance was accomplished by both correspondence and informal interstaff meetings.

Results were submitted by correspondence and the projections of the Economic Framework include adjustments resulting from this study.

Industry Survey

In development of the Economic Framework, the Business and Defense Services Administration provided basic information regarding manufacturing industry plans and prospects for expansion in and into the Southeast River Basins area.

In carrying out this work, the Business and Defense Services Administration conducted a cross-section survey of major segments of the manufacturing industry most likely to expand activities in the Southeast.

As there are more than 400 industry classifications covered by this agency, for purposes of this study, selections were made of industries judged most likely to expand into the Southeast River Basins area.

Designated Business and Defense Services Administration Industry Divisions provided information relative to:

(1) Manufacturing industries now expanding into the Southeast River Basins,

(2) plans for future (5-10 years) location of such industries in the Southeast River Basins, and

(3) trends of growth of these industries (general comment).

Most of the Industry Divisions presented their reports orally in discussions with a coordinating staff member. Generally, they submitted information after canvassing their industry contacts with specific reference to the Southeast River Basins area. The responses were not intended as forecasts but were designed to provide perspective for projections and pertinent assumptions being developed by the Commission. These data were used in this manner, and they were very helpful in making needed adjustments in the economic projections.

The results of this study are summarized in the report:

Special Industry Survey, Report for the U. S. Study Commission, Southeast River Basins, Business and Defense Services Administration, Office of Area Development, U. S. Department of Commerce, December 1960.

Growth Industries and Products Study

The Business and Defense Services Administration also made a study of growth industries for the United States as a whole and for the State of Georgia as representative of the Southeast River Basins area. This study furnished general information on the cause and effect of industrial growth and included projections for 1975 based on an accumulation of data from the 1954 and 1958 Census of Manufactures and the Annual Survey of Manufacturing for the years 1955, 1956, and 1957.

The Commission was furnished the compiled statistics together with a detailed interpretation and analysis of pertinent factors associated with

trends in each major segment of manufacturing activity showing significant growth over recent years.

This study covered the following subjects: (1) General industrial growth, (2) selection of growth industries and product classes, (3) reasons for high growth, (4) prospects for future growth, and (5) industrial growth in Georgia.

This information was used in conjunction with other basic studies in developing the Economic Framework. They were especially useful in developing projections of employment by industrial categories.

The results of this phase of the studies are summarized in the report:

Growth Industries and Products, A Special Report for the U. S. Study Commission, Southeast River Basins, Business and Defense Services Administration, U. S. Department of Commerce, March 1961.

Selected Industry Studies

As the various components of the Economic Framework were developed in preliminary form from the initial college studies, further refinements were made from supplementary studies related specifically to the Southeast River Basins area. The Business and Defense Services Administration provided additional detailed and specialized data for the following industries: (1) Textiles and apparels, (2) chemicals and allied products, (3) lumber and wood products, (4) paper and allied products, and (5) construction. These studies included projections for employment, wages and salaries, value added in manufacture, and production or output. In addition, other factors pertinent to future growth were analyzed and discussed.

Textiles and apparels — This study provided estimates on employment, payrolls, value added by manufacture, and output for the textile and apparel industries for the United States and the South Atlantic Division for the years 1975 and 2000. General comments were also furnished on trends in mechanization, location factors, the general outlook for new products, processes, and markets, and trends in kinds and sources of major raw materials.

This study covered textile mill products, Standard Industrial Classification Code 22; apparels and related products, Code 23; cellulosic manmade fibers, Code 2823; and synthetic organic fibers, except cellulosic, Code 2824.

The projections of this study were based on general assumptions compatible with those adopted by the Commission and additional assumptions pertinent to the working procedures are set forth in the report:

Outlook for the Textile and Apparel Industries in 1975 and 2000, United States and South Atlantic, Business and Defense Services Administration, Textiles and Clothing Division, U. S. Department of Commerce. April 1961.

Chemicals and allied products — This study covered the chemical industries including industrial inorganic and organic chemicals; drugs and medicines; soaps, cleaning, and polishing preparations; sulfonated oils and assistants; paints, pigments, and related products; gum and wood chemicals; fertilizers; vegetable and animal oils and fats; and various other industrial chemical products, excluding cellulosic and other synthetic fibers. These are in Group 28, Chemicals and Allied Products, Standard Industrial Classification Manual, 1945.

Projections were developed for the years 1975 and 2000 at the national level and for the State of Georgia. These were based primarily on analysis of data from published and unpublished material from the Census of Manufactures.

This study was done within the basic assumptions adopted by the Commission. Other assumptions pertaining to development of these specific projections together with other details of working methodology and results are summarized in the report:

Outlook for Chemicals and Allied Products in 1975 and 2000, United States and Georgia, Business and Defense Services Administration, U. S. Department of Commerce, April 1961.

Lumber and wood products—This study covered all industrial activity included in Standard Industrial Classification Group 24. Projections were developed for the years 1975 and 2000 at the national level and for the South Atlantic Division of the U. S. Department of Commerce. In addition to the items projected for all this series of studies, estimates were developed for production workers as distinguished from total employment and for man-hours and capital expenditures. Production, or output, was projected in terms of total value of shipments.

A discussion of pertinent factors was furnished

for each four-digit category in this broad group. Basic assumptions were compatible with other studies and other assumptions and working procedures used in developing the estimates together with study results are summarized in the report:

Outlook for Lumber and Wood Products in 1975 and 2000, United States and Georgia, Business and Defense Services Administration, U. S. Department of Commerce, June 1961.

Paper and allied products—This study included activities in Standard Industrial Classification Group 26, as a part of the Lumber and Wood Products Study. The objectives and methodology were similar to that used for this whole series of special industry studies and projections were developed for the same items.

The study also included compilation of data on United States consumption and production of paper and board and Georgia production for the years 1947 through 1959. Projections were then developed for the years 1975 and 2000.

This report discussed factors pertinent to growth and expansion of this type of industrial activity, particularly market trends and new products, raw materials, and the trend of mechanization and automation of production.

The results of this study are summarized in:

Outlook for Paper and Board in 1975 and 2000, United States and Georgia, Business and Defense Services Administration, U. S. Department of Commerce, May 1961.

Construction—In general, the objectives and methodology were similar to the other studies in this series, but projections were limited to total volume of construction measured in terms of constant dollar value for the United States, excluding Alaska and Hawaii, for the years 1975 and 2000.

As a basis for developing projections, data were compiled and analyzed for the time period 1915 to 1960 by the major segments of these industries.

In addition to the projections of the volume of activity in this industry, the report furnished an informative discussion of pertinent factors concerning growth in the major segments of this industry and the implications of growth and expansion. The results of this series of studies were especially helpful to the Commission in developing final projections of employment by major category and study area components.

The report of this study is:

Outlook for Construction in 1975 and 2000, United States, Business and Defense Services Administration, U. S. Department of Commerce, April 1961.

Minerals Study

The Bureau of Mines of the U. S. Department of the Interior furnished basic inventory data and an evaluation of future potentials of the mineral resources of the study area. This consisted of information on industrial activity in the minerals field by river basins and type of mineral resource for the years 1952 through 1959. Estimates for 1975 and 2000, based upon an evaluation of future potentials, were furnished in the final report.

Inventory data and projections were furnished for the following items by river basins and year.

(1) Number of plants
(2) Number employed
(3) Production in short tons
(4) Total value of shipments

This information was needed to fit into the pattern of area development being evolved from other studies. These estimates were used in developing projections by major categories and study area components.

The Bureau of Mines also provided information on water use by the mineral industries for the year 1958 and estimates for 1975 and 2000. This agency, in cooperation with the U. S. Geological Survey, also provided mineral maps for the Southeast River Basins area.

The reports submitted are:

(1) *Employment at Granite Quarries in the Southeast River Basins Area,* Knoxville Field Office, Division of Mineral Resources, U. S. Bureau of Mines.

(2) *Mineral Production in the Southeast River Basins Area,* Knoxville Field Office, Division of Mineral Resources, U. S. Bureau of Mines.

(3) *Minerals Maps, Four Sets, Southeast River Basins Area,* U. S. Geological Survey, Department of Interior, Washington, D.C., 1960.

Food Processing Study

The Georgia Experiment Station made a special study of the status and future potentials of the food-processing industries. A specific objec-

tive of this study was to obtain basic economic facts pertaining to the present status of the food-processing industries in the Southeast River Basins area and to develop projections for the years 1975 and 2000.

Data were collected by interview relative to each major food industry component in the area until 50 percent or more of the volume of a particular industry was included. Estimates were made by reconnaissance and use of available data to obtain complete information for each industry component for 1960. The major industry components were: (1) Meat and meat products other than poultry; (2) poultry and poultry products; (3) dairy products; (4) fruits and vegetables; (5) seafood and marine products; (6) beverages, including beer, wine, and liquors; (7) sugar and confectioneries; (8) flour and meal; (9) animal feeds; (10) bakery products; and (11) miscellaneous.

Specifically, data were accumulated by river basins and the Southeast River Basins area on: (1) Kind and number of plants; (2) type and volume of raw materials used; (3) number of employees and payrolls; (4) volume of output of the industry in dollars; (5) value added by manufacture in dollars; (6) annual capital expenditure for capital maintenance and investment in new plant construction and existing plant expansion; and (7) factors bearing on the future development of the industry including, (a) productivity, including trends in kind and mechanization and automation, (b) trends in source of raw materials, (c) trends in new products and markets, and (d) trends in transportation development, highway, rail, and other, as related to the food-processing industries.

The projections for 1975 and 2000 were made by a committee of economists and food technologists. These estimates were based on knowledge of current situations, evaluations of trends and developments in technology, food habits, and population as they were judged to bear upon the changing economic status of the food industries as a whole and in particular in the Southeast River Basins area.

The data were compiled for each of the eight river basins and divided into two parts according to the portions above and below the Fall Line[1].

[1] The Fall Line is the divide between the Piedmont and Coastal Plain physiographic provinces shown on Figure 1.1.

A narrative summary was made for each of the eight river basins in the study area. This summary included an overall evaluation of prospects in each area for which the data were compiled. Results of this study although not directly incorporated in the projections, were useful in indicating the general magnitude of activity in this industrial field and the distribution among components of the industry.

The report submitted to the Commission is: *Economic Status of Food Processing Industries in the Southeast River Basins Area of the United States for the Years 1960, 1975, and 2000,* Georgia Experiment Station, Departments of Agricultural Economics and Food Processing, Experiment, Georgia, February 1, 1961.

Econometric Study

In developing the projections of the Economic Framework, the Commission desired the results of several basic studies utilizing different methods and techniques. Some of these studies were designed primarily to provide preliminary projections. As time permitted, subsequent studies were made for the purpose of complementing and further refining the preliminary estimates. Econometric studies of this nature were first made as a part of the preliminary studies done by the Georgia Institute of Technology and were continued and further refined by work at North Carolina State College under the direction of Dr. Ernst Swanson.

The econometric studies undertaken for the Study Commission were planned to provide insight into the future economic development of the nonagricultural sector of the Southeast River Basins economy.

Initially an exploration was made of the possibility of creating a consistent economic model of the structure of the study area economy and of the possibility of bringing together such data as would be suitable in stating econometrically the economic structure of the basin. Toward this end, a set of regression equations was developed by which the "casual" relationships among the employments of each of the major industries were derived. These equations did not yield conclusive answers but strongly suggested that a more closely knit and more consistent model be attempted.

Accordingly, a structural equation system was

created. Such a system is designed to reflect the interrelations among several variables. Eight equations developed for the following growth industries were chosen to represent the study area: Nonmetallic mining; textiles; lumber and wood products; paper and paper products; chemicals; fabricated metals; stone, clay, and glass; and machinery except electrical. Through the use of large-scale computing equipment, the system of equations was solved. Although the results were not conclusive, the methods used did add new ways of using econometric analysis in such planning problems.

The report of the study is:

Projections of Employment and Population for the Southeast River Basins by a System of Eight Structural Equations, Department of Economics, North Carolina State College, Raleigh, North Carolina, by Ernst Swanson and Cleon Harrell.

Leisure Time Study

This report was prepared by the Bureau of Labor Statistics to help the Commission develop estimates of future outdoor recreation resources requirements for the years 1975 and 2000.

Current estimates and projections for 1975 and 2000 were furnished for the following major items.

(1) Labor force and employment by industry and occupation for the study area as a whole and for the five State segments comprising the study area.

(2) The decrease in work time that the labor force may have by 1975 and 2000.

(3) The additional amount of leisure time resulting from estimated increased length of vacations, number of holidays, and shorter work week.

In preparing the projections for this study, the Bureau of Labor Statistics, for the most part, extended historical trends without attempting to make a comprehensive analysis of all the numerous factors affecting these trends. However, historical series were constructed on a rough basis through the use of special statistical techniques and of county data for the 1950 and 1960 Census of Population and by detailed study of economic and physical maps of the study area.

Estimates regarding vacation time were based on 1955 historical data from the monthly report on the labor force, from a travel survey by the U. S. Department of Commerce and from data from nongovernmental sources. The trend toward more vacationing in nonsummer months, which has been increasing in the post-war period, was assumed to continue over the planning period.

Estimates of decreases in hours worked were based on two approaches. First, past trends in paid and unpaid time off from work were examined. Second, a study was made of the past changes in the length of the work week. Projections were then made for the years 1975 and 2000. Detailed estimates of paid and unpaid time off from work and the length of the work week were made by industry and occupation for the total Southeast River Basins area. Also included were estimates of additional hours for vacation and holiday time.

After adjustments needed to make the data of this study compatible with all basic studies and Commission assumptions were made, the data and information were used directly in establishing the magnitude of future needs for recreation facilities.

The report summarizing results of this study is:

Estimates of the Decrease in Hours Worked in the Southeast River Basins Area, 1960-2000, Bureau of Labor Statistics, U. S. Department of Labor, July 1961.

SECTION III – OTHER SPECIAL STUDIES

Water Law Study

The Commission recognized the importance of the legal aspects of water rights, utilization, and control upon the development of these resources. The Institute of Law and Government, School of Law of the University of Georgia, summarized basic data and information concerning the present and probable future status of the laws, regulations, and customs involving the ownership, use, and control of water resources in the States of the study area. The institute obtained the assistance of qualified specialists in each of the other States in the Southeast River Basins in carrying out this study.

The research was concentrated in three broad areas: (1) The present status of water law in Alabama, Florida, Georgia, and South Carolina: (2) the probable future changes in the water laws of Alabama, Florida, Georgia, and South Carolina; and (3) Federal jurisdiction over water in the Southeast River Basins area.

Specialists in each of the designated States summarized and documented in detail the statutory and legislative actions reflecting present policy relating to ownership, use, and control of water resources in the respective States. These data and information were coordinated and summarized into one report with supporting explanations and discussion. This information covered and was arranged by the major categories: (1) Watercourses, (2) diffuse surface water, (3) lakes and ponds, and (4) ground water.

Information regarding probable future changes in the water laws of the designated States was obtained by survey of opinion of numerous qualified specialists in the respective States. This information reflects problem areas and anticipated action in the whole complex field of water use and control including pollution.

The study of Federal jurisdiction over water in the Southeast River Basins area summarized the statutory and legislative policy applicable to the whole field of water use and control with respect to the Federal Government. This included detailed documentation of the statutory basis of current policy and practices together with evaluations and discussions of the historical evolution of these policies. The status of policy and the statutory basis of policies were appropriately related to the major functional categories of navigation, flood control, drainage, power, pollution, fish and wildlife, recreation, reclamation and irrigation, and water conservation.

Evaluations and discussions were also summarized by the major statutory areas as follows: (1) Commerce clause, (2) property clause, (3) general walfare, (4) war power, (5) interstate relations, (6) hydroelectric power, and (7) miscellaneous.

These basic data and information were useful to the Commission in the planning process. The legal aspects of water use and control were given consideration not only in formulating the component parts of the comprehensive plan but were of importance in evaluating the effects of recommended uses and implementation of the plan.

The results of this special study are contained in three reports:

(1) *Water Law in Alabama, Florida, Georgia, South Carolina,* by Royal S. Shannonhouse, Project Director, Assistant Professor, University of Georgia, School of Law; Samuel L. Prince, Dean Emeritus, University of South Carolina, School of Law; and Hugh W. Gilbert, Former Assistant Professor, University of Alabama, School of Law; June 1962.

(2) *Probable Future Changes in the Water Laws of Alabama, Florida, Georgia, and South Carolina, Summary of Responses to a Questionnaire Survey Conducted Among Authorities in the Four States,* Institute of Law and Government, University of Georgia, by G. Harold Posey, Temporary Assistant, June 1962.

(3) *Federal Jurisdiction Over Water in the Southeast River Basins Area,* Institute of Law and Government, University of Georgia, by Fletcher N. Baldwin, Jr., Instructor, August 1961.

Transportation Study

The Commission contracted with Georgia State College to furnish basic data and general information on the transportation system and transportation activities in the Southeast River Basins area. This special study covered the transportation system at present and developed estimates of the future transportation load and evaluated potentials of the various modes of transportation.

The study included an inventory of basic transportation facilities including rail, highway, water, pipelines, and airways. The current status and use of these facilities were summarized and recent trends were analyzed. Projections were then developed for 1975 and 2000 for the probable magnitude of traffic.

The major phases of the transportation system were covered and summarized in this study as follows:

(1) Current transportation patterns in the Southeast River Basins area,

(2) volume of total transport activity for the future,

(3) outlines for an efficient transport service for the future,

(4) transportation and the economy, and

(5) inland navigation in the Basins area.

In addition to assembling basic data and developing projections for the future, the contractor included a discussion of the effects of the transportation system on the total economy and significant factors and problems of the transportation system as a component of the economy.

This evaluation also specifically covered inland navigation in the Southeast River Basins area. This phase of the study provided basic data and information on (1) geography and history of inland navigation, (2) the place of inland navigation in the modern economy, and (3) future inland navigation in the Southeast River Basins area.

This study was used as background material in developing basic economic projections and estimates of functional resource needs.

The report of this study is:

Transportation Resources and Potentials Within the Southeast River Basins, Transportation Department, Georgia State College, Atlanta, Georgia, prepared by J. H. Lemly.

Migration Impact Study

The Commission recognized the significance of the loss of population by out-migration from the study area. The basic economic studies further emphasized the general magnitude of this trend and its importance to the economy of the area. Dr. John Fulmer, on a consulting basis, provided information and data relating to migration from and into the study area and an evaluation of its economic significance. The study covered three major items as follows:

(1) Magnitude of migration loss during recent decades and general characteristics of the migrants;

(2) projections of out-migrants and in-migrants by race and sex for the planning period 1960-2000; and

(3) estimated economic impacts of migration interchange with the rest of the Nation.

The magnitude of migration from and into the Southeast River Basins area was developed by compilation of historical data back to 1930. Both census data and information from other sources and studies were used. The data compiled during this phase of the study also reflected the characteristics of the migrants, such as race, age, and sex. These detailed characteristics were used as a basis for subsequent evaluation made in the study. Projections of out-migrants and in-migrants for the period 1960-2000 were developed from analysis of the historical data in conjunction with the basic assumptions used in Commission studies.

The economic impact of migration was evaluated in terms of the net loss of employment and income and the net loss to the area of capital invested in rearing and educating migrants. In developing these estimates, detailed consideration was given to age, sex, race, level of education, and other important environmental factors.

The economic loss to the area resulting from migration was estimated in this study only in terms of the net differential between the impact of out-migrants and in-migrants. Consideration was given to such facts as the higher levels of education and training and the higher income levels of the in-migrants.

Although the economic impact of out-migration is partially offset by the impact of in-migration, the study area has sustained net economic losses by migration of people from the area. This study estimates this loss and provides information about the nature and characteristics of the loss.

The results of this study were used as background for adjusting final economic projections and estimates of functional resource needs.

The report on this study is:

Migration Studies for the Southeast River Basins Area, An Analysis of Characteristics of Migrants and Their Economic Impacts, by John L. Fulmer.

Financing Studies

The financial aspects of the development of land and water resources were recognized as a significant responsibility of comprehensive planning. A specific objective in regard to comprehensive planning was to delineate the magnitude of current expenditures for land and water resources development and utilization and to approximate the magnitude of expenditures needed to finance the proposed long-term plans.

Magnitude of Resource Expenditures

The major objective of this study was to estimate the magnitude of Federal, State; and local Government and private resource expenditures in the Southeast River Basins area and to project the historical trends into the future so as to determine if the financing of the develop-

ments in the comprehensive plan is practicable of attainment.

In carrying out this phase of the work, data and information were assembled from many sources; but the development of basic data on expenditures in three major areas was contracted to cooperating agencies as summarized below.

Government expenditures—This study was done under contract with the University of Florida. In developing projections for the years 1975 and 2000, certain assumptions were made concerning the patterns and trends of governmental resource activity. An examination of the data revealed certain historical relationships between comprehensive economic magnitudes such as gross national product, population, and particular resource expenditures. The projections were based on the assumption that the public policy reflected in these relationships would remain unchanged during the planning period.

Resources expenditures were defined so as to conform to the purposes delineated by the authorizing Act.

The magnitude of governmental resource expenditures was developed for 1960 from an analysis of historical trends. Projections were then made, under the basic assumptions, for the years 1975 and 2000. The data were developed for the local, State, and Federal levels of government by major resource functions. Both current and projected expenditures were then delineated by major river basins.

The report summarizing the methodolgy and results of this study is:

Government Resource Expenditures in Southeast River Basins—1960, 1975, and 2000, Bureau of Business Research, College of Business Administration, University of Florida, Gainesville, Florida, by Irving J. Goffman and Milton Z. Kafoglis, May 1962.

Private expenditures—The objectives of this study were (1) to develop an estimate of net private investment and associated operation and maintenance outlays in the resource purposes of the U. S. Study Commission in the Southeast River Basins area in 1960, and (2) to project private expenditures for the years 1975 and 2000 in keeping with the economic environment defined by the magnitudes of personal income, employment, and population as set forth by the Commission in the Economic Framework.

In the absence of adequate State and local data, the basic procedure used in this study was one of locating one or more national private resource spending data series which would demonstrate historically a close and consistent relationship to one or more of the national aggregates of employment, personal income, and population. Such an association was the basis for construction of a similar series for the Southeast River Basins area by reference to the like and already known aggregates in the study area. Finally, after much testing and redefinition, the following private investment series were judged most suited to the needs of the Commission.

(1) Water and sewer plants; i.e., dams, reservoirs, filtration plants, mains, and utilities, and associated operation and maintenance.

(2) Resources in the form of private roads, bridges, parks, playgrounds, and nonstructural items, and associated operation and maintenance.

(3) Hydroelectric plants and associated operation and maintenance.

(4) Soil and forest conservation and utilization under the terms of such Federal Government programs as Agricultural Stabilization and Conservation, Cooperative Forest Management Act, Soil Conservation and Domestic Allotment Act, and others.

Routine statistical procedures were used to determine the degree of association of these series to population, employment, and income at the national level. The results were used, with other available information, to delineate the magnitude of resource expenditures for each series in the Southeast River Basins area. The current level of resource expenditures, adjusted by past trends, was then used as a benchmark for projecting future expenditures. The level of expenditures by these major functional categories was then delineated by eight major river basins. Subsequent adjustments, particularly for items (2) and (4), were made when the data were coordinated for Commission use.

Results of this study together with an interpretive discussion of the sources of data and methodology are summarized in a memorandum entitled:

Private Resource Expenditures in the Southeast River Basins, 1960, 1975 and 2000, by Dr. Henry Thomassen of Georgia State College.

Expenditures for Power

The Southeast River Basins plan includes many hydroelectric possibilities and, thus, the base of resources expenditures should include power development—or at least that portion of power resource involving hydroelectric generation, one of the purposes of the Commission plan.

The Corps of Engineers, private utilities, industrial organizations, and municipalities have been developing the hydroelectric potential of the area. In recent years, most of the expenditures for hydropower have been made by the Corps of Engineers.

The studies of government expenditures and private expenditures mentioned above were initially summarized by excluding expenditures for power development.

Projections of the investment for hydropower development for each of the river basins were needed to add to the above and for comparison with the resource investment scheduled in the plan. Data were gathered on expenditures for hydropower during recent years, both private and Federal; 1960 was selected as the base year for the correlation. The hydropower rate of expenditures was then projected over the period of analysis in a manner to maintain a relatively stable ratio expenditure for hydroelectric power and other resources to personal income of the study area.

Because of the limitation in available hydroelectric powersites, the rate of expenditure for primary construction of hydro facilities will not be uniform throughout the period but will be in concentrated segments distributed throughout the period. The proportion of the electric power installation and generation will vary from year to year; as the proportion of hydroelectric power in the total power investment rises, the proportionate investment in steam generation will be reduced and vice versa. However, the Commission is primarily interested in the hydroelectric power, as thermal power is not one of the specific items covered in this plan.

Projections of Resource Expenditures

Results of the above financial studies were adjusted, coordinated, and summarized into a set of guidelines for evaluating the magnitude and scheduling of the proposed comprehensive plan for development of resources. These related particularly to resource expenditure relationships at the private, Federal, State, and local governmental levels from 1947 to 1960 and the projection of these levels to the future.

These guidelines were developed to serve the following major purposes.

(1) Provide a guide to the rate and level of financing for the future.

(2) Set up what may be considered as a budgetary constraint on programmed expenditures or perhaps, more accurately, signal the need for special financing whenever programmed needs and opportunities exceed funds normally available.

(3) Provide a guide as to the relative magnitude of expenditures among:

(a) Sources—private, Federal, State, and local.

(b) Kinds of expenditures—(1) operation and maintenance of projects and programs in effect as of 1960; (2) operation and maintenance on new projects and programs, plus capital investment on new projects and programs.

(c) Relative distribution of expenditures among basins in the Southeast River Basins area.

(4) Provide data sufficient to establish the reasonableness of the 1960 figure from which the projections are made.

(5) Illustrate comparative resource expenditures as between States, national averages, etc.

Further discussion concerning the use of results of these studies in the application of Commission policy is contained in Part Five of this Appendix.

Coordination and Adjustment for All Basic Economic Data

Basic studies were carried out by numerous agencies during the first two years of the Commission work. As these studies were completed and data submitted to the Commission, the data were adjusted and coordinated into the guidelines referred to as the Economic Framework. Many consultants and representatives of all participating States and agencies assisted in this phase of the studies. Guidance was provided by the Commission.

The advice and counsel of the advisory committees and steering groups and the Commission consultants aided in developing the projections and guidelines. The help of these contributors,

as well as persons in the cooperating agencies including both those whose names are listed in the title pages of the reports received by the Commission as mentioned in this Part and the many whose individual names were not so reported, is gratefully acknowledged.

The names of the staff members, staff consultants, and members of the steering groups and advisory committees are included in Appendix 13, History and Organization of the Commission.

PART THREE – ECONOMIC FRAMEWORK FOR SOUTHEAST RIVER BASINS

Introduction and Chronology

In meeting the Commission objective of preparing resource plans to assist in securing the maximum contribution of the resources of the area to the future development of the region and also of the Nation, it was necessary to project what the future development of the Southeast River Basins can and might be. Projections were made of selected economic and social factors to depict the anticipated magnitude and levels of growth and the related resource development requirements. By applying suitable measurement criteria to the planning goals or guidelines thus established, it was then possible to develop reasonable estimates of the number of units or amounts of various resources required to fulfill the projected future requirements in each of the several purposes being considered.

The studies conducted in this endeavor have been summarized in a series of reports identified as the Economic Framework. Inasmuch as wide distribution and use was made of the Economic Framework in the course of the Commission studies, it was deemed desirable to reproduce these studies in their final form even though there is some overlap with Part One of this Appendix in the discussion of objectives, guidelines, and assumptions. Sections I through VI which follow present the final version of the basic Economic Framework paper and its supplements.

The Economic Framework has served as a guide to planning. It has been a dynamic, changing study subject to refinement and improvement in overall requirements and criteria used in determining units of resources needed. Even in its final form, the Economic Framework does not in all instances contain the actual values used in the planning process. However, the criteria set forth in the Economic Framework, when checked with values used as set forth in Appendix 12, Planning, are directionally sound and satisfactorily served the purposes of providing an acceptable basis for preliminary planning keyed to resource requirements based on the economic environment anticipated for the area for the next 40 years. Details regarding the criteria finally employed in each of the functional studies and in the comprehensive basin plans appear in Appendix 12, Planning.

The first preliminary economic projections were summarized in a staff paper dated August 11, 1960, and revisions and improvements to that paper were included in another staff paper dated September 29, 1960.

Further review and consideration by staff members, advisory groups, and consultants led to additional revisions and additions which were incorporated in a staff paper identified as the Economic Framework for Southeast River Basins dated October 10, 1960.

On October 20, 1960, and February 16, 1961, the results of the studies were presented to the U. S. Study Commission which approved the approach and general methodology. A revised summary of the projections incorporating adjustments resulting from the Commission discussions and additional information made available from basic studies was issued under the date of February 20, 1961. This edition was subsequently revised and issued under date of March 10, 1961.

The staff documents issued through the March 10, 1961, edition summarized aggregate data for the Southeast River Basins area as a whole. In cooperation with the consultants and advisory groups, work was continued toward providing economic projections by basins, States, and physiographic provinces. Agricultural production and land-use projections by basins and subbasins were the first data of this type to become available. These were issued as supplements 1 through 4 dated April 10, 1961, April 21, 1961, May 11, 1961, and May 26, 1961, respectively.

The first estimates of basin and State subbasin projections of population, employment, and income were issued as supplements 5 and 6 dated June 1, 1961, and June 6, 1961, respectively.

As time permitted further study and consideration of the economic projections and additional information was made available from basic studies, subsequent adjustments and coordina-

tion of the projections were made and issued as supplements 7, 8, 9, and 10.

Supplement 7 dated July 14, 1961, summarized all agricultural data previously issued in supplements 1, 2, 3, and 4. It also included supporting explanations and methodology.

Supplement 8 dated August 21, 1961, contained revised statistical data, with supporting explanations, on the current and projected employment in the Southeast River Basins by river basins and State subbasins. This superseded the previously issued employment data of supplement 5.

Supplement 9 dated September 1, 1961, presented revised population data by river basins and State subbasins, with supporting explanations on current and projected population in the aggregate by residential categories and for selected cities. These data superseded data previously issued in supplements 5 and 6.

Supplement 10 dated September 1, 1961, presented revised data on personal income for basins and State subbasins previously issued in supplement 6.

As the subsequent revisions were made in the various supplements, appropriate adjustments were made in the aggregate projections of the basic Economic Framework paper dated March 10, 1961.

Supplement 11 dated April 3, 1962, presented estimates of requirements for resources development by river basins in conformity with the aggregate data for the total Southeast River Basins area.

The estimates of requirements for resource development for the total Southeast River Basins area contained in the basic framework paper dated March 10, 1961, were based on generalized data then available. Supplement 11 presented the revised data and appropriate adjustments for the earlier estimates in that paper.

The Economic Framework for Southeast River Basins as presented in the following pages is an adaptation of the basic framework paper and supplements. In order to conform the basic paper and its supplements to the approved style and form of presenting report appendix material, the basic framework paper appears as Section I and the supplements referred to in the preceding paragraphs covering population, employment, personal income, agriculture, and planning objectives follow as Sections II, III, IV, V, and VI, respectively.

Statistical data have not been rounded in this Part. It was deemed desirable to carry the numerical values out to more places than will be used in the Report and the eight basin appendixes. It should be understood that the degree of detail shown is not intended to reflect a corresponding level of accuracy.

SECTION I – BASIC ASSUMPTIONS, CRITERIA, AND DATA

Purpose, Scope, and Use of Studies

Purpose

The purpose of this Section is to present estimates for the Southeast River Basins area of: (1) The present level of the economy, (2) the projected level of the economy, and (3) the requirements for resource developments in a form suitable for planning future land and water resource projects and programs. The level of economic development and the rate of economic growth desired are dependent upon judgments relating to the volume and quality of goods and services required over the period under study. Thus, definite objectives are essential requirements for successful planning. These objectives include not only estimates of the number of units of resources needed to serve the projected economy but also involved considerations relating to the character of the economic and social process itself. Many of the assumptions discussed in subsequent paragraphs relate to desirable fundamental characteristics of the social and economic life.

Scope

Section I is primarily concerned with aggregate data for the Southeast River Basins. Sections II through VI present historical data and projections for major items for the eight river basin areas.

Use

The pattern of the future economy of the Southeast River Basins as presented herein stems mainly from projections of employment, popu-

lation, and income, although due consideration was given to the resource base. Planning objectives were obtained by determining from basic social and economic projections the need by functions for which plans were to be developed. In this way the scope and character of functional development plans were keyed or related to the projected economic and social needs of the Nation and the Southeast River Basins area. The formulation of programs and projects to meet these needs were guided by concepts of economic efficiency. The Commission has used the projected planning objectives as one of the guides in developing the resource projects and programs needed by 1975 and 2000.

Acknowledgment

In appraising the present and future economy of the Southeast River Basins and of the Nation, the Study Commission staff has had the professional opinion of various members of the faculty of Auburn University, Clemson College, University of Florida, University of Georgia, Georgia Institute of Technology, Georgia State College, and North Carolina State College. Economists and resource planners from the Federal Power Commission and the Federal Reserve Bank of Atlanta, and the U. S. Departments of Agriculture, Army, Commerce, Labor, and Health, Education, and Welfare, and from the Florida Development Commission, as well as individual economic consultants, have also furnished information or otherwise assisted in the studies.

Nature of Projections

Appraising conditions expected in the future is an essential part of planning but is clearly a difficult and risky undertaking. The hazard increases with the length of period covered by the projection. In the case of resource development planning, there is need to make judgments concerning conditions expected in the quite distant future, say 40 or 50 years. The general direction and magnitude of the projected economy are considered correct although the exact magnitudes of population, income, and other factors may occur either earlier or later than projected. Every effort has been made to assure that the direction and general magnitude of the projections are based upon the best available data and judgment, recognizing the impossibility of exact answers.

Assumptions and Criteria

General

Economic projections are necessarily based on a series of assumptions. The Commission has stated its general philosophy in respect to the future economy of the basins in its policy papers, "General Policy on Economic Criteria," "Assumptions and Working Procedures," and "Price Levels."

Since a major factor in shaping the economic and social future of the Southeast River Basins is the direction and magnitude of growth in the economy of the United States as a whole, the Commission assumed:

"A continued upward trend in employment and production, with higher per capita incomes; and for purposes of analysis, a stable general price level is assumed at the national level. The upward trend in population, employment, and production will be accompanied by upward trends in total volume of consumption and international trade. This will be accompanied by a continued trend toward relative stability of the international situation with no significant worsening of the cold war and no widespread outbreak of hostilities. It is further assumed that government policies and programs will be consistent with the foregoing assumptions to the extent that economic growth and development of resources necessary to that growth will continue to be implemented and encouraged."

Price Levels

The Commission established the following criteria:

"Price levels prevailing during an appropriate period ending approximately January 1960 will be used for evaluating all benefits and costs and estimating future price relationships for all commodities and costs with an adjustment of agriculture prices received, based upon an assumption of a parity ratio of 89."[1]

In making this approach, the Commission recognized that the prices used in the analysis of river basin developments should be those expected to prevail at the time costs are incurred and at the time benefits are received, with both

[1] Price Levels, approved by the U. S. Study Commission, May 19, 1960. It should be noted that, although the agricultural prices paid will be projected at the current level, appropriate adjustments may be made for individual commodities.

TABLE 3.1

Projections of Economic Activity

Agency	Population (millions)		Gross national product (billions of 1960 dollars)			Compound annual growth rate[1]
U. S. Senate Select Committee[2]	1980	2000	1958	1980	2000	Percent
Low	225	267		973	1,706	3.1
Medium	244	329	476	1,074	2,231	3.7
High	278	431		1,278	3,336	4.8
U. S. Department of	1975	2000	1958	1975	2000	Percent
Agriculture[3]	235	380	476	894	2,679	4.2
U. S. Forest Service[4]	1975	2000	1952	1975	2000	Percent
Low	215	275	409	727	1,385	2.6
High		360			1,673	3.0
Corps of Engineers and	1980	2010	1957	1980	2010	Percent
U. S. Dept. of Commerce[5]	248	370	458	959	2,424	3.2

NOTES: [1] Compound annual rate of growth of gross national product from base year to end of projected period.
[2] Committee Print No. 5, U. S. Senate Select Committee on National Water Resources, March 1960. Projections based on work performed by Resources for the Future for the Select Committee.
[3] Special study for U. S. Study Commission by Economic Research Service, formerly Agricultural Research Service, U. S. Department of Agriculture, subject: "Projected Needs for Agricultural Production in the United States."
[4] Timber Resources for America's Future, Forest Service, U. S. Department of Agriculture, Forest Resources Report No. 14, January 1958.
[5] Survey Investigations and Reports, Economic Base Studies, Corps of Engineers, U. S. Army, EM 1120-2-118, November 16, 1959. Report of the Comprehensive Survey of the Water Resources of the Delaware River Basin, Economic Base Survey, Office of Business Economics, U. S. Department of Commerce, June 1958.

costs and benefits expressed in terms of a constant general price level. This would require the development of price projections for all goods and services involved. With recognition of the practical problems involved, the Commission concluded that the resource evaluation to be accomplished should provide: (1) A valid basis for comparison between functions as well as valid comparison for facilities or programs within a single function, and (2) a reasonable projection of conditions expected to prevail during the period of analysis, removing inflationary and deflationary trends. These principles were incorporated in the Commission approved policy statement.

Gross National Product and Population

The Commission, for purposes of planning, established the following values for gross national product and population.

	1960	1975	2000
GNP (billions of 1960 dollars)	500	888	2,300
Population (millions)	180	235	380

These levels of future economic activity indicated by the gross national product projections correspond to an overall average annual growth rate for the period of 3.9 percent compounded.

Projections of gross national product and population have been made by several government agencies and numerous private organizations. Like other long-range projections, the level of gross national product anticipated in 1975 and 2000 varies considerably.

Population

For planning purposes in the U. S. Study Commission studies, the Series II population projection of the U. S. Bureau of Census was adopted as representative of the future. Details concerning the assumptions for population projections are discussed in later paragraphs.

Other Assumptions

Additional general assumptions made for the projected economy are as follows.

(1) The education and training necessary for the skills and management of labor will be available to attain the projected industrial development.

(2) The investment capital required to at-

tain the projected industrial growth will be available.

(3) Adequate land and water resources, as well as electric power, are available to accommodate the projected economy without being a deterent to economic growth.

(4) In establishing the future requirements for agricultural products, consumer incomes by 1975 will have risen to such levels that most consumers would have the kind of diet they want, and changes in per capita demand due to further changes in income beyond the high 1975 level would be negligible.

Pattern of the Economy

General

The projected pattern of the economy of the Southeast River Basins area should consider resource availability and identify and measure, insofar as practicable, the social, economic, legal, and technologic factors relevant to anticipated economic development and growth. This can be accomplished by selection of major sectors of the economy and projecting them into the future to obtain an estimate of the probable pattern of future economic growth.

National and Regional Relationships

It is recognized that the economy of the Southeast River Basins area is not only related to the national economy but also, in most respects, is dependent on it. Table 3.2 sets forth several key relationships of population and other economic indicators within the national and the Southeast River Basins area economy.

Study Area

Working within the framework of previously stated assumptions, the U. S. Study Commission has developed indicators and components of economic growth and resource availability. Table 3.3, a summary of the present and anticipated pattern of the Southeast River Basins area economy, lists only the major segments. Further details with supporting data are presented in subsequent sections.

TABLE 3.2

Comparison of Population, Employment, and Income

Segment	1960		1975		2000	
	U.S.	SERB	U.S.	SERB	U.S.	SERB
Population (millions)	180	4.9	235	6.4	380	10.1
Percent increase over 1960	—	—	31	30	111	103
Per capita income (1960 dollars)	2,222	1,582	3,012	2,202	4,733	3,922
Percent increase over 1960	—	—	36	39	113	148
Employment* (millions)	67	1.75	89	2.34	148	3.79
Percent increase over 1960	—	—	33	34	121	116

* Southeast River Basins employment is based on estimates according to place of work. U. S. employment estimates developed by U. S. Study Commission.

TABLE 3.3

Population, Employment, and Income

Segment	1960	1975	2000
Population (thousands)	4,948	6,408	10,052
Employment (thousands)	1,753	2,343	3,789
Agriculture	227	170	130
Manufacturing	398	553	932
Other	1,128	1,620	2,727
Income (1960 dollars)			
Total personal (billions)	7.8	14.1	39.4
Per capita	1,582	2,202	3,922

Population

National Projections

The assumptions underlying national population projections are basic to the Commission studies. They are reviewed briefly here. The Bureau of the Census, at the request of the U. S. Senate Select Committee, made a series of population projections, each based on a different set of assumptions concerning human fertility and other factors related to change in population.[1] A summary of these projections is shown in the following table. The projections for 1960 were made prior to the 1960 census; the final 1960 census count is 179,323,000.

TABLE 3.4

U. S. Population Projections with Varying Fertility Rates (thousands)

Estimates	Population		
	1960	1975	2000
Series I[1]	181,937	245,084	419,521
Series II[2]	180,903	236,398	383,782
Series III[3]	180,545	226,645	332,830
Series IV[4]	180,187	216,830	294,678

NOTES:
[1] Series I: From 1958 to 1975-80, fertility averages 10 percent above the 1955-57 average; then fertility declines to the 1949-51 level by 2005-2010.
[2] Series II: Fertility remains constant at the 1955-57 average level to 1975-80; fertility then declines to the 1949-51 level by 2005-2010.
[3] Series III: Fertility declines from the 1955-57 level to the 1949-51 level by 1965-70 and remains at this level to 1975-80; then declines further to the 1942-44 level by 2005-2010.
[4] Series IV: Fertility declines from the 1955-57 level to the 1942-44 level by 1964-70; then remains at this level throughout the projection period to 2005-2010.

The above projections by the Bureau of the Census are based also on the assumption that: (1) Moderate declines in mortality will occur toward the end of this century, and (2) net immigration from abroad will be at a rate of about 300,000 per year.

[1] *Water Resources Activities in the United States Population Projections and Economic Assumptions*, Select Committee on National Water Resources, United States Senate, Committee Print No. 5, Government Printing Office, Washington, 1960, pp. 25-38.

Commission National Assumptions

Of the four estimates made by the Bureau of the Census, Series II, the next to the highest, was selected as the most appropriate for long-range resource planning. This series gives a United States population of 236,398,000 for 1975 and 383,782,000 for 2000. These figures have been rounded to 235 million and 380 million for planning purposes. The final census count for 1960 has been rounded to 180 million.

Study Area Population

The purpose of planning is to satisfy human needs; therefore, population projections hold a key position in resource development research. Interest in the size of future populations—national and regional—stems from many sources. The number of jobs to be created, the size of markets to be supplied, and the raw materials needed all depend upon size, growth, and character of population. The size of population in the Southeast River Basins will depend to a considerable degree on the employment opportunities, the income level, and the general level of economic development achieved and maintained. Accordingly, population estimates have been checked against studies of the growth possibilities of the study area economy. The population projections shown in Table 3.5 are the results of these two approaches.

With the national population for the year 2000 projected as 380 million, a Southeast River Basins area population of about 10 million in 2000 is expected compared with nearly 5 million in 1960. The projected rate of increase for the Southeast River Basins is slightly lower than the national rate for the period 1960 to 2000.

In the 40 years ahead, it is expected that the area will gain population but at a rate slightly lower than that for the Nation. Gains reflect the increased industrial employment opportunities and a reduction in the rate of out-migration from the Southeast River Basins area. A basic conclusion from the migration analyses is that migration may be expected to shift from a negative to a positive force in the Southeast River Basins area population growth around 1980. This assumption is in line with the expectations of the Commission that a high level of economic activity will be maintained in the Southeast River Basins area and the Nation.

TABLE 3.5

Southeast River Basins Area Population
(thousands)

State portion	1930	1940	1950	1960	1975	2000
Alabama	481.9	490.6	482.9	472.9	536.9	641.6
Florida	378.2	439.0	537.4	702.4	965.8	1,673.6
Georgia	2,591.6	2,761.0	3,041.9	3,482.2	4,538.6	7,205.3
North Carolina	5.1	6.0	6.6	6.4	6.6	6.8
South Carolina	230.2	242.2	253.0	284.2	359.6	524.9
Total	3,687.0	3,938.8	4,321.8	4,948.1	6,407.5	10,052.2

Urbanization

The trend toward urbanization is strong. Urban population for the area is estimated at 7.3 million in 2000 with 2.8 million rural population. The total projected population for eight selected metropolitan areas, Atlanta, Savannah, Columbus, Augusta, Macon, Albany, Tallahassee, and Pensacola, in the Southeast River Basins area in 2000 is 5.2 million. This indicates that over 71 percent of total urban population will be concentrated in the eight major cities and these cities will account for 51.0 percent of the total projected population within the study area.

Labor Force and Employment

Labor Force

Estimates were made of the future labor force for the Southeast River Basins area in 1975 and 2000 in the process of projecting future employment. The proportion of the total population in the labor force at any given time is dependent upon a complex set of circumstances. In a given area, age and sex distribution of the population and extent of urbanization are the principal factors influencing the size of the labor force. Special attention was given to trends in the labor force of the Southeast River Basins area.

TABLE 3.6

Urban-Rural Composition of Population

	1940	1950	1960	1975	2000
Total population (millions)	3.9	4.3	4.9	6.4	10.1
Urban	1.2	1.8	2.7	4.0	7.3
Rural	2.7	2.5	2.2	2.4	2.8
Percent urban	31	42	54	62	72

TABLE 3.7

Labor Force in Southeast River Basins Area
(thousands)

State portion	1940	1950	1960	1975	2000
Alabama	178.3	171.5	170.5	194.2	230.2
Florida	154.3	192.9	253.3	349.5	599.8
Georgia	1,089.7	1,185.4	1,358.3	1,799.7	2,887.0
North Carolina	2.0	2.0	1.9	1.9	2.0
South Carolina	92.9	95.7	106.4	136.9	202.9
Total	1,517.2	1,647.5	1,890.4	2,482.2	3,921.9

The total labor force in the study area in 1960 is estimated to be 1,890,400 or about 38 percent of the total population. For the United States economy, the total labor force is about 40 percent of the total population. By 2000, it is expected that the ratio for the Southeast River Basins area will be closer to that of the United States. The projected total labor force in the study area in 2000 is 3,921,900 or about 39 percent of the population.

Total Employment

Estimates of the future employment pattern for the study area have been approached from two directions. On one hand, employment has been treated as a function of labor force with the assumption that jobs would materialize. Under this approach, an unemployment rate of about 4 percent of the labor force was assumed. On the other hand, employment has been approached from the point of view of the economic growth and development anticipated in various sectors of the economy. In this latter analysis, the resources of the Southeast River Basins were taken into account, as they are expected to influence economic development. The two approaches carried out independently produced quite similar projections of the future employment pattern for the study area.

Agricultural employment is projected to decline sharply. This trend is part of the general picture of urbanization and industrialization of the economy, with a continued increase in farm productivity. Manufacturing is expected to retain its relative position as a user of labor, with 931,600 employees in 2000 for the Southeast River Basins area. National trends indicate that the percentage of the total labor force employed in agriculture and manufacturing has been declining over a period of time with a tendency to level off at about 30 percent in well-established industrial areas. Mining, trade, and services have

TABLE 3.8

Employment in Southeast River Basins Area (thousands)

Segment	1960		1975		2000	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
Agriculture*	226.7	12.9	170	7.3	130	3.4
Manufacturing	397.5	22.7	552.6	23.6	931.6	24.6
Food products	45.4		66.3		93.0	
Textiles	107.1		104.3		87.6	
Apparel	55.3		89.1		146.6	
Lumber and wood	39.7		43.7		55.9	
Pulp and paper	25.1		37.9		55.0	
Printing and publishing	10.8		18.0		44.1	
Chemicals	24.8		32.8		44.2	
Stone, clay, and glass	12.0		24.9		61.0	
Metals	51.3		89.5		230.0	
Miscellaneous	26.0		46.1		114.2	
Nonagricultural-Nonmanufacturing (NANM)	1,128.5	64.4	1,620.1	69.1	2,727.3	72.0
Mining	6.0		8.2		13.8	
Construction	80.8		121.8		196.3	
Trade	336.2		483.0		812.7	
Government	246.7		354.7		624.5	
Service and other	223.9		328.3		563.3	
Self-employed, etc.	234.9		324.1		516.7	
Total	1,752.7	100.0	2,342.7	100.0	3,788.9	100.0

* Employment in agriculture is measured in man-year equivalents.

increased slightly as users of labor. Construction and government remain relatively stable, percentagewise, in the projections. Total employment is estimated at 3,788,900 in 2000 and 2,342,700 in 1975. Employment in the Southeast River Basins in 1960 was 1,752,700.

Agricultural Employment

One of the most persistent trends in the United States economy is the movement of people out of agriculture. The Southeast River Basins area economy follows this trend. In 1960, 227,000 people were employed in agriculture. In 1975, it is estimated that employment in agriculture will not exceed 170,000 and by 2000 not over 130,000.

Manufacturing Employment

One of the most difficult tasks of the resource economist is to make long-range projections of the manufacturing pattern. The location of raw materials has considerable influence upon the location of factories, but much manufacturing is often located with respect to markets and, therefore, population factors play heavily in decisions on location, as noted earlier. In the recent past, there have been substantial increases in manufacturing employment in the Southeast River Basins area. For example, during the 7-year period 1947-54, manufacturing employment in the Southeast River Basins area increased by 25.2 percent, an increase of 3.59 percent per year. This compares with an average rate of growth in manufacturing employment of 2.93 percent for the State of Georgia and 2.08 percent for the eight-state South Atlantic region. The national average annual rate of growth for the same 7-year period was 1.36 percent. Resource-based industries such as pulp and paper; stone, clay, and glass; and chemicals are growing rapidly and have contributed importantly to growth of manufacturing in the Southeast River Basins area in recent years. Market-oriented industries such as metal products are the most rapidly growing industries. In the year 2000, it is estimated that metalworking will represent 25 percent of the manufacturing employment. Some of the circumstances considered in estimating manufacturing employment are outlined by major industries in subsequent paragraphs.

Food products—The food-products industries have been growing rapidly throughout the South Atlantic region. For the Southeast River Basins area, growth in the food-products industries has exceeded the regional average. For example, during the period 1947-58, employment in these industries increased 16.7 percent in the State of Georgia. Although there is considerable difference of opinion among specialists concerning the volume of future employment anticipated in the food-products industries, it is believed that, in the future, the Southeast River Basins area will contribute a larger share of the national needs for processed foods. Already a notable expansion has been made in the meat-packing industries in Georgia, as compared with the region and the Nation. It is recognized that technology in the food industries will very likely result in plant enlargement and increased output per employee. Even so, employment trends are projected upward for these industries. In 1960, 45,400 workers were employed in the food-products industries. By 1975, it is estimated that 66,300 jobs will be available for this segment and in the year 2000, 93,000 will be employed. This anticipated growth will be closely related to the projected increase in food production as discussed later.

Textiles—In 1960, the textile industries accounted for about 27 percent of the employees in manufacturing in the Southeast River Basins. There appears to be no probability of these industries holding their present position in the expanding economy of the study area. By 1975, it is estimated that employment in textiles will account for about 19 percent of manufacturing employment in the Southeast River Basins area and about 9 percent by the year 2000. National and South Atlantic region statistics also indicate a declining trend of employment in the textile industries. In the past, the textile industries have required a large volume of low-skilled labor. Now that the industries are characterized by keen competition, there has been a marked trend toward consolidation and automation. There is reason to believe that this trend will continue and that a constantly decreasing percentage of the total manufacturing employment will be used in the textile industries.

Apparels—Studies of the apparel industries in the South Atlantic region and in Georgia show that there has been substantial growth in recent years. In Georgia, the increase in employment in this segment was greater than in the South Atlantic region, increasing by 46.0 percent from

1947 to 1954. In 1960, the apparel industries in the Southeast River Basins area employed 55,300 people. In these industries total employment of 89,100 is projected for 1975 and 146,600 for the year 2000. Substantial increases in employment for these industries are justified by the growing popularity of the informal lines of apparel manufactured here for the expanding local and national markets.

Lumber and wood—There has been a substantial decline in production and employment in these industries in the Southeast River Basins area in recent years. Lumber production in the area has dropped from about 200 million cubic feet in 1947 to 133 million cubic feet in 1958. This decline in output of lumber has been largely the result of greater competition for wood from pulpmills which, to an increasing extent, have been utilizing trees of sawtimber sizes. It is also due to a widespread reduction in the size and quality of southern pine available for lumber production. Production of other wood products declined from 277 million cubic feet in 1947 to 159 million cubic feet in 1958. Decreased use of fuelwood, which has been increasingly displaced by more convenient fuels for both domestic purposes and for curing tobacco, accounts for most of this drop. The study area can produce more wood and it is expected that the downward production trend will be reversed in the 1960's. It is projected that employment will increase from 39,700 in 1960 to 43,700 in 1975 and 55,900 in the year 2000. Present employment will need to be increased nearly 40 percent to handle and process an expected upturn in output. An increased productivity factor of 1 percent per year per worker was used in estimating future employment. Rates of technological change are believed to have been slower here than in industry generally and, therefore, a lower increased productivity rate was used than for the average of all manufacturing industries.

Pulp and paper—Employment in the pulp and paper industries has been increasing in the Nation, the region, and the Southeast River Basins area. The most rapid growth in the Nation has been in the Southeast River Basins area. Employment in these industries in Georgia increased by 58.6 percent from 1947 to 1954 and by 15.3 percent from 1954 to 1958. The great variety of uses of pulp and paper assures these industries of a growing market. The growth of technology in these industries has made it possible to manufacture such diverse products as newsprint, linerboard for corrugated shipping containers, and dissolving wood pulp for rayon, acetate, and cellophane. The expanding market for printed material is a major factor in the upward projection of employment for these industries. In 1960, employment for the Southeast River Basins area in the pulp and paper industries is estimated at 25,100. Employment in these industries is expected to more than double by the year 2000. All studies available to the U. S. Study Commission and those conducted for the Commission reflect the above trends.

Printing and publishing—The printing and publishing industries are relatively undeveloped in the Southeast River Basins, but there appears to be excellent prospects for the rapid growth of this segment of the regional economy. In 1960, about 10,800 persons were employed in printing and publishing in the study area. By 1975, this employment is expected to grow to over 18,000 and to over 44,100 by the year 2000. The increased enrollment in elementary and secondary schools and in colleges and universities, coupled with the growing demand for books and periodicals of all kinds, will provide an expanding market for regional publishers.

Chemicals—The chemical industries in the Southeast River Basins area have not kept pace with the South Atlantic region and have been far behind the Nation as a whole. While it is expected that the chemical industries in the study area will not employ as large a proportion of the total manufacturing labor force as in the Nation or region, there are ample reasons for projecting considerable growth in employment. In 1960, about 24,800 workers were employed in chemical manufacturing in the Southeast River Basins area. By 1975, this is expected to grow to 32,800 and to 44,200 by the year 2000. This growth in employment reflects the expectation that a regional chemical market will develop as the Southeast River Basins area becomes more industrialized, and that by the year 2000 this area will supply a portion of the national market. It also recognizes that industry will continue to move in the direction of increased mechanization, automation, and better utility of manpower. The favorable location of the South-

east River Basins area with regard to ocean ports and international commerce and with regard to significant resources, especially water, will be a further factor in the rapid development of the chemical and metal industries. Although petroleum has not yet been discovered within the Southeast River Basins area in large amounts, if found, it would revolutionize the chemical industries in the Southeast. New markets and uses for chemicals are constantly being developed and the effect of these new products and processes will influence the Southeast River Basins area chemical industries. For example, the conversion of coal to liquids would allow diversion of some petroleum products into usage as raw materials fc chemicals. Radiation chemistry is expected to form the basis of a whole new industrial complex. The chemical industries in the Southeast River Basins area are passing through a transition from a raw-materials orientation to a market-oriented business. Until very recently, the major portion of the chemical industries of the study area has been composed of fertilizers, gum and wood products, and vegetable and animal oils. Each of these segments is now regressing or remaining static with very little potential for increase. The pulp and paper and the textile industries may be expected to consume large quantities of chemicals in the future, but the true picture of the future of the chemical industries in the study area must be projected on the basis of purely hypothetical chemical industries, so rapidly is the industry changing.

Stone, clay, and glass—The natural resource base for highly developed stone, clay, and glass industries exists in the Southeast River Basins area. A start has been made in each of these fields; and, as the area develops, substantial growth is expected. In 1960, employment in this segment was about 12,000 workers. This is expected to rise to 24,900 by 1975 and 61,000 by 2000.

Metals—In terms of employment, the metal industries are the most important industry in the present economy of the United States. In the Southeast River Basins area, metalworking was the third largest industry in 1960. In 1960, the textile industries employed more than twice as many people as the metal trades in the Southeast River Basins area. By 1975, it is expected that employment in metals will fall just a little short of employment in textiles; and, by 2000, it is projected that the employment in metals will be more than twice that in textiles. About 16 percent of the total manufacturing employment in the Southeast River Basins area in 1975 will be employed in the metal industries and by the year 2000, about 25 percent. In recent years, the transportation equipment segment of these industries has accounted for a major share of the metal industries growth. In the future, a more diversified growth of the metal industries in the Southeast River Basins area is projected. It should be emphasized that this group contains a wide variety of industrial establishments. Studies show that in the fabricated metals and fabricated plastics the average number of employees per plant is about 40.

Other manufacturing—This category includes a large number of small establishments employing only a few employees and engaged in the manufacturing of jewelry, plated ware, toys and sporting goods, office supplies, notions, plastic products, and other goods. The projected employment is estimated to be about 46,100 in 1975 and 114,200 in 2000, as compared to about 26,000 in 1960. It is anticipated that many new industries will be developed in the years ahead. It is obviously impossible to foresee the character of these.

Nonagricultural—Nonmanufacturing Employment

The employment in the Southeast River Basins area in the nonagricultural-nonmanufacturing category in 1960, which includes mining, construction, trades, services, and government, was 1,128,500 or almost two-thirds of the total employment. It is projected that this category of employment will be 1,620,100 in 1975, more than two-thirds of the total, and will rise to 2,727,300 by 2000, which will be almost three-fourths of the total employment. The following paragraphs summarize some of the principal considerations involved in the projections.

Mining—While a considerable variety of minerals is found in the Southeast River Basins, most of the mining employment is in the building material segment, including stone, clay, sand, and gravel. The demand for these building materials should increase as the area develops economically. In 1960, about 6,000 were employed in mining in the Southeast River Basins

area. Employment is expected to approach 8,200 by 1975 and 13,800 by the year 2000.

Construction, trades, and services—These segments of the Southeast River Basins economy are expected to make only a modest gain in the relative position in the area economy over that held in 1960. Service employment includes transportation, communication, and public utility employees as well as workers in hotels, motels, laundries, and entertainment. In 1960, construction, trade, and services employed about 640,900 in the Southeast River Basins area. Employment in these categories in 1975 is expected to reach 933,100 and 1,572,300 by 2000. These figures reflect the growing importance of trades and services in modern technological economy, where productivity per worker is dependent on having on hand the tools and equipment provided by these trades and services.

Government—The requirements of government are expected to grow in about the same proportion and at about the same rate as other services. Employment in government has increased over twofold in the Southeast River Basins area from 1939 to 1960. As increased demands are placed on the education facilities of the area in the future, it is very reasonable to expect continued additional growth in number of teachers and in all other local, State, and Federal Government workers.

Income

Personal Income

The amount of personal income per capita is closely related to the size and productivity of the labor force. Studies provide the following comparison between per capita income in the United States and in the Southeast River Basins, for 1960 and, as projected, for 1975 and 2000.

	Year		
	1960	1975	2000
United States (1960 dollars)	2,222	3,012	4,733
Southeast River Basins area (1960 dollars)	1,582	2,202	3,922
Ratio to United States (percent)	71.2	73.1	82.9

The per capita income for the Southeast River Basins area has been gaining on national per capita income since 1929. The most rapid gain occurred between 1942 and 1945. For purposes of this study, it was assumed that the slower rate of gain in the Southeast River Basins area per capita income experienced during the period 1948-57 would continue to 2000. Under this assumption, the per capita income gap that exists between the Southeast River Basins area and the Nation is projected to close from 71.2 percent in 1960 to 82.9 percent in 2000.

The relatively more rapid rise of per capita income in the Southeast River Basins area and the South, compared to the Nation, has been due to the reduction in numbers employed in low-paying pursuits such as part-time or subsistence farming and a substantial increase in employment in higher paying jobs such as manufacturing and other nonagricultural employment. Other contributing factors which are expected to result in higher personal income levels in the Southeast River Basins area are: (1) Anticipated continuing rise in educational levels, (2) a shift in types of manufacturing to a higher value added, and (3) increased urbanization.

Table 3.9 shows the sources of income in the Southeast River Basins area by major income categories.

Productivity

Productivity is a measure of the output per worker. It has increased steadily with advances in technology in both agriculture and nonagricultural industry. Technology may bring about a large increase in productivity in some types of industry while others lag behind. Nevertheless, an overall measure of increase in productivity is essential in order to project the total economic product in relation to population and employment at some time in the future. One measure of productivity is to divide the gross national product in constant prices by the number of production workers. This measure gives a trend in national productivity showing an average increase of 1.7 percent per year for the past 50 years.

Over the last 20 years, to 1960, the rise in productivity for the Nation has averaged better than 2 percent yearly compounded and in the last 10 years the rate of increase has averaged 2.4 percent. In preparing projections of nonfarm wages and salaries in the Southeast River Basins area, it was assumed that the overall gain in real earnings per nonagricultural worker would be at a rate of 1.8 percent annually from 1960 to 1975 and would increase to 2.2 percent

TABLE 3.9

Sources of Personal Income by Major Income Categories
(millions of 1960 dollars)

Income categories	1960	1975	2000
Mining	24.8	47.5	153.0
Construction	326.3	642.3	1,750.2
Manufacturing	1,502.2	2,879.5	9,260.8
Trade, finance, etc.	1,176.7	2,207.6	6,280.5
Government	1,000.6	1,878.6	5,593.0
Transportation and services	865.4	1,539.0	3,949.3
Miscellaneous[1]			
Domestics	116.5	209.8	565.5
Other NANM	42.0	75.4	204.0
Total wage and salaries (unadjusted)	5,054.5	9,479.7	27,756.3
Conceptual adjustment[2]	217.0	169.1	185.3
Total nonfarm wages and salaries	5,271.5	9,648.8	27,571.0
Farm proprietors' and agricultural wages	378.0	587.0	918.0
Nonfarm proprietors' income	770.5	1,304.6	3,376.8
Property income	794.0	1,485.6	4,515.7
Transfer payments and other income	770.6	1,475.0	4,761.9
Total	7,984.6	14,501.0	41,143.0
Less social insurance payments	156.6	394.0	1,719.0
Total personal income	7,828.0	14,107.0	39,424.0

NOTES: [1] The term "miscellaneous" is used in lieu of "self-employed and other" because over 50 percent of self employed are included under nonfarm proprietors' income.
[2] The conceptual adjustment is the difference between employment by place of work and employment by residence of workers.

from 1975 to 2000. The biggest gains in productivity have been associated with manufacturing where gains from technological advances, automation, etc., have been greatest. At this time, there is reason to believe that these gains will continue.

Agricultural Economy

General

The agricultural segment of the total economy of the Southeast River Basins area has been developed to cover three major time periods: (1) The present, (2) the year 1975, and (3) the year 2000. The present status is indicated in terms of both 1954 and 1959 data. The 1954 data were developed from studies which relied heavily on the 1954 Census of Agriculture data. The 1959 agricultural data were developed from the 1959 Census of Agriculture. Agricultural data not available from the Census of Agriculture were developed from several sources including the Forest Survey and Conservation Needs Inventory data of the U. S. Department of Agriculture and other available data. The historical and projected data showing production and acreage requirements are shown in Table 3.10.

National Production Requirements

The food, feed, tobacco, wood, and cotton requirements have been developed to support a national population of 235 million people in 1975 and 380 million in 2000. The projected national requirements for 1975 and 2000 represent a need of the expected demand under the specified assumptions and should not be considered as predictions. The national production requirements were adjusted to account for imports and exports. Consequently, the end result is the amount of agricultural products that will need to be produced to supply domestic requirements in the United States and to allow for projected exports. All national requirements

data were developed by the Economic Research Service[1] and the Forest Service of the U. S. Department of Agriculture. National requirements data are shown in Section V of this Part.

Study Area Production Requirements

A share of the future national production requirements for agricultural products has been assigned to the Southeast River Basins area based upon the past relationship of the area production to national production, expected future production trends, and expected available resources in the area. The difference between present output in the Southeast River Basins area and its assigned share of the projected requirements provides a guide to the needs for development of land and water resources of the area to meet future needs for agricultural products. The Southeast River Basins area share of the national requirements was developed by the Economic Research Service and the Forest Service of the U. S. Department of Agriculture. However, the Commission made adjustments in requirements for cotton and livestock feed (corn, small grain, and hay) based upon local trends now underway.

Trends

Agricultural output is expanding in the Southeast River Basins area. However, the number of farms, farm population, and the amount of farmland have been declining, and are expected to show further declines through the time period considered in this study. The seeming paradox of an expanding production and a declining farm acreage and population stems from the large growth in production efficiency arising from the increased use of farm machinery, fertilizers, off-farm services, conservation programs, and other forms of improved technology. Further increases in efficiencies are expected to occur over the next 40 years.

Farmland

Approximately 33 million acres of land in the Southeast River Basins area was in farms in 1954 (Table 3.10). This had decreased to 27.3 million acres by 1959, or a decrease of 17 percent. During the same period, the number of farms declined by 35 percent and farm population declined by 34 percent. However, cash farm receipts in constant dollars increased by 38 percent, or by some $212 million.

Farm Production

The increase in population expected in the United States for 1975 and 2000 will place heavy demands on the Southeast River Basins area for a greatly expanded agricultural production. For instance, studies indicate there will be a demand for 18 million additional bales of cotton in 2000 over what was produced in the United States as an average for the 5-year period 1955-59. In order to meet these national needs, it is projected that the Southeast River Basins area would need to produce 860,000 more bales of cotton in 2000 than were produced in 1959. Also, these studies show that about 45 billion additional pounds of beef and veal will be consumed nationally in 2000 over the average of the 5-year period of 1955-59. Likewise, the Southeast River Basins area would need to produce about 1 billion more pounds of beef, 1 billion more pounds of pork, and 1 billion more pounds of poultry than were produced in 1959. These and other increased demands placed on the Southeast River Basins area must be met with fewer farms and farm people and with a smaller total acreage of farmland than was used in the Southeast River Basins area in either 1954 or 1959.

The sale of agricultural products is projected to reach $2,076 million in the year 2000 in the Southeast River Basins area as compared to $562 million in 1954. In order to meet the production requirements, some major adjustments in the agricultural industry will be required. Farms will be about 40 percent larger in terms of acreages, but the capital investment will be 2.3 times the 1959 investment. The total output of crops will increase, but the total acreage of harvested cropland will change very little from the 1959 level (Table 3.10). Livestock and poultry numbers will greatly increase and there will be an expansion of 3 million acres of open pastureland over the 1959 base. However, agricultural employment, in terms of man-equivalent years, should decrease from 227,000 in 1960 to 130,000 in the year 2000.

[1] Formerly the Agricultural Research Service. Hereafter referred to as Economic Research Service or ERS.

TABLE 3.10

Agricultural and Forestry Resources

Item	Actual		Projected[1]	
	1954	1959	1975	2000
General				
Number of farms[2]	213,900	139,900	112,000	93,700
Average size of farm (acre)	154	195	232	272
Capital investment (million dollars)	2,632	2,826	4,360	6,400
Average investment per farm (dollars)	12,450	20,200	38,900	68,300
Labor per acre of farmland (hr.)	29	26	20	15
Agricultural production base				
Land in farms[2] (thousand acres)				
Cropland	12,255	10,362	10,000	12,930
Woodland	17,412	14,095	13,277	10,001
Other pasture	2,535	2,028	1,900	1,700
Other farmland	793	847	823	869
Total	32,995	27,332	26,000	25,500
Use of cropland (thousand acres)				
Cotton	1,279	836	1,040	1,071
Tobacco	127	86	162	219
Peanuts (picked and thrashed)	615	689	944	1,139
Soybeans[3]	103	230	65	78
Corn[3]	3,877	3,402	2,125	2,400
Sweet potatoes	18	19	25	31
Small grain	828	479	500	619
All hay	862	466	632	834
Fruits and nuts	267	257	255	320
Commercial truck	252	145	256	277
Miscellaneous and other	101	210	146	212
Total harvested crops	8,328	6,819	6,150	7,200
Crop failure	303	205	154	180
Idle, fallow	1,542	1,470	498	350
Cropland pasture	2,082	1,868	3,198	5,200
Total cropland	12,255	10,362	10,000	12,930
Class 1-3 land available (thousand acres)	17,157	14,213	13,520	13,260
Pasture for livestock (thousand acres)				
Cropland	2,082	1,868	3,198	5,200
Woodland	7,598	5,306	4,767	4,158
Other	2,535	2,028	1,900	1,700
Total pastureland	12,215	9,202	9,865	11,058
Land in forest (thousand acres)				
Nonfarm forest	19,676	24,540	25,276	23,876
Farm forest	17,412	14,095	13,277	10,001
Noncensus farm forest	--	172	200	235
Total forest land	37,088	38,807	38,753	34,112
Agricultural production requirements				
Crop production				
Cotton (thousand bales)	844	640	1,040	1,500
Tobacco (million lbs.)	158	122	227	345
Peanuts (million lbs.)	415	682	1,321	2,073
Soybeans harvested (million bu.)	1.4	3.1	1.5	2.3
Corn harvested (million bu.)	58	65	85	132
Sweet potatoes (million bu.)	2.0	2.1	3.4	5.4
Small grain (million bu.)	16.5	14	16	26
All hay (thousand tons)	862	525	1,200	1,835
Commercial truck (thousand tons)	629	537	1,025	1,660
Livestock numbers (thousands)				
Cattle and calves	1,940	1,931	3,430	4,850
Milk cows	376	326	356	480
Hogs and pigs	2,214	2,621	3,650	4,500
Layers	8,825	11,842	10,200	14,300
Livestock production				
Beef and veal (million lbs.)	401	435	858	1,388
Pork (million lbs.)	391	501	928	1,501
Poultry (million lbs.)	627	867	1,197	1,936
Eggs (million dozen)	114.0	164.6	220.8	357.0
Milk (million lbs.)	1,581	1,500	2,630	4,252
Timber				
Pulpwood (million cu. ft.)	330	428	800	1,377
Other wood products (million cu. ft.)	600	526	620	823
Total	930	954	1,420	2,200
Cash receipts from nonfarm forestry (million dollars)[4]	79.7	81.8	126.5	212.8
Agricultural income and expenses				
Cash farm receipts (million dollars)	562.1	774.0	1,344.3	2,076.4
Farm production expenses (million dollars)	401.9	616.1	981.3	1,474.2
Net income (million dollars)	160.2	157.9	363.0	602.2

NOTES: [1] Projections include the quantities of products or resources needed to produce the portion of national requirements which are allocated to the Southeast River Basin area.
[2] Land in farms, cropland, woodland, etc., has been used as defined in the 1954 Census of Agriculture for 1954 and as defined in the 1959 census for all other years.
[3] Includes acreage harvested, grazed, and hogged-off.
[4] Includes $7 million in 1975 and $11 million in 2000 for naval stores.

Forestry

Farm woodland is expected to decrease from 14.1 million acres in 1959 to 10.0 million acres by the year 2000 due to competitive land use from crops and other land uses. Nonfarm and noncensus farm woodland is expected to decrease from 24.7 million acres in 1959 to 24.1 million acres by the year 2000. The net effect is a loss of some 4.7 million acres of total woodland between 1959 and the year 2000 in the Southeast River Basins area. However, improved levels of woodlot management on existing forest lands are projected to enable an annual cut 2.2 times greater in the year 2000 than the 1959 annual cut.

Special Use Land

In 1959, some 3.5 million acres of land in the Southeast River Basins area was used for special use purposes. These special uses included such service areas as towns, cities, highways, airports, etc., and such social areas as parks and recreational developments. Also included were noncensus agricultural lands and vacant and wasteland, as well as other types of special uses. By 2000, special uses are expected to require 6.0 million acres of land in the Southeast River Basins area. This will result in a net loss of 2.5 million acres of land to agriculture and forestry between 1959 and 2000. These adjustments in total land resources of the Southeast River Basins area, along with increased population, will require both agriculture and forestry to operate at higher levels of efficiency. Also, it will require adequate planning of resource development to insure optimum utilization of resources.

Planning Objectives

General

In line with the basic concept that plans for resource developments be related to the projected economic and social needs of the Nation and the Southeast River Basins area, it is essential that the magnitude of future resource requirements be indicated to serve as a guide to planning. Projects and programs have been planned with the objective of developing those particular resources required to serve the projected economy.

Resource Base

This study is primarily concerned with the land and water resources of the Southeast River Basins area. These resources are widely used by the agricultural economy, which in the past has been the backbone of the economy of the study area. Increasing urban and industrial uses of land and water have in recent years been added to the basic agricultural economy resulting in a need for careful planning. The total supply of water in the Southeast River Basins appears to be adequate to meet the requirements of the projected developments. However, it is believed that adequate water will not be available during dry periods in the absence of plans for storage, emergency wells, and distribution facilities. Provisions must also be made to assure adequate water quality standards to avoid undue contamination and pollution of the available supply. The current supplies of land and water are summarized as follows:

Land (million acres)	
Farm (including forests)	27.3
Nonfarm forest	24.5
Special use land	3.5
Total	55.3
Surface water (million acre-feet)	
Average year	70.3
1954 drought year	35.5

Agricultural land including nonfarm forest comprises 94 percent of the land area. The area devoted to urban use, which includes nonurban incorporated towns, amounts to about 3 percent of the total land area. The remaining 3 percent of the land area includes highways, railroads, airports, military, and other special uses.

Land Use

The projected requirements for agricultural production are shown in Table 3.10 of Section I along with an explanation of their derivation. Specific data, such as bales and pounds are presented to indicate the food, feed, and fiber requirements for the years 1975 and 2000. Also shown is acreage of land required to obtain the agricultural production. The acreages shown have been derived from estimated average yield

data with appropriate allowances for the acceptance and application of improved technology and management techniques. Data for the total study area have been developed from averages, and it is expected that there will be wide divergences from these averages in localized areas. Information on the production requirements for wood and the acreage of forest lands required to serve the projected economy also are presented. No specific estimate is presented on land requirements for future urban and industrial developments, although adequate land area is expected to be available without serious restriction to projected agricultural uses. On the basis of projected land use presented in Table 3.10, it is estimated that nonagricultural land use will increase from 3.5 million acres in 1959 to 6.0 million acres in 2000 which is adequate to accommodate the projected developments.

Minerals

The mineral resources in the study area are largely nonmetallic. The most abundant are the basic construction materials, sand and gravel and stone, in both crushed and dimension size. In addition, there are deposits of granite, limestone, and clays, all of which are being produced for commercial uses. The metallic minerals, both in occurrence and production, are sparse. There are deposits of iron ore (limonite) but production to date has been limited. Some bauxite, an ore of aluminum, is available but probably not in sufficient reserve to support an aluminum plant by currently used reduction methods. The kaolin clays have a high aluminum content, but this source is not now economically competitive with other sources of aluminum. Petroleum and natural gases are produced in limited quantities in the southwest portion of the study area. Prospecting is continuing, particularly in the offshore areas of the seacoasts; and, if substantial quantities are developed, this will be of significance to the economy of the area. Estimates of mineral production required to serve the projected economy are not presented.

Water

Preliminary studies indicate that the total supply of water in the Southeast River Basins is generally adequate. However, water may not be available during periods of drought unless provision is made for surface storage or wells for use of subsurface supplies. With these precautions, water need not be a limiting factor in the future economic development of this area for the period considered. Water quality will have to be maintained to insure that the water resource contributes its share to economic development. The surface water supply now available is estimated to be about 70 million acre-feet in an average year. In addition, there are considerable ground water resources available; and, while extensively used at the present time, they have not been developed to the limit of the dependable yields. It is estimated that the dependable yields from ground water would be about 38 percent of the average surface supplies that are available, or about 27 million acre-feet per year.

The 1954 drought was the most critical that has occurred in the study area during the past 100 years, as indicated by long-term rainfall records. The surface runoff available during the 1954 drought year was about 50 percent of the average annual runoff, or 35.5 million acre-feet. As a practical matter, it would be possible to draft more than average quantities from ground water sources during a critical drought year.

It is to be noted in Table 3.11 that the total water requirement in 2000 is estimated to be 30,960 million gallons per day, which is equivalent to 34.7 million acre-feet per year. Accordingly, the projected requirements for water in 2000 will be about 50 percent of the available surface supply during a year of average runoff and 97 percent of the available surface supply during a drought year equivalent to that of 1954. These estimates are based on the use of the total indicated water requirements without allowance for significant reuse or the return flows from water supply drafts for municipal, industrial, and other uses. An estimate of the approximate consumptive use of water in 2000 is about 465 million gallons per day, which is equivalent to 0.5 million acre-feet per year. During a drought year such as 1954, the consumptive use of water would be less than 1.5 percent of the available surface supply.

It is evident that on an overall basis there would be no deficiences in the physical quantities of water. However, there will be deficiencies in certain areas during drought periods where the demands are higher than the available yields and during seasonal periods of the year. The

deficiencies during seasons of the year and during the occurrence of droughts can be overcome by the development of suitable storage capacities to provide dependable yields from surface water supplies for the critical period or from ground water sources. The deficiencies, with respect to shortages in localized areas, can be avoided by the diversion or transportation of water from areas of excess supply and by the judicious location of large water-using industries in areas where the available supplies will not be overtaxed. The salt-water encroachment problems along the coastal reaches can be reduced by proper location of wells and with adjustment of draft rates so that the safe yield is not exceeded.

Planning Objectives for Water

On the basis of the economic activity projected for the study area, as developed earlier in Part Three, the quantities of water needed to serve that economy are summarized in Table 3.11. These water needs are estimated without allowance for reuse of water. It is expected that the adoption of water conservation measures, coupled with the installation of suitable waste-treatment facilities to maintain adequate water quality, will permit the safe utilization of return flows for other uses. Such measures will greatly enhance the value of the natural supplies for recreational and other uses.

TABLE 3.11

Water Use in Southeast River Basins Area (millions of gallons per day)

Purpose	1960	1975	2000
Municipal	400	670	1,450
Industrial	2,520	3,540	6,120
Waste dilution	15,000	18,000	23,000
Agriculture	150	270	390
Total	18,070	22,480	30,960

Basis for Estimating Water Needs

The following paragraphs set forth the primary considerations for determination of the projected water needs. The values are not precise determinations; they are estimates. The estimates are considered sufficiently reliable to serve their intended purpose; namely, an estimate of the approximate quantities of water required to serve the projected economy and as a guide to planning for their development.

Municipal—The need for municipal water has been developed from the existing and projected urban population with per capita rates of 170 gallons per day in 1975 and 200 gallons per day in the year 2000. The present usage has been developed from inventoried uses of municipal water within the study area. The use rates for 1975 and 2000 are assumed from other studies and investigations.

Industrial—The needs for industrial water have been developed from the projected pattern of manufacturing, as developed under Labor Force and Employment. Unit rates of water use were applied to units of output or numbers of employees by specific industries to develop the total water requirements. The pulp and paper and chemical industries are the largest water users and will account for more than 50 percent of the total industrial water requirements in the year 2000. The estimates of industrial water requirements do not make allowance for reuse nor for increased labor productivity. It is believed that the adoption of conservation reuse measures to meet higher water-quality standards will balance the increased raw water required because of the increases in labor productivity. It is expected that nearly all of this water demand will be available for reuse with only a slight impairment in quality. This assumes that industry will install necessary waste-treatment works.

Waste dilution—The estimate of water needs for pollution abatement, or the dilution of municipal and industrial wastes, has been developed from studies within the study area and from data contained in the prints of the Senate Select Committee on National Water Resources. It is to be noted that the bulk of the total water requirements is for dilution purposes, ranging from 83 percent of the total in 1960 to about 75 percent in 2000. These estimates have been based on the provision of 70 percent municipal and 60 percent industrial treatment by 1975 and for 80 percent municipal and 70 percent industrial by 2000. The current water requirements for dilution purposes are estimated to be about 15,000 million gallons per day with an overall waste-treatment program of under 50 percent. The current requirements are not specifically allocated to dilution purposes, but surface water

is now being used for this purpose pending the provision of additional treatment facilities. In the event the treatment of wastes is not accomplished as anticipated, there will be a serious impairment in quality of the available water supplies and a greater need for dilution water.

Agriculture—The farm use requirements of water have been developed from projections of rural population and anticipated requirements for livestock and normal farm activities. Estimates of water requirements for irrigation for 1975 and 2000 were based on the application of 8 inches of water on 180,000 acres in 1975 and 270,000 acres in 2000. This represents increased water requirements of 64 percent in 1975 and 145 percent in 2000 over the 1960 irrigation water use. The total amount of water required for agricultural purposes ranges from 0.8 percent of the total water requirement in 1960 to 1.2 percent in 2000.

Population Oriented Planning Objectives

There is included in this category the projected developments needed to establish planning objectives which relate primarily to the activities of people rather than to natural resource development. These include recreation both as concern outdoor activities and hunting and fishing, and electric power which serves all segments of the economy as well as people themselves. An additional item is the requirements of the population for fish for food and industrial purposes. A summary of the planning objectives is as follows:

Item	1960	1975	2000
Electric power			
Energy (billion kw.-hr.)	14.5	50.6	110.0
Capacity (million kw.)	2.9	10.0	20.0
Recreation (million user-days)			
Outdoor activity*	35	95	230
Hunting and fishing	18	27	40
Fishery catch (million pounds)			
Fish	92	120	193

* Exclusive of hunting and fishing.

Basis for Estimating Planning Objectives

The above indicated objectives have been determined as outlined in subsequent paragraphs.

Electric power—The estimates of total electric energy needed for residential, commercial, and industrial use have been developed from per capita rates considered applicable to the projected economy on the basis of experienced rates in the study area and comparisons with projections for the United States as a whole. The per capita rate increases 3.7 times in the year 2000 as compared to 1960 uses. The 1975 values of electrical energy requirements are considered to be reasonably firm, although the requirements in the year 2000 could be much greater. However, the estimated energy requirements in 2000 are consistent with those developed by the U. S. Senate Select Committee as apportioned to the study area. The demand capacity that will be required to meet the electric load shows a sevenfold increase from 1960 to 2000. The estimates of capacity required in 2000 also could be greater. The indicated electric power requirements are the total for the study area without designation of the portion to be supplied from hydroelectric sources. It is expected that the base load in the study area will be met by fuel plants and that there will be an urgent need for development of all of the hydroelectric capacity found economically feasible for peaking purposes.

Recreation—The estimated demand for recreational activity is broken down to show hunting and fishing and outdoor activity exclusive of hunting and fishing. The projections of outdoor recreation use were developed from considerations of the work week, leisure time, etc. The per capita rates for estimates of hunting and fishing have been developed from license sales in the study area, amounting to 3.7 user-days per capita in 1960. The projected trends are estimated to be 4.1 in 1975 with a slight decline to 3.9 in 2000, due principally to the increased trends toward urbanization.

Fishery catch—The estimates of the total pounds of fish required to serve the projected economy have been developed from the 1960 catch by applying the ratio of projected United States population to the 1960 population. The estimates of total catch are inclusive of both the edible and nonedible species.

SECTION II – POPULATION IN THE SOUTHEAST RIVER BASINS

Purpose

This Section presents studies of historical and projected population aggregates for the Southeast River Basins area from which estimates of population by river basins and State subbasins, by residential categories, and of major cities within and contiguous to the Southeast River Basins area have been developed. It also contains an explanation of the methods employed and the logic and reasoning used in developing the statistical data.

Scope

The discussion of population in Section I was concerned with projected United States population for 1975 and 2000, under stated assumptions. Southeast River Basins area population for the period 1930 to 1960 and projected values for 1975 and 2000 were also presented. Data for the state segments constituting the Southeast River Basins area were given for the same periods, and a comparison with United States population was shown. The Southeast River Basins area population aggregate was broken down into two residential categories, urban and rural, and the relationship to national population presented.

This Section contains a breakdown of the Southeast River Basins area population data into river basins and State subbasins. Data are presented for the urban and rural population categories for each of the eight river basins, by State subbasins and for 18 metropolitan areas. Thirteen of these SMSA's[1] or other metropolitan areas are within the boundaries of the Southeast River Basins area; the other five are outside the area, but are part of contiguous areas which influence the economy of the Southeast River Basins area. Historical data on population aggregates for the river basins cover the period 1930 to 1960; for the 18 metropolitan areas, population data for the period 1900 to 1960 are included. Population projections for all subdivisions are for 1975 and 2000. The population data by subdivisions are consistent with Southeast River Basin totals which in turn are related to national population aggregates. Division of the Southeast River Basins area into eight principal river basins and State subbasins is shown on Figure 1.1.

[1] SMSA is an abbreviation for Standard Metropolitan Statistical Area. However, projections were not restricted to SMSA's as defined by the Bureau of the Census as of 1960, but included areas around major cities as defined in footnotes of Table 3.15.

Definitions

Total Population

Total population includes all those persons, as reported by the Census of Population, who resided within the boundaries of the Southeast River Basins area.

Urban Population

Urban population, as based on census of population definitions, includes those persons residing in places of 2,500 or over. It also includes persons living in urbanized areas which are defined by the Census Bureau as follows:

> "An urbanized area contains as least one city of 50,000 inhabitants or more in 1960, as well as the surrounding closely settled incorporated places and unincorporated areas that meet the criteria . . ."

Additional refinements in details of the definition are given in the Census of Population series PC (1), 1960.

Rural Population

Rural population is the difference between urban population and total population. This residual is made up of two components: Rural farm population, which consists of all persons living on farms; and rural nonfarm population, which includes all persons not living in urban areas and not living on farms. In 1960 the rural nonfarm population also included persons living on residential farms which in previous census reports had been classified as rural farm population.

Standard Metropolitan Statistical Area

Standard Metropolitan Statistical Area (SMSA) is defined in the Census of Population for 1960 as:

". . . a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or 'twin cities' with a combined population of at least 50,000. In addition to the county, or counties, containing such a city or cities, contiguous counties are included in an SMSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city."

State Subbasin

A State subbasin is all of the portion of one of the eight major basins that lies entirely within one of the States in the Southeast River Basins.

General

The importance of projected population growth, relative to probable market demand of an area and the need to plan for production, development of resources, and other aspects of an economy, has been long recognized by economists and planners. Basins population projections were prepared so as to fit into a proper relationship to the Southeast River Basins area, State, and national population—past and future.

Basic Approach

Preparation of population projections for river basins and State subbasins involved: (1) A determination of basin population totals for the period 1930-60 by fairly reliable mechanical procedures of allocating county populations to State subbasins and (2) determination of the river basins and State subbasins share of Southeast River Basins area population for 1975 and 2000. While statistical procedures were basic to all projections, considerable judgment was used in adjusting the rather rigid answers thus obtained to provide for anticipated economic and industrial development potentials of the future.

Basic Data

The basic population data used in river basin projections were obtained from the Census of Population for 1930, 1940, 1950, and 1960. The county data on total population and population subdivided according to place of residence were the main working information. In developing population statistics and projections for principal cities, data were obtained from the Census of Population for 1900 to 1960 by decades for cities or SMSA's which involved the county or group of counties in which the central city was located.

Concept of Projections

The major concept governing the population projections was that the larger the geographic unit the smaller the probable error in the projections. Projections of population by river basins, State subbasins, and cities or SMSA's were based on steps leading from a determination of population for large areas down to smaller geographic units and from broad population categories to more detailed categories. This means that State growth in population was considered in relation to national growth, State subbasins in relation to the corresponding States, and from total population to detailed categories of urban and rural population.

Another concept governing the projections was that the population of areas over a period of time has evolved in response to basic economic development plus the ability of the area to fit into a larger economy and to supply jobs in response to economic demands locally and outside the area for products and services. Therefore, trends in the ratio of population of an area to a larger geographic area reflect the composite of the economic forces that have operated to produce employment and to provide a livelihood for a resident population. Projection of the trend in ratios by linear methods reflect anticipated continuation of these forces.

A third concept was that anticipated development activities foreseen for an area could modify upward the trend in ratios projected into the future. Conversely, deceleration factors which are expected to grow stronger could modify downward the relative importance of an area in the complex of the total economy. Projections for river basins and State subbasins were not based on extrapolation of ratios only, but include adjustments made on the basis of knowledge and judgment of area-development potentialities.

Procedures Used in Preparing Basic Population Data for the Period 1930-60

Total Population of State Subbasins

The relationship of State population trends to the population trends of State subbasins provided a guide for projecting the population of these smaller areas. Therefore, an accurate determination of the historic population for State subbasin areas was necessary. A two-step allocation procedure was followed in distributing total population of a county to the different State subbasins which divided it. The first step involved the allocation of total urban and rural nonfarm population of a county to different State subbasins on the basis of the proportionate amount of total city and town population located in each State subbasin. Cities and towns given by the census of population as well as the very small towns shown on Rand-McNally maps were included in the urban and rural nonfarm category, and their location in different river basins was determined by map studies. The second step involved an allocation of rural farm population of a county to different State subbasins on the basis of the proportionate amount of cropland of a county in each State subbasin. The figures obtained in steps 1 and 2 above were added to get total population of the State subbasins for all years in the history period.

Urban Population of State Subbasins

The urban population of State subbasins for 1930 and 1940 was determined by adding all cities and towns of 2,500 or over, plus areas (usually minor civil divisions) classified as urban under special rules relating to population size and density that were established by the Census Bureau for use prior to the 1950 Census of Population. For 1950 and 1960, urban population consisted of all persons living in urbanized areas as defined in the 1960 Census of Population. The allocation of urban population to specific State subbasins was facilitated by detailed analyses of maps showing the exact boundaries of each State and river basin. Populations of Atlanta and Savannah were allocated to State subbasins on the basis of maps obtained from the Census Bureau delineating census tracts. Urban population of other borderline cities and towns was allocated on the basis of general map studies. Analysis of the criteria used for urban areas discloses that the boundaries of the urbanized areas in 1960 did not quite conform to those for 1950 because of changes in land use, density of settlement, and minor changes in the rules employed to define the boundaries. Therefore, there are some small conceptual differences between the 1950 and 1960 definitions. There are large differences, however, between the 1930 and 1940 definitions on the one hand and the 1950 and 1960 definitions on the other. The biggest difference was in the concepts of urbanized areas.

Rural Population of State Subbasins

The rural population of State subbasins was developed as a residual by subtracting urban population from total population. As a further step in the breakdown of total population in major components, rural farm population was derived independently by applying the average number of persons per farm to the number of farms as reported in the 1959 Census of Agriculture. The average number of people per farm varies by State subbasins depending upon the type of farming and the concentration of nonwhites in any particular State subbasin. The rural farm population figures developed for 1959 were adjusted to 1960 by the application of ratios established in past trends. The difference between rural population and rural farm population thus derived is rural nonfarm population. The procedure used to determine rural population and to break it down into rural farm and rural nonfarm population should be distinguished from the rural farm population estimates employed in determining State subbasin total population estimates for the period 1930-60.

Population of Cities or SMSA's

Population of metropolitan areas was determined by combining one or more counties according to the 1960 Census of Population status of the city and using this same area in counting population back to 1900. Thus, the number of counties constituting a city or SMSA was the same for all years back to 1900.

Projections of Population

Total Population by State Subbasins

The ratio of total population of each State subbasin to the total population of the corresponding State for 1930, 1940, 1950, and 1960

provided the statistical basis for extrapolation of the population of the State subbasin to 1975 and 2000.

The State subbasin ratios projected to 1975 and 2000 were applied to the corresponding State population projected for 1975 and 2000. Projected population of river basins and State subbasins is presented in Table 3.12.

TABLE 3.12

Total Population*
(thousands)

Basin and State	Census Data				Projections	
	1930	1940	1950	1960	1975	2000
Basin 1						
Georgia	348.7	375.7	416.2	441.1	573.6	921.3
South Carolina	230.2	242.2	253.0	284.2	359.6	524.9
North Carolina	5.1	6.0	6.6	6.4	6.6	6.8
Total	584.0	623.9	675.8	731.7	939.8	1,453.0
Basin 2						
Georgia	184.9	179.2	172.3	201.5	212.8	267.7
Basin 3						
Georgia	817.9	838.0	918.3	1,040.5	1,289.1	1,784.7
Basin 4						
Florida	17.9	20.9	24.3	32.1	39.6	56.2
Georgia	111.5	118.4	125.7	133.4	169.6	261.0
Total	129.4	139.3	150.0	165.5	209.2	317.2
Basin 5						
Florida	82.5	89.2	90.2	88.5	102.0	114.0
Georgia	187.4	196.1	199.3	198.7	236.4	293.7
Total	269.9	285.3	289.5	287.2	338.4	407.7
Basin 6						
Florida	87.7	95.8	111.2	139.3	178.0	257.3
Georgia	71.1	70.0	71.3	68.5	80.7	90.6
Total	158.8	165.8	182.5	207.8	258.7	347.9
Basin 7						
Alabama	148.2	151.6	161.7	161.4	203.7	294.8
Florida	52.7	55.3	57.5	61.5	64.3	75.2
Georgia	870.1	983.6	1,138.8	1,398.5	1,976.4	3,586.3
Total	1,071.0	1,190.5	1,358.0	1,621.4	2,244.4	3,956.3
Basin 8						
Alabama	333.7	339.0	321.2	311.5	333.2	346.8
Florida	137.4	177.8	254.2	381.0	581.9	1,170.9
Total	471.1	516.8	575.4	692.5	915.1	1,517.7
Summary						
Alabama	481.9	490.6	482.9	472.9	536.9	641.6
Florida	378.2	439.0	537.4	702.4	965.8	1,673.6
Georgia	2,591.6	2,761.0	3,041.9	3,482.2	4,538.6	7,205.3
North Carolina	5.1	6.0	6.6	6.4	6.6	6.8
South Carolina	230.2	242.2	253.0	284.2	359.6	524.9
Total	3,687.0	3,938.8	4,321.8	4,948.1	6,407.5	10,052.2

* Source: Census of Population for 1930, 1940, 1950, and 1960.

Modifications of State subbasin ratios were made by judgment where it was expected that either an acceleration or deceleration in the growth forces would occur over the projection period 1960 to 2000. In general, the adjustments from the 1930 to 1960 trends were minor except for the Florida portion of Basin 8. This State subbasin contains Pensacola and Panama City, both rapidly growing cities, with Pensacola having especially strong potentials. On the basis of the development prospects, it was considered that the downward trend in the Subbasin 8 portion of the total population of Florida would be reversed by about 1975.

By Place of Residence (Urban and Rural)

Population projections by residential categories reflect anticipated growth potentialities in the future. Trends in relative growth rates reflect a composite of the growth forces in the past and were projected into the future by statistical extrapolation. It was assumed that past rates of acceleration or deceleration will in most cases extend into the future. This was based on the logic that, if a residential category has been gaining on its parent State population for an extended period, there must be regional and national forces which are propelling this category of population relative to other population categories. For instance, as a consequence of economic and social forces in our society, urban population has been gaining on other population categories for many years. It was assumed that the forces will continue over at least the next 40 years. Rural farm population has been shrinking because of the technological advances in agricultural production and the creation of nonagricultural jobs which have helped to absorb the surplus workers released from agriculture. Rural nonfarm population occupies an intermediate stage between these two extremes. Some small towns are declining in population, others are retaining the status quo, and some are showing signs of growth, as are many of the fringe areas around growing towns and cities.

Urban population for the State subbasins (Table 3.13) was determined by consideration of growth curves based on extrapolation of historical trends and subsequent adjustments based on judgment. The following three types of ratio curves were utilized.

(1) Ratio of urban population in State subbasin to total population of State.

(2) Ratio of urban population in State subbasin to total urban population of State.

(3) Ratio of urban population in State subbasin to total population of State subbasin.

A consideration of the growth potentialities of each State subbasin indicated whether the final projections selected should be near the highest or lowest estimates derived from the ratios. However, because growth forces are in a large measure associated with urban centers, major weight was given to the projections based on the ratio of urban population in the State subbasin to urban population in the State.

Selection of the most applicable growth curve was followed where necessary with a modification based on judgment. Enough was known about the structure and trends of the economy of each of the State subbasins and how each State subbasin might develop in the future to make it possible, through comparative analysis, to test the logic of the population projections of one basin with another, in terms of anticipated growth ratios and economic growth factors for the projection periods.

Projected rural population was derived as a residual by subtracting the urban population from the total population. The data are presented in Table 3.14. The rural farm component of rural population was independently derived by applying an estimated number of people per farm to the projected number of farms, as set forth in the basin and State subbasin data in Section V.

Major Cities or SMSA's

Cities, or SMSA's, represent a composite of highly concentrated economic forces which also influence growth of the hinterland.[1] There is an interdependence between growth of a city and its environs. Interdependencies exist also between growth rates of cities.[2] Market exchange and the division of labor have brought this

[1] Florence, P. Sargant, *Economic Efficiency of the Metropolis*, The Metropolis In Modern Life, Doubleday and Co., 1955, p. 90.

[2] Duncan, Otis Dudley and others, *Metropolis and Region*, Johns Hopkins Press, (for Resources for the Future), Baltimore, 1960, pp. 46-81.

TABLE 3.13

Urban Population
(thousands)

Basin and State	Census data				Projections	
	1930	1940	1950	1960	1975	2000
Basin 1						
Georgia	140.9	163.0	209.4	242.9	379.0	674.0
South Carolina	43.5	56.9	80.7	126.6	183.0	330.0
North Carolina	0	0	0	0	0	0
Total	184.4	219.9	290.1	369.5	562.0	1,004.0
Basin 2						
Georgia	30.3	34.7	45.7	78.4	105.0	174.0
Basin 3						
Georgia	238.3	271.8	428.6	599.7	800.0	1,250.0
Basin 4						
Florida	3.0	3.5	4.4	10.0	18.1	40.3
Georgia	33.7	39.9	54.4	73.8	115.0	214.0
Total	36.7	43.4	58.8	83.8	133.1	254.3
Basin 5						
Florida	7.2	12.0	17.8	23.1	31.5	41.0
Georgia	35.5	42.8	65.8	91.3	124.0	190.0
Total	42.7	54.8	83.6	114.4	155.5	231 0
Basin 6						
Florida	10.7	18.9	36.6	65.1	114.0	210.0
Georgia	17.7	19.9	24.4	30.3	41.4	66.7
Total	28.4	38.8	61.0	95.4	155.4	276.7
Basin 7						
Alabama	44.7	49.1	70.1	93.8	124.0	200.0
Florida	12.2	15.5	17.5	20.0	26.0	40.0
Georgia	332.3	415.9	589.8	911.0	1,408.0	2,929.0
Total	389.2	480.5	677.4	1,024.8	1,558.0	3,169.0
Basin 8						
Alabama	39.5	45.6	75.4	100.1	147.0	202.0
Florida	39.6	51.6	114.2	218.6	345.0	720.0
Total	79.1	97.2	189.6	318.7	492.0	922.0
Summary						
Alabama	84.2	94.7	145.5	193.9	271.0	402.0
Florida	72.7	101.5	190.5	356.8	534.6	1,051.3
Georgia	828.7	988.0	1,418.1	2,027.4	2,972.4	5,497.7
North Carolina	0	0	0	0	0	0
South Carolina	43.5	56.9	80.7	126.6	183.0	330.0
Total	1,029.1	1,241.1	1,834.8	2,684.7	3,961.0	7,281.0

about. After cities reach a certain size, they generate economic activity and jobs are created more rapidly than persons mature into the labor force.[1] This occurs because cities, particularly the larger cities of 500,000 population or more, have concentrations of investment capital and managerial talent. In projecting population growth of metropolitan areas, the size status at the beginning point of the projection period and recent growth rates are of great consequence in estimating what the future growth will be.

[1] Vining, Rutledge, *A Description of Certain Spatial Aspects of an Economic System, Economic Development and Cultural Change*, Vol. 3, 1955, pp. 25, 48, 51, and 159.

TABLE 3.14

Rural Population
(thousands)

Basin and State	Census data				Projections	
	1930	1940	1950	1960	1975	2000
Basin 1						
Georgia	207.8	212.7	206.8	198.2	194.6	247.3
South Carolina	186.7	185.3	172.3	157.6	176.6	194.9
North Carolina	5.1	6.0	6.6	6.4	6.6	6.8
Total	399.6	404.0	385.7	362.2	377.8	449.0
Basin 2						
Georgia	154.6	144.5	126.6	123.1	107.8	93.7
Basin 3						
Georgia	579.6	566.2	489.7	440.8	489.1	534.7
Basin 4						
Florida	14.9	17.4	19.9	22.1	21.5	15.9
Georgia	77.8	78.5	71.3	59.6	54.6	47.0
Total	92.7	95.9	91.2	81.7	76.1	62.9
Basin 5						
Florida	75.3	77.2	72.4	65.4	70.5	73.0
Georgia	151.9	153.3	133.5	107.4	112.4	103.7
Total	227.2	230.5	205.9	172.8	182.9	176.7
Basin 6						
Florida	77.0	76.9	74.6	74.2	64.0	47.3
Georgia	53.4	50.1	46.9	38.2	39.3	23.9
Total	130.4	127.0	121.5	112.4	103.3	71.2
Basin 7						
Alabama	103.5	102.5	91.6	67.6	79.7	94.8
Florida	40.5	39.8	40.0	41.5	38.3	35.2
Georgia	537.8	567.7	549.0	487.5	568.4	657.3
Total	681.8	710.0	680.6	596.6	686.4	787.3
Basin 8						
Alabama	294.2	293.4	245.8	211.4	186.2	144.8
Florida	97.8	126.2	140.0	162.4	236.9	450.9
Total	392.0	419.6	385.8	373.8	423.1	595.7
Summary						
Alabama	397.7	395.9	337.4	279.0	265.9	239.6
Florida	305.5	337.5	346.9	365.6	431.2	622.3
Georgia	1,762.9	1,773.0	1,623.8	1,454.8	1,566.2	1,707.6
North Carolina	5.1	6.0	6.6	6.4	6.6	6.8
South Carolina	186.7	185.3	172.3	157.6	176.6	194.9
Total	2,657.9	2,697.7	2,487.0	2,263.4	2,446.5	2,771.2

The relationship of the city economy to that of the area it dominates and the outlook for future growth of the area as a whole also have a bearing. This means that if a city is of significant size, has made rapid growth, is in an area that is making rapid growth, and its growth potentialities are not being encroached upon by other aggressively developing cities in the area, it seems quite certain that recent growth rates will continue for some years at least. Whether its growth rate will accelerate or decelerate during any or all of the projection period depends upon

acquisition of new industries, access to newer types of transportation, probable developments in categories of nonagricultural-nonmanufacturing employment, and other factors. Population projections for the 18 metropolitan areas shown in Table 3.15 were determined by first establishing the growth rates in significant past periods independent of irregular factors which have influenced them. Four separate growth curves were developed for each city or SMSA to aid in this analysis. Next, each of the four growth curves were compared with the urban population projections for the contiguous State subbasin or other appropriate area, in order to establish proper interrelationships and correlations of potential growth of the cities or SMSA's. Third, a detailed consideration of the economic forces and potentialities which are likely to affect future rates of growth of each city was a basis for adjustment to the preliminary estimates extrapolated from past growth rates.

Limitations of Projections

Some major limitations are inherent in making long-range projections based on incomplete and variable historical data and are necessarily dependent on a variety of assumptions as to the future. It is not possible to project with certainty that far ahead. The error or uncertainty increases as the length of the projection period increases. Other things being equal, it decreases, however, with the size of the aggregate being estimated. It is impossible to predict governmental decisions and other conditions which might bring into being an aggressively growing city. New technology or the unexpected use of a resource could likewise cause inordinate shifts in cities. Ignoring, however, the most serious of these possibilities, the Southeast River Basins area population projections for 1975 may be 5 to 10 percent in error and the projections for the year 2000, 15 to 25 percent or more.

TABLE 3.15

Metropolitan Area Population [1]
(thousands)

City	Census data							Projections	
	1900	1910	1920	1930	1940	1950	1960	1975	2000
Albany, Ga.[2]	13.7	16.0	20.1	22.3	28.6	43.6	75.7	120.0	260.0
Atlanta, Ga.[3]	198.3	283.3	348.6	462.4	558.8	727.0	1,014.2	1,520.0	2,990.0
Athens, Ga.[4]	18.0	23.0	26.0	26.0	28.0	37.0	45.0	65.0	115.0
Augusta, Ga.[5]	92.8	100.7	109.3	120.4	131.8	162.0	216.6	280.0	435.0
Birmingham, Ala.[6]	140.0	226.0	310.0	431.0	460.0	559.0	629.0	815.0	1,300.0
Brunswick, Ga.[7]	14.0	16.0	19.0	19.0	22.0	29.0	42.9	65.0	125.0
Columbus, Ga.[8]	56.9	62.2	71.6	84.9	111.3	158.4	205.0	270.0	420.0
Dothan, Ala.[9]	--	32.0	37.0	46.0	46.0	46.0	51.6	60.0	85.0
Greenville, S. C.[10]	53.0	68.0	88.0	117.0	137.0	168.0	209.0	275.0	455.0
Jacksonville, Fla.[11]	40.0	75.0	114.0	156.0	210.0	304.0	406.0	550.0	940.0
Macon, Ga.[12]	73.4	80.3	93.3	88.3	95.1	135.0	180.4	235.0	365.0
Mobile, Ala.[13]	63.0	81.0	100.0	118.0	142.0	231.0	313.0	490.0	990.0
Montgomery, Ala.[14]	72.0	82.0	81.0	99.0	114.0	139.0	169.0	210.0	310.0
Panama City, Fla.[15]	--	--	11.0	12.0	21.0	43.0	66.0	125.0	325.0
Pensacola, Fla.[16]	28.3	38.0	49.4	53.6	74.7	112.7	173.8	265.0	525.0
Savannah, Ga.[17]	71.2	79.7	100.0	105.4	118.0	151.4	188.3	250.0	390.0
Tallahassee, Fla.[18]	19.9	19.4	18.1	23.5	31.6	51.6	74.2	112.1	205.3
Valdosta, Ga.[19]	20.0	24.0	27.0	30.0	32.0	35.0	49.0	68.0	108.0

NOTES: [1] Composition of areas for which population is shown; [2]Dougherty County, Georgia [3]Clayton, Cobb, DeKalb, Fulton, and Gwinnett Counties, Georgia; [4]Clark County, Georgia; [5]Richmond County, Georgia, and Aiken County, South Carolina; [6]Jefferson County, Alabama; [7]Glynn County, Georgia; [8]Muscogee County, Georgia, and Russell County, Alabama; [9]Houston County, Alabama; [10]Greenville County, South Carolina; [11]Duval County, Florida; [12]Bibb and Houston Counties, Georgia; [13]Mobile County, Alabama; [14]Montgomery County, Alabama; [15]Bay County, Florida; [16]Escambia County, Florida; [17]Chatham County, Georgia; [18]Leon County, Florida; [19]Lowndes County, Georgia.

SECTION III – EMPLOYMENT IN THE SOUTHEAST RIVER BASINS

Purpose

The purpose of this Section is to present the result of detailed studies on employment which provide the basin breakdown of aggregate employment statistical data for the Southeast River Basins area. Also presented is an explanation of the logic reasoning and methodology used in breaking down the statistical data.

Scope

Material presented in Labor Force and Employment in Section I was concerned primarily with total employment in the Southeast River Basins area whereas this Section presents the basin breakdown by major categories of employment. This includes current data (1960) and projections for the years 1975 and 2000. The subdivision of the total study area into the eight principal river basins is shown on Figure 1.1.

General

The importance of employment as a measure of the economy of a region is set forth in Section I. In the detailed studies for development of estimates of employment for the basin areas, primary consideration has been given to recent trends both regional and national. The projected economy of the United States for 1975 and 2000, as couched in terms of gross national product, represents a substantial national growth. It is anticipated that the Southeast River Basins area will have a somewhat corresponding increase.

Basic Approach

The basic concept for determination of basin employment involves a buildup of county data to establish a benchmark for current conditions (March 1960) and to indicate the total for each basin by major employment categories. The basin data are then combined to obtain the total for the entire study area. Such procedures involve the exercise of judgment to estimate the employment in portions of counties which are divided by basin drainage lines within the total study area and on the outside boundary limits of the study area. Consequently, the estimates are not a precise determination although the probable error diminishes as the area under consideration increases. The use of county data permits the classification of employment by major categories. The development of benchmark data (1960) provides a base from which projections were made for the years 1975 and 2000. Many factors were considered in making the basin projections of employment including past trends, the future potentials of the particular area, probable development, and reasonableness of the projections. In many instances, a mathematical extrapolation was modified by application of judgment in light of the above factors.

Basic Data

Major reliance was placed on the basic information available in the files and publications of the State Departments of Labor of Alabama, Georgia, Florida, and South Carolina.

Manufacturing employment by two-digit SIC groups[1] as of March 1960 was compiled by counties from file tabulation sheets of the respective States. County statistical data for employment were made available only under the condition that they be combined for a group of counties and part counties to avoid a disclosure problem.

Another source of data was the Census of Population for 1950, Characteristics of the Population. These data are available by counties and show a breakdown according to occupations of the employed population. Similar data are also reported in the County and City Data Book of the U. S. Department of Commerce. Manufacturing statistics by occupations for counties in the Southeast River Basins area were based on this report.

A report by the Georgia Department of Labor, entitled, "Georgia Labor Force Estimates by County, April 1959," contains employment by counties for all major categories of one-digit employment, as well as most of the two-digit categories of manufacturing. The Georgia report was particularly valuable in that adjustments were introduced by personnel of the Georgia

[1] Employment classified according to major groups as set forth in Standard Industrial Classification Manual, Executive Office of the President, Bureau of the Budget, 1957.

Department of Labor to account for the self-employed, unpaid family workers, domestics, and noncovered businesses.[1] The importance of these categories of employment can be gained from some measure of their relative magnitude. The self-employed, unpaid family workers, and domestic accounted for 13.7 percent of the total employment of the State in 1960. Employment in noncovered businesses amounted to 7.3 percent of which over nine-tenths is concentrated in the two categories of retail trade and services.[2]

Another source of information was the County and City Data Book of the U. S. Department of Commerce for 1956, which provides employment data by place of work from statistics contained in the 1954 Census of Manufactures. Only place of employment of workers is shown. In order to show the relationship of employment data according to place of residence with employment by place of work, parallel data for each subbasin were developed from other sources for each area. Data from the 1954 Census of Manufactures were adjusted to a 1950 equivalent basis by a percentage factor based on the change in State manufacturing employment from 1950 to 1954.

Place of Work Versus Place of Residence

Basic to the development of employment data for small geographic areas, such as counties and river basins, is an understanding of the difference between employment figures according to place of work and residence of the workers. Place of work refers to establishments, such as a manufacturing plant or a construction project where jobs are located and the work is actually performed. On the other hand, employment according to residence of workers refers to the actual location of the worker's home and with a listing of the occupation in which engaged as reported in a census tabulation. The number of jobs available in a rapidly growing area, mainly those with large urban centers, normally exceeds the number of persons maturing into the labor force from the local population. Some other areas with a dominant movement of population out of the area will have more employment reported than there are jobs in the immediate locality. This situation arises because the workers live within commuting range of their place of employment.

A commuting study for Georgia for 1958 disclosed that workers will drive up to about 60 miles for employment.[3] In this study, it was determined that metropolitan Atlanta draws 95.0 percent of its workers from within a distance of 30 miles. This means that more jobs are available in the Atlanta area than the number of workers who reside in the Atlanta area. The deficit is, therefore, made up by workers commuting to Atlanta from other areas. This study showed that about 34,000 workers lived in DeKalb County who daily commuted into Fulton County for work. The largest geographical area of DeKalb County is in Basin 3. This is one point of contact between Basins 3 and 7 where workers living in Basin 3 fill jobs available in Basin 7. This sort of interchange goes on between many of the basins within the study area and near the outside perimeter.

Comparison Between Place of Work and Residence

Statistical data which show the comparison between place of work and place of residence for manufacturing and nonagricultural-nonmanufacturing (hereinafter abbreviated NANM) activity is shown in Table 3.16.

Table 3.16 shows that manufacturing employment by place of work exceeds the number of jobs reported by place of residence in Basins 1, 4, 7, and 8. All other basins are partially dependent on outside jobs to employ all persons seeking work in manufacturing types of establishments. In the case of NANM types of employment, the imbalance of jobs by place of work over residence of workers of the basins is substantially the same as for manufacturing with the exceptions of Basins 3 and 6. The main conclusion from this analysis is that the basins with an excess of employment by place of work compared to employment by residence of workers are those with rapidly growing urban centers.

[1] Establishments employing three or less workers.

[2] Estimate based on data from Old Age and Survivor's Insurance for firms reporting three or less workers in 1956.

[3] Fulmer, John L., "Analysis of Intercounty Commuting of Workers In Georgia," Project B-143 (with O. H. Stephenson and Mrs. Maria Mallet of Georgia Department of Labor), Engineering Experiment Station, Georgia Institute of Technology, August 1959, pp. 1-2.

TABLE 3.16

Employment by Basins with Comparisons of Numbers Employed by Place of Work and Residence of Workers

Basin	Manufacturing employment for 1950[1]			NANM employment for 1960[2]		
	Workers		Place of work to place of residence (percent)	Workers		Place of work to place of residence (percent)
	Residence (1,000)	Place of work (1,000)		Residence (1,000)	Place of work (1,000)	
Savannah	69.9	79.9	114.3	138.0	144.6	104.8
Ogeechee	9.6	6.9	71.9	38.7	33.4	86.3
Altamaha	70.9	64.1	90.4	237.6	239.0	100.6
Satilla-St. Marys	9.1	11.0	120.9	35.6	36.4	102.2
Suwannee	12.9	11.0	85.3	51.6	48.1	93.2
Ochlockonee	8.2	7.5	91.5	56.4	58.1	103.0
Apalachicola-Chattahoochee-Flint	116.3	127.9	110.0	384.1	400.3	104.2
Choctawhatchee-Perdido	29.6	30.3	102.4	164.6	168.6	102.4
Total	326.5	338.6	103.7	1,106.6	1,128.5	102.0

NOTES: [1] The data by place of residence were developed by county allocation procedures applied to the Census of Population for 1950, Characteristics of the Population. The data by place of work were developed by similar procedures from the Census of Manufacturing for 1954 and adjusted to 1950 on the basis of State trends. Census of Manufacturing for 1958 were not available at the time of this analysis.

[2] Jobs for NANM by place of residence and place of work were developed by county allocation procedures applied to Georgia Department of Labor report on the "Labor Force" for April 1959 for Georgia subbasins and subbasins in other States were obtained by comparative analysis from Georgia relationships.

Labor Force

Projections of labor force in the basic Economic Framework paper for the Southeast River Basins area were based on regression analysis of population characteristics as related to labor force. Employment was derived from the labor force estimate by assuming a rate of 4 percent unemployment. The resulting estimate of employment was by place of residence of workers and included military personnel.

In breaking down the total employment by basins and State subbasins for (1) agriculture, (2) 10 two-digit manufacturing categories, and (3) 6 one-digit NANM groups, it was necessary to use an alternate procedure. Civilian employment for each classification of industry by counties and parts of counties was the starting point for building up total employment by State subbasins and finally for the total Southeast River Basins area. Consolidation of the 17 employment categories for each State subbasin to Southeast River Basins area totals resulted in total civilian employment. This estimate of employment was by place of work rather than by residence of workers. Consequently, the employment estimate which resulted from buildup of detailed types of employment at the county level was conceptually different from the employment estimates derived by moving down to total employment from the aggregate labor force.

In order to compare the estimates of labor force by both methods, it was necessary to develop the total labor force from the employment estimates by the county industry buildup data. The total civilian employment derived from the county buildup was adjusted down for the conceptual differences between place of work and residence of workers (about 3 percent), plus omissions for military workers (approximately 100,000), plus an allowance for unemployment (4 percent) to derive total labor force estimates for the Southeast River Basins area. The labor force estimates developed through summation of county industry employment data are in close agreement with estimates derived in the basic Economic Framework paper.

General Procedures for Employment Projections

The general method governing employment projections by basins and State subbasins for all employment categories except agriculture involves five steps: (1) Determination of employment in each State subbasin in 1960 (the bench-

mark year); (2) determination of State subbasin percentages of total Southeast River Basins area employment for each employment group based on 1960 data; (3) for some groups, adjustment of percentage factor for change in relative importance of urban and rural nonfarm population from 1960 to 1975 and from 1975 to 2000 was made to obtain the State subbasin allocator; (4) application of allocator to Southeast River Basins area totals (controls) for each industry group; and (5) adjustment of estimates derived in step 4 where considered necessary to allow for development potentials determined by consultation with area and commodity specialists and from knowledge of the area. Each of these steps is explained in subsequent paragraphs. See Table 3.17 for estimates of employment by major categories.

Benchmark employment data (1960) for each subbasin involved a number of split counties. Total county employment by categories was allocated to two or more State subbasins by

TABLE 3.17

Employment by Major Categories
(thousands of workers)

Basin and State	1960				1975				2000			
	Agric.	Manuf.	NANM	Total	Agric.	Manuf.	NANM	Total	Agric.	Manuf.	NANM	Total
Basin 1												
Georgia	20.4	40.6	100.5	161.5	15.3	57.9	145.0	218.2	11.5	99.0	241.7	352.2
South Carolina	15.3	47.8	43.0	106.1	12.0	58.6	65.7	136.3	9.4	84.8	106.8	201.0
North Carolina	0.4	0.5	1.1	2.0	0.3	0.5	1.3	2.1	0.2	0.5	1.5	2.2
Total	36.1	88.9	144.6	269.6	27.6	117.0	212.0	356.6	21.1	184.3	350.0	555.4
Basin 2												
Georgia	14.1	7.5	33.4	55.0	10.7	10.1	37.0	57.8	7.9	15.6	49.8	73.3
Basin 3												
Georgia	44.0	84.0	239.0	367.0	32.8	116.2	319.7	468.7	24.9	192.9	462.6	680.4
Basin 4												
Florida	0.5	2.5	6.1	9.1	0.4	3.5	8.0	11.9	0.4	5.4	11.8	17.6
Georgia	10.3	11.0	30.3	51.6	7.3	17.0	44.4	68.7	5.6	27.3	73.3	106.2
Total	10.8	13.5	36.4	60.7	7.7	20.5	52.4	80.6	6.0	32.7	85.1	123.8
Basin 5												
Florida	8.2	3.0	11.9	23.1	6.4	4.0	17.6	28.0	5.0	5.8	21.5	32.3
Georgia	16.3	10.4	36.2	62.9	12.4	14.6	49.6	76.6	9.5	21.8	66.9	98.2
Total	24.5	13.4	48.1	86.0	18.8	18.6	67.2	104.6	14.5	27.6	88.4	130.5
Basin 6												
Florida	4.2	5.0	45.5	54.7	3.2	7.0	62.4	72.6	2.4	11.3	94.0	107.7
Georgia	6.3	4.1	12.6	23.0	4.6	5.6	17.2	27.4	3.4	7.0	20.0	30.4
Total	10.5	9.1	58.1	77.7	7.8	12.6	79.6	100.0	5.8	18.3	114.0	138.1
Basin 7												
Alabama	7.9	11.3	28.1	47.3	6.3	12.8	39.6	58.7	5.2	15.9	70.1	91.2
Florida	3.8	2.0	11.3	17.1	2.9	2.6	12.6	18.1	2.2	4.1	15.5	21.8
Georgia	44.6	125.4	360.9	530.9	32.7	182.6	548.5	763.8	24.5	346.8	1,042.3	1,413.6
Total	56.3	138.7	400.3	595.3	41.9	198.0	600.7	840.6	31.9	366.8	1,127.9	1,526.6
Basin 8												
Alabama	21.3	23.2	56.5	101.0	16.2	31.4	67.9	115.5	13.1	44.7	67.2	125.0
Florida	9.1	19.2	112.1	140.4	6.5	28.2	183.6	218.3	4.8	48.7	382.3	435.8
Total	30.4	42.4	168.6	241.4	22.7	59.6	251.5	333.8	17.9	93.4	449.5	560.8
Summary												
Alabama	29.2	34.5	84.6	148.3	22.5	44.2	107.5	174.2	18.3	60.6	137.3	216.2
Florida	25.8	31.7	186.9	244.4	19.4	45.3	284.2	348.9	14.8	75.3	525.1	615.2
Georgia	156.0	283.0	812.9	1,251.9	115.8	404.0	1,161.4	1,681.2	87.3	710.4	1,956.6	2,754.3
North Carolina	0.4	0.5	1.1	2.0	0.3	0.5	1.3	2.1	0.2	0.5	1.5	2.2
South Carolina	15.3	47.8	43.0	106.1	12.0	58.6	65.7	136.3	9.4	84.8	106.8	201.0
Total	226.7	397.5	1,128.5	1,752.7	170.0	552.6	1,620.1	2,342.7	130.0	931.6	2,727.3	3,788.9

population ratio based on the population in towns and cities listed in the Census of Population and on Rand-McNally maps for 1950. In some cases, where it was known that special types of manufacturing, such as pulpmills, were definitely located in a certain section of the country, such employment was arbitrarily assigned to that particular State subbasin. After the State subbasin totals were obtained by summation of county data, they were expressed as a percentage of the total for the Southeast River Basins area for that particular type of employment. The resulting percentages became the basis for allocating the Southeast River Basins area totals for each type of employment to State subbasins for 1975 and 2000, either applied directly to Southeast River Basins totals or after adjustment for the relative growth in urban and rural nonfarm population, depending upon the type of industry groups involved.

Direct application of the 1960 percentage factors for State subbasins was applied as the initial step for pulp and paper; lumber and wood production, excluding furniture; chemicals and allied products; stone, clay, and glass products; apparels; and textile mill products. For all other industry groups, the 1960 State subbasin percentage factor was adjusted for shift in the relative importance of urban and rural nonfarm population of the different State subbasins before being applied as allocators to Southeast River Basins area totals.

The final step involved adjustment of some of the projections obtained by the above procedures to reflect changes in development potentials. These changes are introduced through judgment after consultation with area and commodity specialists on the future prospects for industries in different subbasins.

Agriculture

The current and projected estimates of employment in agriculture shown in Table 3.17 were developed as a part of the agriculture studies. They are expressed in full-time equivalent as based on hours of labor and efficiency of management to meet the projected agricultural production requirements for 1975 and 2000 as set forth in Section V. By expressing agricultural employment in full-time equivalent, it is then possible to combine these estimates with other types of employment to correctly represent the total employment. It is expected that the total number of workers engaged in farming enterprises will exceed the estimated employment because of family laborers and part-time workers.

Manufacturing

In determining relative rates of growth of manufacturing employment in State subbasins for the projection dates of 1975 and 2000, three divisions of manufacturing industries appeared significant for analysis. They are (1) market oriented, (2) labor oriented, and (3) resource oriented. A study of new plants established in the South for the period 1939 through 1947 shows that attraction of industries to the South was about equally divided between growth in markets, availability of raw materials, and labor supply.[1] This study indicated that in the 1947-49 postwar period, growth in the market was by far the most important factor. In making allocations of Southeast River Basins area control totals of employment for two-digit classes of manufacturing, it was assumed that the market factor was shown by the relative growth of urban and rural nonfarm population. Raw materials are static as to location, and the relative concentration of raw materials using industries should remain about the same as in 1960 unless development factors indicated new resources would be developed. In the case of labor supply, it has been observed that workers either move to jobs or commute to them. One exception to this generalization occurs in the case of apparels. Apparel factors, which have been expanding rapidly in Georgia in recent years, seem to prefer the small towns in rural areas where a supply of rural, female workers can be obtained at relatively low wages. Estimates of manufacturing employment for 1960, 1975, and 2000 are shown in Tables 3.18, 3.19, and 3.20, respectively.

The allocation assumptions for specific two-digit industries are as follows.

(1) Market-oriented industries will expand with growth in the income generating population, primarily the urban and rural nonfarm populations. Included in this group of industries

[1] Robock, Stefan H., "Industrialization and Economic Progress In the Southeast," The Southern Economic Journal, Vol. XX, No. 4, April 1954, pp. 318-319.

are metals, food, publishing and printing, and all other. The 1960 allocation percentages for each State subbasin were adjusted for the relative growth in urban and rural nonfarm population in each State subbasin in terms of the Southeast River Basins totals. The figures, however, obtained by this method are subject to adjustment by any important change in development potentials.

(2) Resource-oriented industries are static with respect to location because of the cost of transporting bulk raw materials to remote locations. The 1960 subbasin percentages for this group of industries were used as the allocator. The industries in this group are pulp and paper; lumber and wood; chemicals; and stone, clay, and glass.

(3) Only two industries, apparels and textiles, are treated under the labor-oriented category. The State subbasins where apparel manufacture is now concentrated are expected to continue to dominate in this activity. These are the areas

TABLE 3.18

Manufacturing Employment—1960
(thousands of workers)

Basin and State	Total manuf. employment	Major groups of manufacturing									
		Food Group 20	Textiles Group 22	Apparels Group 23	Lumber and wood Group 24	Pulp and paper products Group 26	Printing and publishing Group 27	Chemicals Group 28	Stone, clay, and glass Group 32	Metals Groups 34, 35, 36, 37	All other
Basin 1											
Georgia	40.6	4.9	7.4	6.7	4.3	6.3	0.8	1.9	2.8	3.1	2.4
South Carolina	47.8	0.8	26.4	5.8	1.4	...	0.2	6.8	1.8	4.1	0.5
North Carolina	0.5	...	...	..	...	...	...	...	...	...	0.5
Total	88.9	5.7	33.8	12.5	5.7	6.3	1.0	8.7	4.6	7.2	3.4
Basin 2											
Georgia	7.5	1.1	0.4	2.1	2.2	...	0.1	0.1	0.2	0.6	0.7
Basin 3											
Georgia	84.0	10.3	20.6	15.5	7.4	4.5	3.0	1.9	3.2	10.1	7.5
Basin 4											
Florida	2.5	0.2	...	...	0.3	1.7	...	...	...	0.1	0.2
Georgia	11.0	2.4	0.3	0.9	1.8	2.1	0.1	1.3	0.2	0.4	1.5
Total	13.5	2.6	0.3	0.9	2.1	3.8	0.1	1.3	0.2	0.5	1.7
Basin 5											
Florida	3.0	0.3	...	0.2	1.6	...	0.1	0.1	...	0.6	0.1
Georgia	10.4	1.3	1.2	1.8	2.5	0.8	0.2	0.6	0.2	1.1	0.7
Total	13.4	1.6	1.2	2.0	4.1	0.8	0.3	0.7	0.2	1.7	0.8
Basin 6											
Florida	5.0	0.6	...	...	2.0	0.7	0.4	0.2	0.2	0.3	0.6
Georgia	4.1	1.8	0.4	0.7	0.9	...	0.1	0.1	0.1	...	...
Total	9.1	2.4	0.4	0.7	2.9	0.7	0.5	0.3	0.3	0.3	0.6
Basin 7											
Alabama	11.3	0.5	7.1	1.3	1.4	...	0.1	0.1	0.4	0.1	0.3
Florida	2.0	0.3	...	0.1	0.7	0.3	...	0.1	0.1	...	0.4
Georgia	125.4	18.0	39.7	11.0	7.1	3.6	4.9	3.0	2.1	26.5	9.5
Total	138.7	18.8	46.8	12.4	9.2	3.9	5.0	3.2	2.6	26.6	10.2
Basin 8											
Alabama	23.2	1.6	3.6	8.8	4.4	0.5	0.2	0.3	0.2	2.9	0.7
Florida	19.2	1.3	...	0.4	1.7	4.6	0.6	8.3	0.5	1.4	0.4
Total	42.4	2.9	3.6	9.2	6.1	5.1	0.8	8.6	0.7	4.3	1.1
Summary											
Alabama	34.5	2.1	10.7	10.1	5.8	0.5	0.3	0.4	0.6	3.0	1.0
Florida	31.7	2.7	...	0.7	6.3	7.3	1.1	8.7	0.8	2.4	1.7
Georgia	283.0	39.8	70.0	38.7	26.2	17.3	9.2	8.9	8.8	41.8	22.3
North Carolina	0.5	...	...	...	...	...	...	...	...	...	0.5
South Carolina	47.8	0.8	26.4	5.8	1.4	...	0.2	6.8	1.8	4.1	0.5
Total	397.5	45.4	107.1	55.3	39.7	25.1	10.8	24.8	12.0	51.3	26.0

high in rural population and having many small towns. Textile mill products, as a category, is a shrinking industry. Capacity is already in place, and there is not likely to be much shifting between subbasins. Hence, the 1960 subbasin percentages were employed as allocators for both industries.

Nonagricultural-Nonmanufacturing

The procedure to obtain projections of NANM for 1975 and 2000 by subbasins was somewhat similar to the procedure for manufacturing except labor force and employment estimates had been prepared only for Georgia as of April 1959. These data were employed to develop the 1960 benchmark. First, inventory data for each State subbasin in Georgia were established by a county-by-county study of total NANM employment. Second, the five major categories of employment constituting NANM were similarly al-

TABLE 3.19

Manufacturing Employment—1975
(thousands of workers)

Basin and State	Total manuf. employment	Major groups of manufacturing									
		Food Group 20	Textiles Group 22	Apparels Group 23	Lumber and wood Group 24	Pulp and paper products Group 26	Printing and publishing Group 27	Chemicals Group 28	Stone, clay, and glass Group 32	Metals Groups 34, 35, 36, 37	All other
Basin 1											
Georgia	57.9	7.2	7.1	10.7	4.7	9.5	1.3	2.2	5.9	5.4	3.9
South Carolina	59.1	1.1	25.7	9.3	1.5	...	0.4	7.0	3.7	7.0	3.4
North Carolina	...	...	...	...	...	...	...	...	...	...	...
Total	117.0	8.3	32.8	20.0	6.2	9.5	1.7	9.2	9.6	12.4	7.3
Basin 2											
Georgia	10.1	1.3	0.5	3.4	2.5	...	0.2	0.2	0.3	0.8	0.9
Basin 3											
Georgia	116.2	14.0	20.0	24.9	8.1	6.7	4.6	2.5	6.6	16.3	12.5
Basin 4											
Florida	3.5	0.2	...	...	0.3	2.6	0.1	...	0.1	0.1	0.1
Georgia	17.0	3.6	0.3	1.6	2.1	3.2	0.2	2.1	0.5	0.7	2.7
Total	20.5	3.8	0.3	1.6	2.4	5.8	0.3	2.1	0.6	0.8	2.8
Basin 5											
Florida	4.0	0.4	...	0.3	1.8	...	0.1	0.1	0.1	1.0	0.2
Georgia	14.6	1.9	1.2	3.0	2.7	1.3	0.3	0.9	0.3	1.8	1.2
Total	18.6	2.3	1.2	3.3	4.5	1.3	0.4	1.0	0.4	2.8	1.4
Basin 6											
Florida	7.0	0.8	...	...	2.3	1.1	0.6	0.3	0.5	0.5	0.9
Georgia	5.6	2.6	0.4	1.1	0.9	...	0.1	0.2	0.1	0.1	0.1
Total	12.6	3.4	0.4	1.1	3.2	1.1	0.7	0.5	0.6	0.6	1.0
Basin 7											
Alabama	12.8	0.7	7.0	2.1	1.5	...	0.1	0.1	0.8	0.2	0.3
Florida	2.6	0.4	...	0.2	0.7	0.4	...	0.2	0.2	...	0.5
Georgia	182.6	27.9	38.6	17.7	7.8	5.4	8.6	5.6	4.4	48.7	17.9
Total	198.0	29.0	45.6	20.0	10.0	5.8	8.7	5.9	5.4	48.9	18.7
Basin 8											
Alabama	31.4	2.0	3.5	14.2	4.9	0.7	0.3	0.4	0.4	4.2	0.8
Florida	28.2	2.2	...	0.6	1.9	7.0	1.1	11.0	1.0	2.7	0.7
Total	59.6	4.2	3.5	14.8	6.8	7.7	1.4	11.4	1.4	6.9	1.5
Summary											
Alabama	44.2	2.7	10.5	16.3	6.4	0.7	0.4	0.5	1.2	4.4	1.1
Florida	45.3	4.0	...	1.1	7.0	11.1	1.9	11.6	1.9	4.3	2.4
Georgia	404.0	58.5	68.1	62.4	28.8	26.1	15.3	13.7	18.1	73.8	39.2
North Carolina	...	...	...	...	...	...	...	...	...	...	...
South Carolina	59.1	1.1	25.7	9.3	1.5	...	0.4	7.0	3.7	7.0	3.4
Total	552.6	66.3	104.3	89.1	43.7	37.9	18.0	32.8	24.9	89.5	46.1

located by counties to State subbasins in Georgia. These categories of employment are mining, construction, trade, service, and government. Third, the ratio of the employment of each category to total NANM employment in each State subbasin was calculated. Fourth, the unallocated employment in each State subbasin (the residual) was designated as self-employed and other, and its ratio to total NANM employment was calculated. Fifth, the ratio of each category of employment for 1959 by Georgia subbasins was applied to the corresponding NANM employment for 1960 to obtain the benchmark data (1960). Sixth, the equivalent 1960 NANM total employment for the other State subbasins in Alabama, Florida, North Carolina, and South Carolina were derived by analogy from the relationship of the employment derived in the Georgia subbasins. The estimates of NANM employment for 1960, 1975,

TABLE 3.20

Manufacturing Employment—2000
(thousands of workers)

Basin and State	Total manuf. employment	Major groups of manufacturing									
		Food Group 20	Textiles Group 22	Apparels Group 23	Lumber and wood Group 24	Pulp and paper products Group 26	Printing and publishing Group 27	Chemicals Group 28	Stone, clay, and glass Group 32	Metals Groups 24, 25, 26, 27	All other
Basin 1											
Georgia	99.0	10.2	6.1	17.8	6.0	12.8	3.2	3.0	14.4	15.6	9.9
South Carolina	85.3	1.5	21.6	15.3	1.9	1.1	0.9	9.5	9.2	16.4	7.9
North Carolina	---	---	---	---	---	---	---	---	---	---	---
Total	184.3	11.7	27.7	33.1	7.9	13.9	4.1	12.5	23.6	32.0	17.8
Basin 2											
Georgia	15.6	1.5	0.4	5.6	3.2	---	0.4	0.3	0.8	1.6	1.8
Basin 3											
Georgia	192.9	17.0	16.9	41.0	10.3	9.8	9.3	3.4	16.1	42.0	27.1
Basin 4											
Florida	5.4	0.3	---	---	0.4	3.8	0.1	0.1	0.2	0.3	0.2
Georgia	27.3	5.0	0.2	2.5	2.7	4.0	0.5	2.8	1.1	1.9	6.6
Total	32.7	5.3	0.2	2.5	3.1	7.8	0.6	2.9	1.3	2.2	6.8
Basin 5											
Florida	5.8	0.4	---	0.4	2.3	---	0.2	0.1	0.2	1.8	0.4
Georgia	21.8	2.1	1.0	4.9	3.4	1.8	0.6	1.2	0.8	3.6	2.4
Total	27.6	2.5	1.0	5.3	5.7	1.8	0.8	1.3	1.0	5.4	2.8
Basin 6											
Florida	11.3	1.0	---	---	2.9	1.6	1.3	0.4	1.1	1.0	2.0
Georgia	7.0	2.6	0.3	1.8	1.2	---	0.2	0.2	0.4	0.2	0.1
Total	18.3	3.6	0.3	1.8	4.1	1.6	1.5	0.6	1.5	1.2	2.1
Basin 7											
Alabama	15.9	1.0	5.8	3.5	1.9	---	0.3	0.1	2.0	0.5	0.8
Florida	4.1	0.4	---	0.3	1.0	0.6	---	0.3	0.5	0.1	0.9
Georgia	346.8	44.4	32.4	29.2	10.0	8.5	23.3	8.3	10.8	129.5	50.4
Total	366.8	45.8	38.2	33.0	12.9	9.1	23.6	8.7	13.3	130.1	52.1
Basin 8											
Alabama	44.7	1.8	2.9	23.3	6.3	1.0	0.5	0.5	1.0	6.0	1.4
Florida	48.7	3.8	---	1.0	2.4	10.0	3.3	14.0	2.4	9.5	2.3
Total	93.4	5.6	2.9	24.3	8.7	11.0	3.8	14.5	3.4	15.5	3.7
Summary											
Alabama	60.6	2.8	8.7	26.8	8.2	1.0	0.8	0.6	3.0	6.5	2.2
Florida	75.3	5.9	---	1.7	9.0	16.0	4.9	14.9	4.4	12.7	5.8
Georgia	710.4	82.8	57.3	102.8	36.8	36.9	37.5	19.2	44.4	194.4	98.3
North Carolina	---	---	---	---	---	---	---	---	---	---	---
South Carolina	85.3	1.5	21.6	15.3	1.9	1.1	0.9	9.5	9.2	16.4	7.9
Total	931.6	93.0	87.6	146.6	55.9	55.0	44.1	44.2	61.0	230.0	114.2

and 2000 are shown in Tables 3.21, 3.22, and 3.23, respectively.

The concept governing allocations of the total NANM employment for the Southeast River Basins area is that growth in the market is the dominant factor. This was taken to be equivalent to the relative growth of a State subbasin urban and rural nonfarm population. The State subbasins growing relatively more rapidly in both categories of population would in 2000

TABLE 3.21

Nonagricultural-Nonmanufacturing Employment—1960
(thousands of workers)

Basin and State	Total NANM	Mining	Construction	Trade*	Government	Services, transportation, communication, etc.	Self-employed and other
Basin 1							
Georgia	100.5	1.1	8.1	26.9	23.1	19.9	21.4
South Carolina	43.0	0.1	3.8	11.4	10.1	8.5	9.1
North Carolina	1.1	--	0.1	0.2	0.3	0.2	0.3
Total	144.6	1.2	12.0	38.5	33.5	28.6	30.8
Basin 2							
Georgia	33.4	0.1	1.6	9.4	6.6	6.2	9.5
Basin 3							
Georgia	239.0	2.8	15.4	69.5	46.0	49.5	55.8
Basin 4							
Florida	6.1	--	0.4	1.5	1.2	1.4	1.6
Georgia	30.3	--	1.8	7.4	5.4	6.7	9.0
Total	36.4	--	2.2	8.9	6.6	8.1	10.6
Basin 5							
Florida	11.9	0.2	0.8	3.3	2.3	2.0	3.3
Georgia	36.2	0.1	1.9	9.9	8.3	5.9	10.1
Total	48.1	0.3	2.7	13.2	10.6	7.9	13.4
Basin 6							
Florida	45.5	0.4	4.9	12.1	11.3	8.6	8.2
Georgia	12.6	0.1	0.6	3.4	2.3	2.2	4.0
Total	58.1	0.5	5.5	15.5	13.6	10.8	12.2
Basin 7							
Alabama	28.1	0.1	1.3	7.9	5.2	4.9	8.7
Florida	11.3	--	0.8	3.2	2.0	2.0	3.3
Georgia	360.9	0.8	23.7	122.6	81.5	74.2	58.1
Total	400.3	0.9	25.8	133.7	88.7	81.1	70.1
Basin 8							
Alabama	56.5	0.1	3.0	17.4	12.4	10.9	12.7
Florida	112.1	0.1	12.6	30.1	28.7	20.8	19.8
Total	168.6	0.2	15.6	47.5	41.1	31.7	32.5
Summary							
Alabama	84.6	0.2	4.3	25.3	17.6	15.8	21.4
Florida	186.9	0.7	19.5	50.2	45.5	34.8	36.2
Georgia	812.9	5.0	53.1	249.1	173.2	164.6	167.9
North Carolina	1.1	--	0.1	0.2	0.3	0.2	0.3
South Carolina	43.0	0.1	3.8	11.4	10.1	8.5	9.1
Total	1,128.5	6.0	80.8	336.2	246.7	223.9	234.9

* Wholesale and retail trade, finance, insurance, and real estate.

have a higher ratio of population (urban and rural nonfarm) than in 1960. Based on this concept, such State subbasins would be assigned a higher percentage of each of the five major categories of NANM employment.[1] For example,

[1] Construction, trade, government, services, self-employed, and other. Mining, however, was allocated on the same basis as resources-oriented manufacturing industries. The figures given in Tables 3.21, 3.22, and 3.23 for trade include employment in wholesale and retail trade and also finance, real estate, and insurance.

TABLE 3.22

Nonagricultural-Nonmanufacturing Employment—1975
(thousands of workers)

Basin and State	Total NANM	Mining	Construction	Trade*	Government	Services, transportation, communication, etc.	Self-employed and other
Basin 1							
Georgia	145.0	1.6	12.0	38.8	33.0	29.4	30.2
South Carolina	65.7	0.1	5.5	17.6	15.5	13.4	13.6
North Carolina	1.3	--	0.1	0.3	0.3	0.3	0.3
Total	212.0	1.7	17.6	56.7	48.8	43.1	44.1
Basin 2							
Georgia	37.0	0.1	1.9	10.7	6.5	7.1	10.7
Basin 3							
Georgia	319.7	3.9	21.6	92.7	61.5	67.4	72.6
Basin 4							
Florida	8.0	--	0.6	2.0	1.7	1.8	1.9
Georgia	44.4	--	2.9	10.9	7.9	10.1	12.6
Total	52.4	--	3.5	12.9	9.6	11.9	14.5
Basin 5							
Florida	17.6	0.3	1.1	4.4	4.9	2.7	4.2
Georgia	49.6	0.1	2.7	13.6	11.2	8.4	13.6
Total	67.2	0.4	3.8	18.0	16.1	11.1	17.8
Basin 6							
Florida	62.4	0.5	7.0	16.5	15.4	12.0	11.0
Georgia	17.2	0.1	0.9	4.8	3.1	3.1	5.2
Total	79.6	0.6	7.9	21.3	18.5	15.1	16.2
Basin 7							
Alabama	39.6	0.1	1.9	11.3	7.3	7.0	12.0
Florida	12.6	--	1.0	3.6	2.1	2.3	3.6
Georgia	548.5	1.2	37.3	185.8	123.1	115.2	85.9
Total	600.7	1.3	40.2	200.7	132.5	124.5	101.5
Basin 8							
Alabama	67.9	0.1	3.8	21.0	14.7	13.4	14.9
Florida	183.6	0.1	21.5	49.0	46.5	34.7	31.8
Total	251.5	0.2	25.3	70.0	61.2	48.1	46.7
Summary							
Alabama	107.5	0.2	5.7	32.3	22.0	20.4	26.9
Florida	284.2	0.9	31.2	75.5	70.6	53.5	52.2
Georgia	1,161.4	7.0	79.3	357.3	246.3	240.7	230.8
North Carolina	1.3	--	0.1	0.3	0.3	0.3	0.3
South Carolina	65.7	0.1	5.5	17.6	15.5	13.4	13.6
Total	1,620.1	8.2	121.8	483.0	354.7	328.3	324.1

* Wholesale and retail trade, finance, insurance, and real estate.

the Georgia portion of Basin 7 is projected to gain 22 percent over the other basins in urban and rural nonfarm population. Therefore, the allocation factors established for 1960 were adjusted upward to reflect this relatively large growth in the market factor. It also means that subbasin 7 would gain employment in construction, trade, government, services, and self-employed. Many basins, however, lost relatively in the growth of urban and rural nonfarm population. This means that they would lose ground in the growth of the five categories of employ-

TABLE 3.23

Nonagricultural-Nonmanufacturing Employment—2000
(thousands of workers)

Basin and State	Total NANM	Mining	Construction	Trade*	Government	Services, transportation, communication etc.	Self-employed and other
Basin 1							
Georgia	241.7	3.0	19.2	65.8	54.1	51.0	48.6
South Carolina	106.8	0.1	8.1	28.6	26.3	22.1	21.6
North Carolina	1.5	..	0.1	0.4	0.4	0.3	0.3
Total	350.0	3.1	27.4	94.8	80.8	73.4	70.5
Basin 2							
Georgia	49.8	0.1	2.4	14.2	10.5	9.6	13.0
Basin 3							
Georgia	462.6	6.0	29.4	133.5	92.4	99.3	102.0
Basin 4							
Florida	11.8	..	0.8	2.8	2.4	2.7	3.1
Georgia	73.3	..	4.3	18.0	13.4	17.0	20.6
Total	85.1	..	5.1	20.8	15.8	19.7	23.7
Basin 5							
Florida	21.5	0.4	1.3	5.2	6.1	3.3	5.2
Georgia	66.9	0.1	3.4	18.1	15.9	11.4	18.0
Total	88.4	0.5	4.7	23.3	22.0	14.7	23.2
Basin 6							
Florida	94.0	0.9	9.9	24.6	24..	18.4	16.0
Georgia	20.0	0.2	1.0	5.5	3.4	3.7	6.2
Total	114.0	1.1	10.9	30.1	27.6	22.1	22.2
Basin 7							
Alabama	70.1	0.2	2.8	20.2	12.4	13.0	21.5
Florida	15.5	..	1.2	4.4	2.9	2.9	4.1
Georgia	1,042.3	2.5	66.4	349.8	243.5	221.9	158.2
Total	1,127.9	2.7	70.4	374.4	258.8	237.8	183.8
Basin 8							
Alabama	67.2	0.1	4.0	20.3	15.1	13.3	14.4
Florida	382.3	0.2	42.0	101.3	101.5	73.4	63.9
Total	449.5	0.3	46.0	121.6	116.6	86.7	78.3
Summary							
Alabama	137.3	0.3	6.8	40.5	27.5	26.3	35.9
Florida	525.1	1.5	55.2	138.3	137.1	100.7	92.3
Georgia	1,956.6	11.9	126.1	604.9	433.2	413.9	366.6
North Carolina	1.5	..	0.1	0.4	0.4	0.3	0.3
South Carolina	106.8	0.1	8.1	28.6	26.3	22.1	21.6
Total	2,727.3	13.8	196.3	812.7	624.5	563.3	516.7

* Wholesale and retail trade, finance, insurance, and real estate.

ment relative to the growth of these employment categories in the Southeast River Basins area.

The 1960 State subbasin percentages for all five categories of NANM were adjusted to the relative shift in urban and rural nonfarm population of each State subbasin. The allocator thus derived, adjusted to 1.00 as a total for all 16 State subbasins, was applied to the Southeast River Basins area total employment to obtain State subbasin projected values for 1975 and 2000.

Limitations

Military strength at bases and installations is not included. The 1956 (the latest year for which data are available) total strength of all military posts in Georgia was about 75,000, practically all of which are located in the Georgia portion of the Southeast River Basins area. These Armed Forces are most heavily concentrated in Georgia subbasins 7, 2, and 1, in that order. The other States in the Southeast River Basins area have considerable Armed Forces, perhaps 25,000 to 35,000, which are most heavily concentrated in the Alabama and Florida portion of Basin 8. A second limitation is that the labor force and employment estimates of the Georgia Department of Labor for April 1959 appear to be conservative. Omissions are expected in the categories of self-employed, other, and services. The third limitation arises from the method (comparative analysis) by which NANM employment categories were developed outside Georgia. Because of the complexity involved in fully visualizing relationships between Georgia subbasins and State subbasins for the other States, it is expected that some errors result in the application of this procedure.

For the Southeast River Basins area as a whole, it is probable that the figures given for 1960 will be within a 3-percent error; 1975, 5- to 10-percent error; and 2000, 10- to 20-percent error but may be larger. The error ranges for basins, and State subbasins will be comparatively larger because of the smaller geographical area concerned.

SECTION IV – PERSONAL INCOME IN THE SOUTHEAST RIVER BASINS

Purpose

This Section presents studies of historical and projected personal income aggregates for the Southeast River Basins area from which river basin and State subbasin personal income totals, per capita income, and the source of income by categories have been developed. It also contains an explanation of the methods used and the logic and reasoning employed in developing the statistical data.

Scope

Parts of Section I were concerned with the pattern of the economy and with total personal income of the Southeast River Basins. One part presented a general picture of the Southeast River Basins area economy relative to the United States economy by comparing population, personal and per capita income, and employment. Another dealt with income specifically in terms of total personal income and per capita income for the Southeast River Basins area and the major sources of personal income for 1960, 1975, and 2000. This Section presents the basin and State subbasin totals for personal income and the average per capita income for 1960 and for the years 1975 and 2000. Division of the Southeast River Basins area into eight principal river basins and State subbasins is shown on Figure 1.1.

General

Per capita personal income is widely recognized as a measure of material welfare and, particularly, as a gauge to progress of economic development. United States per capita income, as projected in Section I, will increase 2.1 times in the next 40 years. However, estimates for the Southeast River Basins area indicate that per capita income will increase 2.5 times by the year 2000. This somewhat more rapid increase in per capita income for the Southeast River Basins area is anticipated because of changes in the employment mix. This is also in line with the assumption in Section I that the per capita in-

come gap between the Southeast River Basins area and the Nation will narrow between 1960 and 2000 from 71.2 percent to 82.9 percent. From the standpoint of the employment mix, the rate of shift away from agriculture and to services has been more pronounced in the Southeast River Basins area in the last two decades than in the Nation and is expected to continue for some time in the future. The ratio of manufacturing employment to total employment in the Southeast River Basins area is closely in line with national data. It is expected that a shift away from textiles and other relatively low-wage industries to higher wage industries, such as metal fabricating, pulp and paper, and chemicals, will result in a considerable increase in per capita income in the Southeast River Basins area as related to per capita income for the United States.

General Procedures

The basic procedure employed in making income projections required development of benchmark data for 1939, 1950, and 1956 on total personal income for basins and State subbasins from county personal income statistics. Where a county was divided between two or more State subbasins, county personal-income data were allocated to State subbasins by use of population ratios in order to assign a share of the county total income to each basin and State subbasin involved. Population and per capita income were independently projected for 1975 and 2000 and then multiplied to obtain total personal income by basins and State subbasins.

Basic Data

The chief difficulty of the analyses was a scarcity of summarized and published county personal income data. Observations of personal income data for the study area counties were available for 1939, 1950, and 1956, or otherwise derived. When published county data were not available, estimates were developed by adjustment of purchasing power estimates taken from Sales Management's Survey of Buying Power.

Concept of Income Projections

Personal income is derived from wages and salaries earned by the labor force, from income-producing property, and from other personal business investments. Growth in personal income is directly related to growth in production or magnitude of output. Increase in output depends on many variables. These include the availability of resources, the capacity of the production plant, the availability of capital and its utilization, labor skills, and the availability and efficiency of management. Although many social, political, and economic forces have an important influence on these production factors, some of the more dominant ones are: (1) The culture and attitudes of the people, including qualities of thrift, energy, and foresight; (2) the technological advances; and (3) the form of government.

It was assumed that the rate of technological advance and form of government will not vary sufficiently between river basins and State subbasins to influence seriously the development in one area over another. The culture and attitudes of the people were considered through the media of the emphasis and added weight given in the projections to the degree of urbanization now existent and anticipated in the future. It was assumed that a more favorable climate for industrial growth and personal income growth could be anticipated in the relatively more urbanized State subbasins where improved education and training facilities and other cultural advantages would be available. This premise was coupled with the basic concept that personal income in State subbasins, past, present, and future, is a function of the magnitude and nature of economic development of the small economic area relative to some larger economic aggregate. Comparison was made of State subbasins per capita and personal income with the parent State in order to determine the relative economic development of river basins.

Two concepts of personal income derivation were considered in the studies. These were income generated through the production process and income from a demand model based on the parameters of population and per capita income. There were insufficient data regarding productivity-per-worker over time on which to base projections of total production. The demand model was used since data were available and could be applied to small geographic units.

Projections of Per Capita Income

The projections of per capita income were predicated on a comparative trend analysis of the level of per capita income of each State subbasin to its parent State.[1] This comparative analysis provided a basis for evaluation of the magnitude and nature of economic development which the State subbasin has relative to the larger economic area. If the State subbasin has a broadly based, complex economy with a high percentage of tertiary industries[2] and high-wage manufacturing industries when compared to the parent economic area or State, then its per capita income will be higher. This, in turn, indicates a relationship to the degree of urbanization and the number of comparatively large cities.[3] If the State subbasin is expected to increase in all of these measures of economic development related to the larger economic unit, the projection of per capita income should show a rise similar to that of the parent economic units. Conversely, if a State subbasin has a somewhat less advanced economic development than the State, as shown by percentage of employment in agriculture, low-wage manufacturing industries, and the small cities and towns which are often stagnant in growth or are even declining in population, the per capita income of the subbasin would be lower. In projecting per capita income for the State subbasin, consideration was given as to whether or not its economy might develop more rapidly than the other State subbasins in the parent economy. Subbasin 7 in Georgia is an example of a complex, developing economy with strong potentials for more rapid growth and development than the State. Accordingly, it has been projected that the Georgia portion of Basin 7 will have a rising per capita income relative to the State. Subbasin 6 in Georgia is of the opposite type. It is in a much earlier stage of economic development, and its potentials for growth are less favorable than many other subbasins in the State. Consequently, its per capita income is projected at a lower rate of increase than the State projections of per capita income.

Consideration was given to trends in urban population and growth in employment when making the income projections. State subbasins having a relatively high urban population were assigned a higher rate of growth in per capita income than the predominantly rural State subbasins. A high ratio of employment, particularly of tertiary industrial types and many classes of manufacturing, is related to the percentage of total urban population and to the number and size of cities. Consequently, when weight is given to urban population in making projections of per capita income, the level of employment is also reflected. Where high-wage industries, such as pulp and paper mills, are concentrated in one area like Basin 4, the trend in ratios for the basin relative to State per capita income was adjusted upward by judgment. The ratio of employment to population was also considered in determining per capita income. The influence of this factor is illustrated in the Ogeechee basin. This basin has a low ratio of employment to population when compared to most of the subbasins in Georgia. Consequently, the projected ratios of per capita income in the basin to State per capita income were reduced by judgment.

In summary, the ratios of each State subbasin per capita income to State per capita income were derived by a combination of statistical procedures and judgment. The statistical procedure involved extrapolation of State subbasin per capita income ratios for 1975 and 2000. The projections involved adjustments of these estimates to reflect development potentials as described above.

Projections of Personal Income

Projected values of personal income based on a demand model embodied two basic steps. The first step involved solution of the equation for the projected value of personal income. Since the two parameters, population and per capita income, were derived by procedures previously explained, this step involved the multiplication of per capita income by population of the re-

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[1] State per capita incomes were projected by developing the ratio of per capita income of each State to the United States per capita income for the period 1939-60. Projections were made therefrom by means of judgment adjustments of the trends in individual States but within the controlling assumption that per capita income ratio of study area States to United States per capita income would narrow from 1960 to 2000.

[2] The tertiary industries are government, wholesale and retail trade, finance, insurance and real estate, transportation, communication, electric, gas, and sanitary services.

[3] The large cities are Atlanta, Augusta, Columbus, Macon, Pensacola, and Savannah.

TABLE 3.24

Per Capita Income
(January 1960 dollars)

Basin and State	1939	1950	1960	1975	2000
Basin 1					
Georgia	555	1,175	1,494	2,113	3,458
South Carolina	520	1,125	1,430	2,023	3,310
North Carolina	353	748	951	1,345	2,201
Total	540	1,153	1,469	2,073	3,398
Basin 2					
Georgia	462	1,062	1,300	1,837	3,239
Basin 3					
Georgia	559	1,165	1,550	2,147	3,636
Basin 4					
Florida	700	1,390	1,521	1,616	2,420
Georgia	399	1,089	1,343	1,897	3,345
Total	441	1,140	1,378	1,845	3,181
Basin 5					
Florida	524	870	1,132	1,461	2,684
Georgia	503	809	1,291	1,765	2,989
Total	508	826	1,243	1,673	2,904
Basin 6					
Florida	450	1,288	1,654	2,163	3,712
Georgia	426	997	1,022	1,413	2,362
Total	442	1,173	1,444	1,929	3,360
Basin 7					
Alabama	340	707	1,145	1,419	2,663
Florida	460	976	1,208	1,680	2,660
Georgia	695	1,503	1,907	2,615	4,537
Total	638	1,386	1,805	2,480	4,362
Basin 8					
Alabama	195	869	1,190	1,475	2,768
Florida	703	1,569	1,826	2,566	4,742
Total	367	1,178	1,541	2,168	4,291
Summary					
Alabama	239	814	1,176	1,453	2,720
Florida	578	1,321	1,636	2,277	4,272
Georgia	586	1,257	1,640	2,290	3,994
North Carolina	353	748	951	1,345	2,201
South Carolina	520	1,125	1,430	2,023	3,310
Total	537	1,207	1,582	2,202	3,922

spective State subbasins for the projection years. The second step necessitated reconciling the total personal income of State segments built up in detail from State subbasins with personal income of State segments derived by another method. The State segment income was determined by projection of its ratio to State total personal income according to judgment and analysis of whether the segment share would rise or fall in relation to the State total over the projection period. This independently determined total for each State segment of the Southeast River Basins area was used as the control to adjust the State segment totals built up from State subbasins which were derived by direct application of the income model. Further adjustments were intro-

TABLE 3.25

Personal Income
(millions of January 1960 dollars)

Basin and State	1939	1950	1960	1975	2000
Basin 1					
Georgia	208	489	663	1,212	3,186
South Carolina	125	285	406	727	1,737
North Carolina	2	5	6	9	14
Total	335	779	1,075	1,948	4,937
Basin 2					
Georgia	83	183	262	391	867
Basin 3					
Georgia	467	1,070	1,613	2,768	6,490
Basin 4					
Florida	14	34	49	64	136
Georgia	47	137	179	322	873
Total	61	171	228	386	1,009
Basin 5					
Florida	45	78	100	149	306
Georgia	98	161	257	417	878
Total	143	239	357	566	1,184
Basin 6					
Florida	43	143	230	385	955
Georgia	30	71	70	114	214
Total	73	214	300	499	1,169
Basin 7					
Alabama	51	114	185	289	785
Florida	25	56	74	108	200
Georgia	676	1,712	2,667	5,168	16,271
Total	752	1,882	2,926	5,565	17,256
Basin 8					
Alabama	66	279	371	491	960
Florida	122	399	696	1,493	5,552
Total	188	678	1,067	1,984	6,512
Summary					
Alabama	117	393	556	780	1,745
Florida	249	710	1,149	2,199	7,149
Georgia	1,609	3,823	5,711	10,392	28,779
North Carolina	2	5	6	9	14
South Carolina	125	285	406	727	1,737
Total	2,102	5,216	7,828	14,107	39,424

duced into personal income of State subbasins to reflect the employment departures from the historical pattern, the extent of high- or low-wage industries, and the employment ratio to total population. Summaries of the projections by State subbasins are given in Tables 3.24 and 3.25 for per capita income and personal income respectively.

Source of Income by Major Categories

The U. S. Department of Commerce, National Income Division, divides personal income into categories labeled wages and salaries, farm and nonfarm proprietors' income, property income[1]

[1] These receipts are in the form of rents, dividends, and interests.

TABLE 3.26

Personal Income by Major Sources
(millions of January 1960 dollars)

Item	1960		1975		2000	
Nonfarm wages and salaries						
Mining		24.8		47.5		153.0
Construction		326.3		642.3		1,750.2
Manufacturing						
Food	168.1		320.6		760.4	
Textiles	355.0		451.5		641.2	
Apparels	146.8		286.9		706.0	
Lumber and wood	94.3		125.8		240.8	
Pulp and paper products	136.6		289.9		803.8	
Printing and publishing	55.2		129.4		605.8	
Chemicals and allied products	121.9		235.1		643.3	
Stone, clay, glass, etc	47.5		128.6		532.7	
Metals products	287.2		704.2		3,457.6	
All other	89.6		207.5		869.2	
Total manufacturing		1,502.2		2,879.5		9,260.8
Trade, finance, etc		1,176.7		2,207.6		6,280.5
Government		1,000.6		1,878.6		5,593.0
Transportation and services		865.4		1,539.0		3,949.3
Miscellaneous[1]						
Domestics	116.5		209.8		565.5	
Other NANM	42.0		75.4		204.0	
Total miscellaneous		158.5		285.2		769.5
Total wage and salaries (unadjusted)		5,054.5		9,479.7		27,756.3
Conceptual adjustment[2]		217.0		169.1		185.3
Total nonfarm wages and salaries		5,271.5		9,648.8		27,571.0
Farm proprietors' and agricultural wages		378.0		587.0		918.0
Nonfarm proprietors' income		770.5		1,304.6		3,376.8
Property income		794.0		1,485.6		4,515.7
Transfer payments and other income		770.6		1,475.0		4,761.9
Total		7,984.6		14,501.0		41,143.0
Less social insurance payments		156.6		394.0		1,719.0
Total personal income		7,828.0		14,107.0		39,424.0

NOTES: [1] This term "miscellaneous" is used in lieu of self-employed and other because over 50 percent of former category is already included under nonfarm proprietors' income.
[2] The conceptual adjustment is the difference between employment by place of work and employment by residence of workers.

and transfer payments, less a deduction for personal contribution for social insurance. Conceptually, total wages and salaries are a joint function of employment and average yearly earnings of workers. The average wages and salaries earned per worker in Georgia during 1960 were assumed to be representative of the other States in the Southeast River Basins area. They were derived by dividing total insured employment of each industry category into total wages and salaries received under the unemployment insurance program reported to the Georgia Department of Labor. Average yearly wages and salaries for 1975 and 2000 were projected from 1960 by assuming yearly gains in real earnings per worker of from 1½ to 2½ percent compounded annually. The compounding depended upon the industry category and its prospects for gains from technology and automation. Consideration was given to both past trends in pro-

ductivity and potentials for future gains in productivity.

Income from nonfarm wages and salaries by industry categories for each projection year (1960, 1975, and 2000) are shown in Table 3.26. The income was derived by multiplying the average yearly wages and salaries earned per worker by the number of workers by place of work as shown in Tables 3.18 through 3.23. The total figure for nonfarm wages and salaries was adjusted to reflect employment by residence of workers.

Income from property, returns to nonfarm proprietors, and transfer payments and other labor income were derived from basic studies. In these studies, the percentage that each major category is of the total personal income for 1956 was used as a benchmark, with some adjustments to reflect expected rise or decline in the relative importance of the category to the year 2000. The basic studies were subsequently adjusted to a 1960 dollar base and revised to coincide with the total personal income projections for the Southeast River Basins area, as set forth in Table 3.25.

Agricultural income includes farm proprietors' income, wages of farmworkers, and farm perquisities. The data for 1960 were adjusted based on analysis of data contained in the preliminary 1959 Census of Agriculture.

Limitations

Since personal income depends on the population and per capita income projections, errors in the projections will depend upon possible inaccuracies of the projections in the two components. In Section II, it was stated that the errors of projections in population were believed to be comparatively small; however, somewhat larger errors may have been incurred in the per capita income projections because of the mixed quality of the county data. But errors in population and per capita income projections are not necessarily additive. The nature of the parameters in the model is such that the occurrence of errors is not random but interdependent.[1] The errors are, therefore, partially compensating and, consequently, the range of projection errors in personal income will probably be smaller than the relative projection errors in either of the parameters constituting the income model. For the Southeast River Basins area, the range of errors for the 1975 projections of personal income is expected to be between 5 and 10 percent and for 2000, between 15 and 25 percent but could be larger. Because of the size of aggregations, river basin and State subbasin errors may be expected to be larger, depending upon the accuracy of assumptions as to urbanization and structural changes in the respective economies.

[1] Population and per capita income were determined by the factors which make for high employment. Fluctuations in both, therefore, tend to be interdependent. Errors in population and per capita income are minimized by the process of projection. The error in personal income should be relatively smaller than either of its parameters.

SECTION V – AGRICULTURE IN THE SOUTHEAST RIVER BASINS

Purpose

Although there are inherent limitations and even hazards in making long-range projections for small areas such as the Southeast River Basins area and the river basins within, the projections were made as guide posts in the development of a framework for resource use and development, and as an aid in solving potential conflicts between competitive resource uses. While this Section sets out agricultural production requirements, it makes no attempt to estimate resource development programs that may be required. This Section supplements the agricultural portions of Section I in the following manner:

(1) Shows national requirements for food, feed, cotton fibers, and timber for the present (1959) and projected to 1975 and 2000 under certain assumed conditions. In doing this, data are presented as to actual quantities of commodities that will be needed for the United States domestic market and for export, along with methodology and procedures used to develop these quantities.

(2) Shows the share of the national requirements that will need to be produced in the Southeast River Basins area in future time periods, Southeast River Basins area requirement data are developed by physiographic provinces and States within basins, and future data are

compared with past performances of the same universe.

(3) Determines past yield data of selected commodities by river basins and for the Southeast River Basins area and to develop projected yields for the Southeast River Basins area.

(4) Determines through projected production requirements, yield data, and other material the amounts of land needed or required for farm land, noncensus farmland, nonfarm woodland, and social, service, or special use land in future time periods.

(5) Compares agricultural income and expenses from the use of Southeast River Basins land during past periods with projected income and expenses.

(6) Compares present (1959) and projected number and size of farms.

(7) Compares the present (1959) and projected capital investment in farming.

(8) Compares past and future land uses by provinces and States.

Scope

Studies made for Section I were concerned primarily with aggregate data of the agricultural economy of the Southeast River Basins area, whereas this Section presents the breakdown of pertinent data by river basins, physiographic provinces, and States. Current data (1954 and 1959) and projections for the years 1975 and 2000 are included. The subdivision of the total Southeast River Basins area into the eight principal river basins is shown on Figure 1.1

General

Agriculture is an important segment of the Southeast River Basins economy. This has been true historically and will long continue to be so. Despite the decline in number of farms and farmers, agriculture is an expanding industry in the Southeast River Basins area. This seeming paradox of expanding production and a declining farm acreage and population stem from the large growth in production efficiency arising from the increased use of farm machinery, fertilizers, off-farm services, conservation programs, and other forms of improved technology. Further increases in efficiencies are expected to occur over the next 40 years. It is expected that total consumption of farm products will rise as the population of the region and Nation rises. Gains in personal income are tending to increase per capita demands for protein foods, fruits, and vegetables. Export markets, as well as domestic, show a potential for growth. These trends should work to the Southeast River Basins area advantage since it is a large producer of many commodities that have a growing market. Also, the area has a potential for future production that is much greater than its present production. However, future production of the Southeast River Basins area should be closely coordinated to national and export demands and to best use of available resources.

National Production Requirements

National production requirements for crop and livestock products for future years were developed by the Economic Research Service, U. S. Department of Agriculture. This Section summarizes the more complete and detailed reports of ERS as they relate to agricultural production requirements at the national level. Assumptions used by ERS in the development of national production requirements were, as a whole, consistent with the assumptions developed by the U. S. Study Commission and presented herein for the Southeast River Basins. Specific assumptions and findings made by ERS are stated below.

Economic Base

Over the 40-year period, 1960 to 2000, the pressure for agricultural expansion may be such as to improve the comparative advantage of agricultural production in many foreign countries. A substantial increase in world trade of agricultural products is also likely to occur. Projections of foreign commercial demand for United States farm products take into consideration the likely trends of production in other surplus-producing areas and the ability of these areas to help meet world needs. They take into account also the trends in industrial use of farm products as well as the possibility of industrial substitutes for these farm products. The rough projections of foreign commercial demand for selected United States agricultural products in the years 1975 and 2000 allow for (1) world population growth in accordance with the 1958 revised United Nations projections using the

medium assumptions of 3.8 billion for 1975 and 6.3 billion for 2000 (from 2.9 billion in 1960); (2) absence of major wars resulting in widespread devastation of all types of agricultural resources or large population losses; (3) some continued improvement in real per capita income; (4) continued expansion in the allocation of capital and land resources to agricultural production are about in line with population growth except in the Far East, where half of the world population lives and where resources are most seriously limited; and (5) a continuation of present levels of food consumption except in countries of lowest per capita income, where some improvement in the diet may be required to maintain stability.

Agricultural Crop and Livestock Production

The domestic requirements for crop and livestock products in the United States were projected for 1975 and 2000 within the assumed economic base for these years. They represent slight modification of projections previously developed by the Agricultural Marketing Service, U. S. Department of Agriculture. The minor deviations from previous projections result from population assumptions provided by the Study Commission, which deviate from population assumptions used previously by ERS. It was assumed that by 1975, personal income in the United States would have risen to such levels that most consumers would have the kind of diet they wanted. Consequently, changes in per capita demand resulting from further changes in income beyond the projected 1975 level would be negligible. Thus, projected increases in domestic requirements after 1975 largely reflect only the influence of population growth. By and large, recent price relationships between the individual commodities are assumed to continue. In addition to changes in income and population, other factors influence trends in consumption of farm

TABLE 3.27

Per Capita Utilization of Major Farm Products in the United States[1] (pounds)

Commodity	1950	1954	1958	Projection 1975 and 2000
Crops				
Food grains				
Wheat	267.0	225.0	213.0	204.0
Rice (rough basis)	11.8	10.1	11.4	14.8
Vegetables (farm weight equivalent)[2]	223.8	225.5	226.2	254.8
Potatoes, sweet potatoes, and dry beans	128.9	124.9	118.9	100.0
Fruit and nuts (farm weight equivalent)[2]	190.1	200.2	189.6	212.2
Citrus	73.3	86.0	74.4	118.0
Sugar crops (raw value)	100.8	96.3	98.1	103.5
Oil crops				
Soybeans	72.0	102.0	144.0	144.0
Flaxseed	16.8	11.2	16.8	11.2
Peanuts (farmers' stock basis)	6.4	6.3	6.3	9.2
Cotton	30.9	25.4	22.2	30.3
Tobacco[3]	12.0	12.1	11.5	13.5
Livestock products				
Beef and veal[4]	132.0	165.6	156.6	192.2
Lamb and mutton[4]	8.5	9.7	8.5	9.6
Pork[4]	122.7	104.5	105.2	127.4
Dairy products (fat solids basis)	741.0	700.0	688.0	746.0
Poultry[4]	35.4	40.0	47.5	45.5
Eggs[5]	32.4	31.3	29.1	30.3

NOTES: [1] Source: Special study by Economic Research Service, U. S. Department of Agriculture for the U. S. Study Commission.
[2] Commercial, for fresh market and processing.
[3] Based on population over 15 years of age, 69.5 percent of total population.
[4] Live weight.
[5] Dozen.

products, though to a lesser degree. Nutritional and medical findings, food fads, and development of synthetic materials have influenced past trends in consumption, although their influence is difficult to measure quantitatively. These and other intangible factors will continue to affect growth in the demand for farm products in the future.

Basis of Projections

Basically, the method followed was to project requirements per person for all major crop and livestock products. Estimates of total requirements were derived by multiplying the resulting per capita estimates for each commodity by the projected population. Per capita requirements for particular farm products were estimated by relating consumption to projected per capita income levels. Income elasticities of demand were statistically estimated for all of the major farm commodities. The coefficients obtained in these studies were used to estimate per capita requirements in 1975 and 2000.

Projections

The projected per capita utilization rates of major farm products in the United States are shown in Table 3.27. The projections are for 1975 with the assumption that these rates will continue to 2000. The relative changes in farm product utilization for 1950, 1954, and 1958 and as projected for 1975 and 2000 are shown in

TABLE 3.28

Changes in Farm Product Utilization in the United States[1]
(Index numbers, 1954 = 100)

Item	1950	1954	1958	Projections	
				1975	2000
Domestic utilization of all farm products (USA)	96	100	106	160	257
Food	93	100	107	157	253
Nonfood	118	100	101	174	280
Livestock products					
Food	89	100	107	159	255
Meat animals	87	100	104	164	264
Dairy products	94	100	107	150	241
Poultry	80	100	129	171	276
Eggs	96	100	99	140	226
Nonfood	114	100	86	108	173
Crops					
Food	99	100	107	154	248
Cereals and potatoes	97	100	102	132	212
Fruits and vegetables	105	100	113	167	269
Nonfood	107	100	113	140	226
Feed and seed	105	100	117	135	216
Other	112	100	100	167	269
Exports, total	96	100	136	155	240
Livestock exports	89	100	126	100	100
Crop exports	101	100	138	167	271
Imports, total	112	100	114	160	257
Livestock imports	162	100	159	160	257
Crop imports	102	100	105	160	257
Total utilization[2]	94	100	108	159	255
Livestock	90	100	104	152	242
Crop	103	100	107	146	236

NOTES: [1] Source: Special study by Economic Research Service, U. S. Department of Agriculture, for the U. S. Study Commission.
[2] Domestic utilization, excluding stock changes, plus exports and minus imports.

Table 3.28, by indices. The projected requirements for farm products broken down by domestic and export requirements for farm products show the total United States production requirements for the past and for 1975 and 2000.

Projected requirements within the economic base outlined above indicate that the domestic market for farm products in 1975 will be 90 percent above 1954 consumption levels. By 2000, domestic utilization will be 200 percent higher than in 1954. The projected growth in domestic requirements for farm products (both food and nonfood) is approximately 12 percent greater than the advances in population projected for both 1975 and 2000. The difference reflects increased consumption per person, including the continuing trend toward higher cost foods as, for example, toward red meats and fruits and vegetables. These changes improve the quality of the diet but add nothing to the number of calories or pounds of food consumed per capita. The projected increase in utilization also involves a small gain in per capita use of fats and a continued decline in per capita consumption of cereals and potatoes. These trends may be modified by developments in nutrition and medicine that affect food consumption patterns.

The increase in requirements for livestock production is considerably greater than the increase in those for crops. Due to the amount of improvement anticipated in feeding efficiencies, the expected increase in livestock production is considerably greater than the projected increase in feed requirements. Imports of farm products are projected at 60 to 95 percent above the 1954 volume by 1975 and from 90 to more than 200 percent above 1954 by the year 2000. The major agricultural import items are coffee, cocoa, tea, bananas, and sugar.

Forestry Requirements

Projections of forestry requirements and other related data were developed as a special study for the U. S. Study Commission, Southeast River Basins, by the Forest Service, U. S. Department of Agriculture. For national requirements, the

TABLE 3.29

United States Requirements for Farm Products for Domestic Use and Net Export[1]

Item	Unit	Per capita utilization 1975–2000	Domestic		Net exports		Domestic and net exports	
			1975	2000	1975	2000	1975	2000
			millions					
Beef and veal	lb. live weight	192.2	45,167	73,036	--	--	45,167	73,036
Lamb and mutton	lb. live weight	9.6	2,256	3,648	--	--	2,256	3,648
Pork	lb. live weight	127.4	29,939	48,412	--	--	29,939	48,412
Dairy products	lb. fat solids	746.0	175,310	283,480	--	--	175,310	283,480
Poultry	lb. live weight	45.5	10,692	17,290	--	--	10,692	17,290
Eggs	no.	363.6	85,446	138,168	--	--	85,446	138,168
Wheat	bu.	3.4	799	1,292	310	450	1,109	1,742
Cotton	bale	0.0606	[2]14,241	[2]23,028	[2]5,000	[2]8,000	[2]19,241	[2]31,028
Oil crops	lb.	164.4	38,634	62,472	15,300	21,890	53,934	84,362
Fruits and nuts	lb.	212.2	49,867	80,636	--	--	49,867	80,636
Vegetables	lb.	254.8	59,878	96,824	--	--	59,878	96,824
Potatoes, sweet potatoes, and dry beans	lb.	100.0	23,500	38,000	--	--	23,500	38,000
Tobacco (69.5 percent of total population)	lb.	13.5	2,205	3,565	532	600	2,737	4,165

NOTES: [1] Source: Special study by Economic Research Service, U. S. Department of Agriculture, for the U. S. Study Commission.
[2] In thousands.

Forest Service published estimates of the amount of growth which would be needed to meet the national potential demand for timber in 2000 were used.[1]

> "The medium projection of needed growth was geared to a population estimate of 275 million in the year 2000, a gross national product of 1,200 billion dollars (1953 prices), continued availability of timber products at relative price levels approximating those of recent years, and the assumption that industrial timber products would maintain the same relative position in the national economy."

The above assumptions used in the Forest Service publication were below those developed by the Study Commission for population and gross national product. However, with the assumptions used, the Forest Service shows a national needed growth in 2000 as follows:

Kind of timber	Needed growth
Sawtimber	(billion bd. ft.)
Eastern softwoods	43.1
Eastern hardwoods	29.1
Western species	33.2
Total	105.4
Growing stock	(billion cu. ft.)
Eastern softwoods	8.5
Eastern hardwoods	7.3
Western species	6.4
Total	22.0

The U. S. Forest Service study made for the U. S. Study Commission, Southeast River Basins, points out that needed national forestry growth will not be achieved unless much greater nationwide forestry efforts are activated. Large increases in growth are particularly needed from areas such as Southeast River Basins where timber growing and market conditions are especially favorable. The share of the needed national growth in total growing stock which might reasonably be allocated to Southeast River Basins

[1] Forest Service, U. S. Department of Agriculture, *Timber Resources for America's Future*, Forest Resource Report 14, January 1958.

TABLE 3.30

United States Production of Major Farm Products[1]

Commodity	Unit	Production				Projected requirement	
		Average 1940-44	Average 1945-49	Average 1950-54	Average 1955-59	1975	2000
Livestock products							
Meat animals							
Beef and veal[2]	million lb.	18,033	19,064	24,819	27,757	45,167	73,036
Lamb and mutton[2]	million lb.	2,142	1,580	1,465	1,601	2,256	3,648
Pork[2]	million lb.	20,319	18,685	19,279	19,644	29,939	48,412
Dairy products[3]	million lb.	115,415	116,623	117,654	124,764	175,310	283,480
Poultry[2 4]	million lb.	4,073	4,533	5,750	7,487	10,692	17,290
Eggs	million	48,659	55,724	58,382	60,783	85,446	138,168
Crop, nonfeed							
Wheat	million bu.	926	1,202	1,094	1,096	1,109	1,742
Rice	thousand cwt.	27,380	35,485	50,026	49,168	58,350	93,820
Cotton	thousand bales	11,957	12,104	14,089	13,042	19,241	31,028
Oil crops[5]	million lb.	12,966	18,816	21,493	32,679	53,934	84,362
Citrus fruits[6]	million lb.	10,726	13,251	13,250	14,295	27,730	44,875
Vegetables[7]	million lb.	51,928	57,871	56,697	61,523	83,378	134,824
Tobacco	million lb.	1,497	2,072	2,184	1,915	2,737	4,165
Other fruits and nuts[8]	million lb.	3,131	3,584	2,876	3,221	3,196	5,168

NOTES: [1] Source: Special study by the Economic Research Service, U. S. Department of Agriculture, for the U. S. Study Commission.
[2] Live-weight basis.
[3] Milk basis.
[4] Chickens, broilers, and turkeys.
[5] Peanuts, soybeans, and flaxseed.
[6] Oranges and grapefruit.
[7] Includes potatoes, sweet potatoes, and dry beans.
[8] Peaches and pecans.

area can realistically be grown in the area. Commission goals for sawtimber were set substantially below levels which would have been expected on the basis of past performance and the inherent sawtimber production capabilities of the area. Projected levels recognize that the area timber has been cut excessively in the past and that a buildup of growing stock must be accomplished before efficient sawtimber production can be maintained. Western sections of the country now have large sawtimber reserves which can be advantageously marketed throughout the Nation during the next 40 years. The marketing advantages of the West will dissipate, however, as its mature timber is harvested, and both regions enter a period of sustained yield production.

Allocation of a Share of National Requirements to Southeast River Basins Area

Crop and Livestock

The Economic Research Service made projections of crop and livestock production requirements in the Southeast River Basins area based on consideration of: (1) Projections of national requirement, (2) past production trends in the Southeast River Basins area in relation to percentage of total United States production, (3) consultation with commodity specialists in the Agricultural Marketing Service, and (4) limited inquiry as to the expected production in competing regions of the Nation. Requirements for feed production were derived from livestock product requirements, taking into consideration feed imports from other regions, and projected improvement in feeding efficiencies. Details of the ERS projections for the Southeast River Basins area are shown in Table 3.31. The ERS allocation of a Southeast River Basins area share also considered production and marketing technology, other economic forces, and their differential regional effects on production trends. Additional comments made by ERS on the Southeast River Basins area share were as follows:

"Stability of production trends for most commodities suggest that the 1975 projections may be limited to relatively minor errors. The aggregate error for all commodities will be less than for individual commodities. Hence, for purposes of the Study Commission, the 1975 projections seem to be reasonably adequate. Because of the dearth of knowledge concerning the production and marketing technology that will become available between 1975 and 2000, the estimates for the year 2000 are merely extensions of the 1975 projections. Rather wide margins of error are likely,

TABLE 3.31

Projected Need for Agricultural Production in Southeast River Basins Area[1]

Product or commodity group	Unit	Projected U. S. requirements		Projected share of U.S. requirement		Projected SERB area requirements	
		1975	2000	4-State area (percent)	SERB area (percent)	1975	2000
Beef and veal[2]	million lb.	45,167	73,036	5.5	1.9	858	1,388
Lamb and mutton[2]	million lb.	2,256	3,648	0.5	0.02	0.5	0.7
Pork[2]	million lb.	29,939	48,412	6.5	3.1	928	1,501
Dairy products[3]	million lb.	175,310	283,480	3.6	1.5	2,630	4,252
Poultry[2 4]	million lb.	10,692	517,290	28.0	11.2	1,197	1,936
Eggs	million	85,464	138,168	9.0	3.1	2,649	4,283
Cotton	thousand bales	19,241	31,028	6.5	2.9	564	911
Oil crops[6]	million lb.	53,934	784,362	5.0	2.8	1,488	2,334
Vegetables[8]	million lb.	83,378	134,824	12.0	3.4	2,834	4,584
Tobacco	million lb.	2,737	4,165	16.0	8.3	227	345
Other fruits and nuts[9]	million lb.	3,196	5,168	---	---	---	---

NOTES:
[1] Source: Special study by Economic Research Service, U. S. Department of Agriculture, for the U. S. Study Commission.
[2] Live-weight basis.
[3] Milk basis.
[4] Chickens, broilers, and turkeys.
[5] Broilers 35 percent × 0.627; chickens 12 percent × 0.201; and turkeys 2 percent × 0.172.
[6] Peanuts, soybeans, and flaxseed.
[7] Soybeans 3.0 percent × 0.89 and peanuts 50 percent × 0.049.
[8] Includes potatoes, sweet potatoes, and dry beans.
[9] Peaches.

but there may be some basis for refinement after studies concerned with production are developed."

The preceding Tables 3.27-3.31 inclusive were taken as reported from the ERS special study including units of commodities and data reported. All remaining tables follow the procedures set forth by the U. S. Study Commission, Southeast River Basins. Units of production are standardized with the same unit for a given commodity remaining constant.

Forest Products

Based on the U. S. Forest Service special study, the U. S. Study Commission, Southeast River Basins, developed the needed national growth or share of timber from the Southeast River Basins area for the year 2000. The Southeast River Basins timber requirements or needs are as follows:

Kind of timber	Needed growth (billion cu. ft.)
Growing stock	
Softwoods	1.6
Hardwoods	0.6
Total	2.2

Adjustments by U. S. Study Commission, Southeast River Basins

The Commission held some reservations about projected per capita consumption rates and national crop and livestock requirements of some commodities. However, no changes were made in these items. Following study and review of the Southeast River Basins area production requirements developed by ERS, the Commission made some revisions of the Southeast River Basins area share. Part of this revision was based on a detailed historical study of the local area, studies and projections made by colleges and universities of the region, and comments of local professional agricultural workers. Also, an effort was made to firm up the ERS data; in some cases, grouped items such as oil crops were divided into the major types of oil crops grown in the Southeast River Basins area. In other cases, additions were made to the ERS list in order to more completely cover enterprises that would likely be produced in the Southeast River Basins area. Production requirements for cotton, hay, and feed grains were increased as a result of the Commission study. The adopted crop and livestock production requirements are shown in Table 3.32.

TABLE 3.32

Crop and Livestock Production, Southeast River Basins Area

Item	Unit	1959 production*	Projected SERB area requirements	
			1975	2000
Crops				
Cotton	lb.	319,823,000	520,000,000	750,000,000
Tobacco	lb.	122,684,951	227,000,000	345,000,000
Peanuts	lb	618,623,557	1,321,000,000	2,073,000,000
Soybeans	bu.	3,092,094	1,488,000	2,334,000
Corn	bu.	65,198,244	85,000,000	132,000,000
Sweet potatoes	bu.	2,129,269	3,400,000	5,400,000
Small grain	bu.	13,660,359	16,000,000	26,000,000
All hay	ton	524,799	1,200,000	1,835,000
Commercial truck	ton	536,900	1,025,200	1,660,500
Livestock products				
Beef and veal	lb.	435,000,000	858,000,000	1,388,000,000
Pork	lb.	501,000,000	928,000,000	1,501,000,000
Lamb and mutton	lb.	644,000	500,000	700,000
Poultry	lb.	867,000,000	1,197,000,000	1,936,000,000
Eggs	doz.	164,600,000	220,800,000	357,000,000
Milk	lb.	1,500,000,000	2,630,000,000	4,252,000,000

* Source: 1959 Preliminary Census of Agriculture.

Commodity Requirements

Total agricultural output in the Southeast River Basins area is projected to increase in the aggregate for most individual commodities. This projected amount is the requirements of the area to meet its share of local and national requirements including exports. Farm operators of the area may find it to their advantage to produce more of some commodities and less of some others than the amount shown as the requirements. However, the resources of the area are such that the requirements could be produced should it be profitable for farmers to do so. Increased production in the area can and likely will occur from shifts in acreages of crops and in numbers of livestock, and from increased yields per acre of crops and per head of livestock. Based on the share allocated to the Southeast River Basins area, 63 percent more cotton will need to be produced in 1975 than was produced in 1959. By the year 2000, cotton production would need to increase by 135 percent above 1959 production. However, with a substantial increase in yield, only a small additional acreage of cotton will be needed in the Southeast River Basins area. The relative changes in requirements by commodities are shown in Table 3.33.

TABLE 3.33

Index of Production Requirements by Commodities for Southeast River Basins Area (index numbers, 1959 = 100)

Item	Projections for	
	1975	2000
Crops		
Cotton	163	235
Tobacco	185	281
Peanuts	194	304
Soybeans	48	75
Corn	130	202
Sweet potatoes	160	254
Small grain	117	190
All hay	229	350
Commercial truck	191	309
Livestock products		
Beef and veal	197	319
Pork	185	300
Lamb and mutton	78	109
Poultry	138	223
Eggs	134	217
Milk	175	283

Cotton

The percentage of the national cotton production originating in the Southeast River Basins area has decreased rapidly over the past 20 years. The decline resulted from a marked economic advantage of western producers, the prevalence of small farms not then adapted to mechanization, problems of insect control, growth of competitive enterprises, shifts to nonfarm employment, acreage-control programs, and other factors. Should the rate of decline of the past few years continue, the study area would be out of cotton production around the year 2000 or before. There is considerable evidence that the Southeast River Basins area is improving cotton-production methods, is increasing size of farms, is obtaining higher yields, and is thereby becoming more competitive with other regions. Present control programs that allow for a shifting of allotted acres will help to stabilize cotton acreage in the better cotton-producing areas or on the farms better adapted to specialization within the Southeast River Basins area. After 1975, the production in competing western areas may be restricted by the availability of needed land and water resources. The future cotton requirements estimated for the Southeast River Basins area can be produced with a relatively small number of specialized producers who should be able to compete with other regions and with other local alternatives for the use of land.

Tobacco

Tobacco production has increased in the Southeast River Basins over the past 20 years. Flue-cured and shade tobacco are the types most commonly grown in the study area. Changes in demand for some types of tobacco may affect future output in local areas. However, it is expected that total tobacco requirements of the Southeast River Basins area will increase with the total growing national and export markets.

Peanuts

Peanut acreage of the Southeast River Basins area has decreased considerably since its peak during World War II. However, production has not decreased to the same extent as has acreage. Types of peanuts grown in the study area in-

clude Spanish, Virginia bunch, and runners. They are used for confectionary purposes, for making peanut butter, and for cooking oil. Demand for all of these products will increase with the growth in population, especially with the large increase in the world need for oil. Requirements for peanuts from the Southeast River Basins area are in line with increased national requirements and will allow the area to produce about the same percentage of national production in the future as is now produced.

Soybeans

Soybean production in the Southeast River Basins area has increased over the past few years more rapidly than for the United States as a whole. Due to future competition from other cash crops and livestock enterprises and other uses of available land resources, soybean production in the Southeast River Basins area is expected to decrease as other enterprises increase in importance. The picture for the Southeast, as a whole, would not necessarily be the same as for the Southeast River Basins area. The Southeast may well increase the future production of soybeans while the Southeast River Basins area decreases. At the same time, some basins within the Southeast River Basins area may increase soybean production while other basins may decrease production.

Corn

In the past, the harvested corn acreage of the Southeast River Basins area has been equal to about half the total harvested cropland acreage. In the future, this proportion is expected to decrease to a third or less of the total harvested cropland acreage. However, with the expected improvement in yields, corn production is expected to double the 1959 output by 2000. Even so, the Southeast River Basins area will remain deficit in terms of corn needs and will import 25 to 30 percent or more of its future total corn and other feed-grain needs.

Sweet Potatoes

In the past, commercial production of sweet potatoes has been a minor enterprise and is expected to remain so in the future. However, the increase in population projected for the study area will increase the requirements for this commodity. Most of the requirements for this item will be produced in selected areas and by a small number of commercial truck farmers.

Small Grain

Much of the small grain in the Southeast River Basins area is grown for fall grazing and then is allowed to mature and is harvested for grain in the spring. With increases in livestock enterprises (Tables 3.32 and 3.33), some small grain will continue to be planted for this dual purpose. As a whole, the total small grain acreage is projected to decrease in the future. However, total production will increase due to increased yields. Most of the future requirements for small grain in the study area are for feed-grain purposes.

All Hay

Increased hay requirements for the Southeast River Basins area are needed for the projected increase in livestock. Not only will additional hay be needed, but also shifts are needed in the kinds of hay crops grown. It is projected that hay production requirements in the year 2000 will be 3.5 times present production. While a part of this production may come from hay crops, a part of the hay acreage may be devoted to harvested forages in the form of silage or other high-producing roughages. This may make it possible for the total roughage output to exceed the requirements on the acreage projected as needed.

Fruits and Nuts

Fruit and nut production – largely peaches and pecans – in the Southeast River Basins area has varied widely over the past 20 years. It is projected that the total fruit and nut acreage will remain at about the 1959 level until 1975 and will then increase slightly until 2000. Some overall improvement is projected in per acre yields. It is expected that the Southeast River Basins area will be able to supply about the same percentage of total national fruit and nut requirements in the future as it has in the past.

Commercial Truck Crops

The Southeast River Basins area has very little seasonal market advantage over areas farther north in the production of commercial truck

crops. It is at a disadvantage to southern Florida in this respect. The increased requirements allotted to the area will be needed for the increased local population and as a substitute for some products now imported into the area from distant production areas. With the growing national population, there will be a need for shifts in the origin of truck crops into some of the large and more deficit national markets. Most of the increased production of truck crops in the Southeast River Basins area will be for the fresh markets. However, specialized production for processed vegetables may occur in a limited number of areas, especially the Suwannee and Ochlockonee basins.

Miscellaneous and Other Crops

Most of the acreage of miscellaneous and other crops is used for products for home consumption or as livestock feed. The amount of this type of production will remain small and will be of little commercial value.

Beef and Veal

Beef cattle production in the Southeast River Basins area has been increasing since the late 1930's. Improvements in pasture production and control of animal diseases have been contributing factors. Acreage control of cotton, tobacco, and peanuts has necessitated a shift to other enterprises. Farm labor shortages have encouraged some farmers to shift into beef cattle production. At the same time, part-time farming has led to beef cattle on some farms due to its low labor requirements. Industrialization and increases in per capita income in the region have stimulated a demand for beef and veal. Since these developments affecting demand are expected to continue, the area will need to make a large increase in beef and veal production. Even with a tripling of production by the year 2000 and with a doubling of Southeast River Basins population by the same year, the Southeast River Basins area will not be producing sufficient beef to supply its own needs. Just as the area is a deficit producer now, it will also be one in the year 2000 but not by as large a percentage as at present.

Pork

During the last 20 years commercial pork production has increased in the Southeast River Basins area. Consumption of pork in the area has always been high and is expected to continue to be so. The area is a deficit producer of pork and it is expected that the increase in production requirements projected for the area would not change this fact. Increased pork production will, to a great extent, parallel increased feed-grain production. Most future pork production is expected to be with some type of confinement feeding. Pasture and grazing crops will likely be used only for breeding stock.

Lamb and Mutton

Sheep production in the Southeast River Basins area has been minor in the past, so far as total United States production is concerned. National future requirements indicate that the Southeast River Basins area need not greatly increase total production. With other changes and adjustments being made in the study area agriculture, it is likely that sheep production will do no more than hold its own in the future.

Poultry

The poultry industry – especially broilers and eggs – has increased rapidly in the past few years, but at perhaps a slower rate than once was true. National requirements for both broilers and eggs will increase faster than the requirements for the Southeast River Basins area. Other areas of the Southeast that have, and are likely to continue to have, a cost advantage in buying imported feed-grains will likely expand poultry production faster than the Southeast River Basins area itself.

Dairy Products

The Southeast River Basins area is a highly deficit region in the production of milk and manufactured dairy products. This condition is expected to continue. New technology may make further changes in the national supply pattern. Production requirements indicate a need for the study area to almost double its milk production by 1975 and to almost triple it by the year 2000. If this is done, the region would be supplying all of its fluid milk needs and some of its product needs. Most production by 1975 will be fluid milk with some surplus being used in the manufacturing of dairy products, especially ice creams and frozen desserts. The number of cows is pro-

jected to increase only slightly, while production per cow will greatly improve by 2000.

Forest Products

Almost 70 percent of the total land area of the Southeast River Basins area was in forest in 1959. Even in the year 2000, it is projected that 62 percent of the total land area will still be in woods. U. S. Forest Service studies show that 55 percent of the woodland is in some type of pine cover, 37 percent is in hardwood cover, and 8 percent in an oak-pine type of cover. The full productive capacity of commercial forest lands is far from being utilized. However, the Southeast River Basins area must make better use of its productive capacity or it will fall far short of supplying the demands that will be made of it by the year 2000.

Current Production and Projected Requirements by Basins

Current crop and livestock production by basins is expressed in terms of both 1954 and 1959 output as reported in the Census of Agriculture. Projected requirement by basins is that share of the Southeast River Basins area future requirements allocated to the individual basins. The share of each commodity allocated to each basin was further divided among the physiographic provinces within each basin. The current production and the projected requirements of each basin are expressed as a percentage of the total Southeast River Basins area production for each commodity as shown in Table 3.34. For example, cotton production in Basin 1, Savannah basin, amounted to 17.2 percent of the total Southeast River Basins area production in 1959, whereas the production requirements assigned to Basin 1 in the year 2000 amount to 16 percent of the total Southeast River Basins area requirements. In terms of actual production, Basin 1 produced approximately 55 million pounds of lint cotton in 1959 (Table 3.57) and production requirements for cotton from Basin 1 in the year 2000 amount to 120 million pounds (Table 3.59). Since production requirements change greatly in the future time periods, the relative changes between basins are best seen by the percentage relationships. However, some of the major shifts in locations of enterprises may often occur between provinces within a basin rather than between basins. The current and projected quantities of output for each commodity by basins are shown in Tables 3.57 through 3.80.

Method of Allocating Basin Share

In addition to 1954 and 1959 data on production by basins, data were available back to 1930 on major items from the four land-grant college studies made for the U. S. Study Commission. These same studies made projections to 1975 and 2000. However, the projections were not for requirements from the basins as a part of national requirements. They were projections of production conditions expected in the Southeast River Basins area in 1975 and 2000. Considerations were given to the above-mentioned studies as a part of the allocation of production requirements to basins for 1975 and 2000. In addition to the past production history of each basin, considerations were given to the type of soil, land capability, size and location of future markets, future industrial developments of the basins, farm labor availability in the future, projected numbers of farmers, and many other factors. On the basis of a detailed analytical consideration of all these factors, the Southeast River Basins share of national production requirements were allocated among basins and provinces. Consideration was given only to crops, and not both crops and forestry products, in terms of evaluating the physical potential of the area. Sufficient demand for timberland could greatly reduce the area potential for crop and livestock production.

The size of each basin is such that climate, institutional, or governmental factors would have little effect on making significant differences in production from one basin to another. In the final analysis, the rationing of a share of the 1975 and 2000 requirements by basins became a judgment factor. In many cases, adjustments needed were shifts in production of some row crops from the Blue Ridge and Piedmont provinces to the more suitable row cropland of the Coastal Plain. In most cases, this type of a shift could be made within basins, and a shift was not needed between basins. All indications are that there are more differences in comparative advantages between farm operators within

TABLE 3.34

Distribution of Total Production by Basins
(percent)

Item	1954	1959	1975	2000	1954	1959	1975	2000
		Basin 1				Basin 2		
Crops								
Cotton	15.84	17.17	17.00	16.00	8.46	10.42	9.00	8.50
Tobacco	0.33	0.25	0.31	0.23	9.61	10.40	10.24	8.88
Peanuts	1.50	0.79	1.12	1.12	2.56	3.51	3.60	3.60
Soybeans	30.21	21.33	21.64	21.59	5.86	7.87	11.59	11.57
Corn	9.29	6.96	7.50	7.50	9.31	8.27	8.57	8.57
Sweet potatoes	5.83	8.26	12.26	12.30	4.64	4.83	4.76	4.85
Small grain	27.06	33.21	37.03	37.02	11.71	8.16	8.90	8.90
All hay	12.30	22.34	22.04	22.04	3.13	5.40	4.66	4.65
Commercial truck	5.76	10.06	7.45	7.14	3.10	4.84	4.29	3.97
Livestock products								
Beef and veal	11.00	11.33	11.25	11.25	5.00	5.22	5.19	5.20
Pork	6.00	6.41	6.41	6.40	8.00	8.16	8.16	8.16
Lamb and mutton	1.03	17.86	17.60	17.29	--	4.97	4.80	4.43
Poultry	22.20	24.39	24.39	24.39	0.40	0.40	0.40	0.40
Eggs	15.33	16.06	16.04	15.38	4.89	4.81	3.92	2.97
Milk	16.51	15.95	15.73	16.25	5.23	5.52	5.06	4.17
		Basin 3				Basin 4		
Crops								
Cotton	23.30	23.08	23.50	22.00	1.58	1.90	1.50	1.00
Tobacco	15.39	13.15	15.36	11.96	16.91	18.33	16.90	16.71
Peanuts	8.76	7.89	8.15	8.15	0.86	1.31	1.06	1.23
Soybeans	9.56	12.16	18.08	18.12	0.16	0.10	5.10	5.14
Corn	19.43	13.57	15.89	15.89	4.33	4.77	4.51	4.51
Sweet potatoes	31.40	21.76	21.80	21.69	5.96	7.59	6.76	6.80
Small grain	26.83	25.11	22.46	22.45	3.30	0.41	0.48	0.49
All hay	18.56	23.03	22.64	22.64	0.93	2.21	1.52	1.52
Commercial truck	12.08	13.41	13.27	13.37	1.70	1.25	1.95	1.81
Livestock products								
Beef and veal	17.00	18.10	17.74	17.75	4.00	4.24	4.25	4.25
Pork	16.00	16.86	16.88	16.87	6.00	6.52	6.52	6.51
Lamb and mutton	--	21.12	20.80	20.57	--	2.17	2.40	2.57
Poultry	29.70	28.88	28.88	28.18	3.90	3.68	3.68	3.68
Eggs	21.96	23.14	23.10	22.03	5.73	6.00	5.69	4.19
Milk	25.23	27.00	26.40	23.75	2.46	3.99	3.93	3.75
		Basin 5				Basin 6		
Crops								
Cotton	6.61	7.85	8.00	7.00	2.29	2.65	3.00	2.00
Tobacco	42.53	39.82	41.71	46.90	10.63	12.46	10.79	10.68
Peanuts	12.19	14.38	11.41	11.24	3.80	4.10	3.95	3.95
Soybeans	2.24	1.58	4.02	3.98	1.23	0.93	1.39	1.41
Corn	14.33	14.36	13.87	13.87	6.51	9.03	7.28	7.27
Sweet potatoes	13.94	22.31	17.88	17.88	5.66	5.77	5.56	5.50
Small grain	11.22	3.35	3.76	3.77	2.98	1.17	1.36	1.36
All hay	8.01	6.86	5.19	5.22	3.13	5.95	3.96	3.96
Commercial truck	39.09	25.15	35.11	36.49	10.64	9.87	11.32	10.84
Livestock products								
Beef and veal	13.00	11.38	11.48	11.51	6.00	5.38	5.59	5.59
Pork	18.00	15.53	15.53	15.53	6.00	6.10	6.11	6.11
Lamb and mutton	--	9.32	9.60	9.57	--	3.26	3.20	3.14
Poultry	1.90	1.90	1.90	1.90	0.50	0.49	0.49	0.50
Eggs	8.05	7.26	6.96	5.24	5.12	3.63	3.04	2.27
Milk	7.44	7.05	6.74	5.63	3.41	3.68	3.93	3.54
		Basin 7				Basin 8		
Crops								
Cotton	26.77	24.18	24.00	28.50	15.15	12.75	14.00	15.00
Tobacco	4.14	5.34	4.26	4.20	0.46	0.25	0.43	0.46
Peanuts	50.96	51.92	50.62	50.61	19.37	16.10	20.09	20.10
Soybeans	4.34	6.08	7.58	7.58	46.40	49.95	30.60	30.61
Corn	20.35	28.09	26.90	26.91	16.45	14.95	15.48	15.48
Sweet potatoes	22.24	22.33	22.66	22.63	10.33	7.15	8.32	8.43
Small grain	14.07	23.15	20.11	20.11	2.83	5.44	5.90	5.90
All hay	46.74	27.02	26.74	26.73	7.20	7.19	13.25	13.24
Commercial truck	21.08	23.65	19.59	19.51	6.55	11.77	7.02	6.87
Livestock products								
Beef and veal	28.00	28.06	28.27	28.25	16.00	16.29	16.23	16.20
Pork	23.00	22.14	22.14	22.13	17.00	18.28	18.25	18.29
Lamb and mutton	24.02	31.98	32.00	32.72	74.95	9.32	9.60	9.71
Poultry	39.80	38.66	38.66	38.65	1.60	1.60	1.60	1.60
Eggs	27.44	30.40	32.67	35.67	11.48	8.70	8.58	12.25
Milk	24.42	22.09	23.32	26.87	15.30	14.72	14.89	16.04

the same basin than there are between basins as such. This fact further complicated the problem of allocating the total projected requirements to the various basins. In order to make an equitable allocation of projected production requirements between basins, the relationship of the production of each basin for the two latest census periods was determined by commodities. Approximately the same share of each commodity was then allocated to each basin for future production periods.

Once the production shares of all commodities were developed for a basin, they were then tried out for size and further consideration was given to other factors that might prevent the particular basin from producing on a competitive basis the share allotted to it. Adjustments were first made between physiographic provinces within the basin and last between basins. It should be remembered that even when a basin retained its former percentage of the total area production of a given crop, this same percentage of the total in the year 2000 often meant a doubling or more of production. This, along with shifts between provinces within the basin, provides a much more difficult production job for the Southeast River Basins area and each individual basin in the future than has been true in the past. Many of the simplest ways to increase production have already been made by many farm operators of the various basins. Some of these adjustments include shifts from mule to tractor power, use of more fertilizer, use of higher analysis fertilizers, use of better seeds, and use of better weed and insect controls. Likewise, adjustments have been made in livestock production. In order to produce the shares allocated to each basin for future production – more production on less land – the total agricultural resources of each basin must be used more completely and efficiently. Higher levels of management must be applied, and greater use must be made of known and newly developed technology.

Up to this point, the production requirements for the future periods were "handed down from above." First, national requirements were determined. Then a share of the national needs was allocated to the Southeast River Basins area. The Southeast River Basins area share was allocated to the individual basins and then distributed among the provinces and States within the basins. This procedure provides goals even for small areas at the local level. Present land use and production, by basins, was developed from Census of Agriculture data and other sources of material. Future land uses were developed by first determining commodity requirements. Future yields were then developed. Yields were divided into production requirements to determine future agricultural land needs.

Yield Data

Yield per harvested acre of different crops varies between basins, between counties within basins, and between farm operators within counties. As a whole, there is perhaps more variation in yields between farm operators within a given basin than there is between basins.

Projections of crop yields for 1975 and 2000 were based chiefly on results of research of the four land-grant colleges within the study area. Also considered were the projected yields given in the college studies and projected yields developed by U. S. Department of Agriculture for the appropriate time periods. Major emphasis was placed on projecting yields that farmers could attain economically on the average under assumed conditions. The major assumptions were: (1) There would be greater use of technology now known by research workers; (2) there would be a slightly increased rate of adoption of improved practices by farmers; (3) the cost-price relationships adopted by the U. S. Study Commission, Southeast River Basins, should encourage higher yields; (4) average weather conditions would prevail in the projected periods; and (5) no major wars, depressions, or other highly abnormal conditions would occur during the projected periods. Built into the yields is the assumption that new technology will be developed and adopted by farmers at rates equal to or slightly faster than the rates of the last few decades in the Southeast River Basins area. Yields for some selected items were expressed as index numbers rather than as specific quantities.

It should be remembered that yield projections for 1975 and 2000 are based chiefly on past rates of research accomplishment and rates of adoption of technology by farmers in the South-

east River Basins area. Consequently, the yields are conservative estimates of what might occur under the level of requirements for farm products that are projected to be needed from the Southeast River Basins area in 1975 and 2000. Increased future emphasis on production research, programs to accelerate adoption of improved practices by farmers at rates above those assumed, higher product prices, and other factors offer possibilities of attainment of yield levels much higher than those used in this study. The average yield of almost all commodities increased from 1954 to 1959 in the study area. Likewise, all items are projected to show an improvement from 1959 to 1975, with one exception, and from 1975 to 2000. The one exception has to do with tobacco. It is to be noted that the average yield in 1959 of all types of tobacco was 1,431 pounds while the projected yield for 1975 is 1,400 pounds. It is expected that some shifts will occur in the types of tobacco now produced in the area. Also, legal regulations may prohibit some present chemical practices being used in the future. Census data by counties for 1959 indicate some abnormally high yields occurred in some areas which are not expected to be reproducible in 1975 and 2000. The 1959 tobacco yield per acre appeared especially above normal for the Ogeechee and Satilla-St. Marys basins.

Yields by Basins

As shown in Table 3.36, yields varied by basins for each commodity in 1959. The same has been true in other past years. It is difficult, however, to attach yield variations between basins to some factor that will remain permanent in the future. The variation in yields between basins for any given crop should tend to become less in the future, due largely to fewer farmers, shift of crops within basins, better adjustment of crops to soils, improved knowledge on the use of fertilizers, and improvement in other production practices. Consequently, projected yields were developed only for the Southeast River Basins area. These same yields are expected to be applicable for any crop for any basin or province within basins.

Use of Yields to Determine Farm Acreage Requirements

For past years, both acreage of land and production were determined for any given crop

TABLE 3.35

Crop, Pasture, and Timber Yields per Harvested Acre

Commodity	Unit	Actual*		Projected	
		1954	1959	1975	2000
Cotton lint	lb.	330	382	500	700
Tobacco	lb.	1,247	1,431	1,400	1,575
Peanuts	lb.	750	992	1,400	1,820
Commercial truck	ton	2.5	3.4	4.0	6.0
Corn	bu.	15	25	40	55
All hay	ton	1.0	1.4	1.9	2.2
Soybeans	bu.	14	20	23	30
All small grain	bu.	19	25	32	42
Oats	bu.	24	33	38	52
Wheat	bu.	17	20	25	32
Sorghum grain	bu.	15	24	25	35
Sweet potatoes	bu.	113	111	135	175
Fruits and nuts	index no.	100	105	125	150
Cropland pasture	index no.	100	111	169	220
Other pasture	index no.	100	109	139	160
Woods pasture	index no.	100	100	110	120
All pasture	index no.	100	110	150	190
All timber products	index no.	100	110	158	274
Pulp	index no.	100	131	158	300
Sawtimber	index no.	100	110	150	250
Other timber	index no.	100	110	150	250

* Source: Developed from the 1954 and 1959 Census of Agriculture and other secondary production data.

TABLE 3.36

Average Yield per Harvested Crop Acre for Selected Crops by Basins in 1959

Crop	Unit	Basin							
		1	2	3	4	5	6	7	8
Cotton lint	lb.	392	404	392	376	395	376	386	333
Tobacco	lb.	1,020	1,539	1,284	1,533	1,424	1,425	1,406	1,009
Peanuts	lb.	700	969	960	1,232	1,251	1,029	1,017	795
Corn	bu.	23	24	21	26	26	31	26	24
Sorghum grain	bu.	21	20	25	27	25	25	25	22
Wheat	bu.	20	20	23	22	17	17	23	18
Oats	bu.	31	32	36	26	30	27	37	33
Soybeans	bu.	16	17	20	28	19	16	20	23
Alfalfa hay	ton	2.1	1.6	1.9	2.0	4.2	3.0	2.0	2.1
Coastal Bermuda hay	ton	2.0	2.0	1.8	2.1	2.1	2.1	1.9	---
Lespedeza hay	ton	1.0	1.0	1.1	1.1	2.3	1.6	1.1	1.4
Small grain hay	ton	1.1	1.0	1.1	1.3	0.7	1.0	1.1	1.3
Sweet potatoes	bu.	72	110	111	128	137	75	109	98
Rye	bu.	14	14	16	19	15	14	16	---

from the census of agriculture. Yields were then calculated by dividing a given production by a given acreage. In some cases, adjustments were made, as in the case of corn and soybeans. For instance, the acreage of corn shown for 1959 in this Report includes both man-harvested and livestock-harvested areas. Since the production reported is only for man-harvested corn, production was divided by the man-harvested acreage to determine the yields shown in Table 3.36, rather than by the total harvested corn acreage shown later in this Part. While past yields were calculated from production and acreage, the same procedure was not used for the future. Future production needs were developed as requirements for the Southeast River Basins area and then allocated to the various basins. Future yields were determined as previously explained. Projected yields were then divided into production needs or requirements to determine future land requirements. Data on specific acreage requirements are shown in Tables 3.81 through 3.113.

Acreage Requirements for Major Uses of Land by Basins

The net land area of the Southeast River Basins amounts to 55 million acres. This is land area and not surface area since water bodies of more than 40 acres, as defined by the census, have been deducted. For purposes of this study, the land area is divided into four major categories: (1) Farmland; (2) noncensus farmland; (3) nonfarm woodland; and (4) special use land such as service land, social land, wasteland, etc. In determining future land use, the assumption was made that first priority would be given to special use, service, and social land for purposes such as expansion of cities, roads, and airports. Second priority would go to noncensus farmland. Last priority would go to the remaining census-noncensus, farmland and nonfarm woodland. These last uses are assumed equal in competitive values. The acreage of farmland in the Southeast River Basins area is expected to decrease from 33 million acres in 1954 to a projected low of 25.5 million acres in the year 2000 as shown in Table 3.37. Some of the loss of farmland after 1954 is due to a change in definition of a farm by the 1959 Census of Agriculture. The service, social, and special use land is projected to increase from 2.7 million acres in 1954 to 5.5 million acres by the year 2000. Projected special use includes large ponds (over 40 acres) and impoundments. The large bodies of water that are expected to be developed should take a "water" rather than "land" classification. However, for purposes of this study the land classification is held to so that the same master total of all land can be held constant for all time periods. Details of the major uses of land, definitions, sources of data, and other related material are given in subsequent paragraphs.

Farmland

Farmland use data as shown in Table 3.37 were developed from the Census of Agriculture for 1954 and 1959. The projected harvested cropland acreage in 1975 and 2000 was derived by dividing production requirements by projected yields. Pastureland requirements were developed from livestock needs and adjusted for improvements in carrying capacity. The assumption was made that pastureland would shift toward more Land Capability Classes I-III land (cropland pasture) and away from steep, rough land and woodland. As an average for the Southeast River Basins area, 52 percent of the total land is in Classes I-III, 16 percent is in Class IV, and the remaining 32 percent is Classes V-VIII or is not classified. Once the acreage requirements were developed for harvested cropland, idle cropland, cropland pasture, other pasture, and other farmland, farm woodland was added to bring total farmland into balance with land capabilities. This was done basin by basin since land capability varied by basins. This procedure involves the assumption that, by 1975 and later, harvested crops will be located largely on Classes I-III land. This was mostly true in 1959. Much cropland pasture and some other pasture will also be on Classes I-III land, with some pasture on Class IV land. Most farm woodland will be on land of Classes V-VIII capability. Farmowners of the future will probably tend to hold the amount of farm woodland they operate to the minimum needed to supply the total requirements for other land uses. As land prices advance, more farm woodland will be cleared to provide cropland where woods are located on Classes I-IV land. This method will allow better utilization of a limited amount of farmland.

The 1954 acreage of farmland is based on the 1954 Census of Agriculture definition of a farm. The 1959 acreage of farmland and the projected acreage for 1975 and 2000, as shown in Table 3.37, are based on the 1959 Census of Agriculture farm definition. Farmland for 1954 and 1959 was developed from census data on a county-by-county approach. This was done on a fraction basis; i.e., if 50 percent of a county was in Basin 1, then 50 percent of all the agriculture of the county was placed in Basin 1. This procedure would tend to overestimate the true agriculture of the basin portion of some counties and to underestimate some other counties. However, most basins in the study area contained sufficient counties for this to balance itself out. Details on the major uses of farmland by years and by basins are shown in Tables 3.84 through 3.113, inclusive. A separate table is shown for each basin by time periods. Both the 1959 actual acreage and the 1975 and 2000 projected acreage requirements are shown by enterprises in Tables 3.84 through 3.113. Details of land use by physiographic provinces and States are shown in Tables 3.81 through 3.83.

Harvested cropland is expected to decrease in the Southeast River Basins area between 1959

TABLE 3.37

Major Uses of Land
(thousands of acres)

Major type of land use	Actual		Projected	
	1954	1959	1975	2000
Farmland (census)	32,995	27,332	26,000	25,500
Noncensus farmland	....	424	452	506
Nonfarm woodland	19,676	24,540	25,276	23,876
Service, social, special use land	2,688	3,063	3,630	5,477
Total land area[1]	55,359	55,359	[2]55,359	55,359
Less small bodies of water[3]	320	332	426	548
Net land area[4]	55,039	[2]55,026	54,932	54,811

NOTES: [1] Total land area is gross land area by census definition.
[2] Parts do not add to total due to rounding.
[3] Small bodies of water are classed as land by census definitions; i.e., ponds of less than 40 acres and streams of less than one-eighth mile wide. These data were developed for special use by the Commission.
[4] Net land is total census land less small bodies of water.

and 1975, but will need to increase by 2000 as shown in Table 3.38. Yields different from those projected could occur for many reasons. Consequently, production requirements for the Southeast River Basins area should be considered as being "firm" with the projected harvested cropland acreage being approximate. The procedures used to develop major uses of land provide a means of developing a judgment estimate of the ability of the Southeast River Basins area to meet the future requirements for farmland, timber land, and special use land. However, the methods used in this Report provide some controls for land use and give a first approximation of needs.

There were many acres of idle cropland in the Southeast River Basins area in 1959. It is anticipated that land will be better utilized in the future. Some land will always be fallowed and some crop failure or unharvested land will occur due to prices and production factors. The acreages provided under this classification should cover such uses in 1975 and 2000. Total farmland used for pasture in 1959 in the Southeast River Basins area was 9,202,200 acres. Of this, 20 percent was cropland or plowable pasture, 22 percent was other pasture, and 58 percent was woodland pasture. The projected total farmland used for pasture in the year 2000 amounts to 11,058,000 acres. Of this, 47 percent is projected to be cropland or plowable pasture; 15 percent, other pasture; and 38 percent, woodland pasture. This shift in both acreages and kinds of pasture is needed to provide roughage for the increased livestock projected for the Southeast River Basins area. The increased cropland pasture acreage can be used to develop a higher output or carrying capacity for conventional pasture, or it may be used for production of green crop, or even for the production of stored feed. It may also be used as permanent pasture or for a series of temporary pastures or as part of a regular rotation of cropland. No attempt has been made to project future management systems for beef and dairy cattle. However, trends have been considered, and flexibility for a changing system has been provided in the shift in kind of pasture acreages.

Total farm woodland in the Southeast River Basins area in 1959 amounted to 14,095,100 acres. This will likely decrease to 10,000,800 acres by the year 2000. It is expected that farm woodland will be much better managed by farm operators in the year 2000 than today. If so, the annual production in 2000 from the reduced acreage should be as large, or larger, than the production from farm woodland in 1959. Most farm woodland in the year 2000 is expected to be confined to land of Classes V-VIII capability.

Noncensus Farmland

The term noncensus farmland has been coined for the purpose of this study. Its use becomes necessary due to the change in definition of a farm between the 1954 and the 1959 Census of Agriculture. This category of land was included in farmland in 1954 but was excluded from farmland in the 1959 Census of farmland due to the change of definition. The acreage of land

TABLE 3.38

Major Uses of Farmland*
(acres)

Use	1959	1975	2000
Harvested cropland	6,819,300	6,150,000	7,200,000
Idle, fallow, or failure	1,674,500	652,000	530,000
Cropland pastured	1,868,000	3,198,000	5,200,000
Other pasture	2,027,900	1,900,000	1,700,000
Woodland pastured	5,306,300	4,767,000	4,158,000
Woodland not pastured	8,788,800	8,510,400	5,842,800
Other farmland	847,200	822,600	869,200
Total farmland	27,332,000	26,000,000	25,500,000

* Includes small bodies of water.

used in the noncensus farmland category contributes little to commercial agriculture. Sales of farm products by definition had to be less than $50 per year per farm family living on this land. While the acreage of this type land is small, it is necessary that it be accounted for in order to hold the total land area constant. The projected land to be used under this category in 1975 and 2000 is consistent with the 1959 definition. The land in this group is used in part by nonfarm families living in rural areas who have nonfarm occupations, by retired families, and by subsistence farm families. Data for the noncensus farmland for 1959 were supplied as a special study by the Bureau of Census. Details on the use of this land are shown by basins in Tables 3.81 through 3.113.

Acreage and production from this land is projected to increase slightly in the future. However, this is due to a projected increase in the number of families in this category and the production of more products for home use. Should sales from these families exceed $50, they would be classified as farm families and the land as farmland. The increase in numbers of families is expected to be largely retired families that will wish to supplement their retirement income with farm products produced for family use. They will have no commercial value for agriculture per se, but they will be a land user.

Nonfarm Woodland

The term nonfarm woodland is defined for purposes of this study as land that is not included as farmland, or as noncensus farmland, or as special use land. In some respects, nonfarm woodland is the land remaining after the other three major uses of land have been accounted for. The major sources of data for this item are the U. S. Forest Service and the Census of Agriculture. The Forest Service reports both noncommercial and commercial forest or woodland, and much of their data were used in developing data for this study.

Total nonfarm woodland in the Southeast River Basins area increased by 25 percent from 1954 to 1959 as shown in Table 3.39. The acreage of nonfarm woodland, however, is expected to increase only slightly between 1959 and 1975, and then show a small decrease by the year 2000. Some livestock graze on nonfarm woodland. However, data on acreage grazed or numbers of head grazed are not available. Consequently, the details of this multiple use of land cannot be given. Detailed data on the acreages of nonfarm woodland by basins and by States and provinces are shown in Tables 3.81 through 3.83.

Forests located on special use land are generally shown with the acreage of nonfarm woodland. For example, military reservations are a special use of land that would normally appear under the social, service, or special use class or grouping. However, the woodland on military reservations within the Southeast River Basins area that is being managed on a sustained yield basis is listed as nonfarm woodland and is included in the acreage shown in Table 3.39. The remaining lands on military reservations within the Southeast River Basins area are listed as a part of the social, service, or special use group as a major type of land use.

The acreage of nonfarm woodland in the Southeast River Basins area accounted for slightly more than half of the acreage of all woodland in 1954. By 2000, it is projected that 70 percent of the acreage of all woodland will

TABLE 3.39

Acreage of Nonfarm Woodland and Other Related Data

Year	Nonfarm woodland (acre)	Percentage of 1954 base	Percentage that nonfarm woodland is of all woodland	Timber production (cut)* (million cu. ft.)	Cash receipts* (million dollars)
1954	19,676,200	100	53	930	93
1959	24,539,600	125	63	950	95
1975	25,276,000	128	65	1,420	142
2000	23,876,000	121	70	2,200	220

* Production (cut) and income (stumpage value) are the total from all woodland — farm, noncensus farm, and nonfarm woodland.

be in the nonfarm woodland group. Because of differences in level of management used by farm and nonfarm woodland owners, production (cut) of timber products is higher on the nonfarm woodland acreage. Timber production from all woodland acreage by type of products and by basins and States is shown in Table 3.114. Some of the aggregate data are shown in Table 3.39.

Production requirements, or needs, for timber were not developed in terms of acres of land that would be needed. The total woodland available should provide a cut of some 2,200 million cubic feet per year in 2000. This would provide an income of $220 million in 2000, as shown in Table 3.39. Prices for timber stumpage by types of products are shown in Table 3.42.

Service, Social, and Special Use Land

The term service, social, and special use land includes land in cities and towns, highways and railroad rights-of-way, airports, parts of military reservations, wasteland, and other similar land uses. In 1954, there were 2.7 million acres of such land use in the Southeast River Basins area as summarized in Table 3.40. This is projected to increase to 5.5 million acres by 2000.

The projected acreage for 1975 and 2000 makes provision for growth in cities, for new highways, and for large inpoundments of water (over 40 acres) and similar land uses. The largest such new uses are expected to occur around the major cities. Allowance was made for the fact that most cities could have considerable growth by using vacant lots and other undeveloped areas now within these cities. Several of the basins, especially the Ogeechee basin, have considerable wasteland in the form of swamps and sand dunes. This area is shown in this land-use class. However, some of this land is expected to be developed for use in the future. Such a change would provide a new use for the wasteland, but it would not require additional acreages of land for these changes.

Throughout the development of listing of land use, only single land use has been shown. In the service and special use land class, multiple use of land might occur for hunting, other forms of recreation, wildlife reserves, and other uses. Regardless of the number of times or types of activities for which a given piece of land may be used, it is accounted for only once in this study. Neither is multiple use accounted for by double cropping of farmland. It is also realized that farm woodland, nonfarm woodland, and in some cases other farmland may well be used for several purposes in the future. These forms of multiple use, while recognized, are not entered into the land budget. The one exception to double counting in this study is explained in the next paragraph.

Land Inundated by Small Bodies of Water

The Study Commission developed estimates of the total surface area for the Southeast River Basins area and from this was subtracted water as defined in the census; i.e., ponds over 40 acres, streams over one-eighth of a mile, etc. This left the land and small water body area, or the 55,358,720 acres of land used in this study. For

TABLE 3.40

Service, Social, and Special Use Land by Basins
(acres)

Basin	1954	1959	1975	2000
1	335,800	384,000	464,900	724,800
2	309,000	323,560	327,960	355,760
3	412,420	452,480	549,380	800,380
4	274,300	333,000	350,100	404,800
5	225,600	240,000	259,800	294,900
6	163,900	173,000	192,400	237,600
7	502,700	660,160	902,460	1,769,660
8	464,700	496,720	583,420	888,620
Total	2,688,020	3,062,920	3,630,420	5,476,520

some work of the Study Commission, it was necessary to have data on small bodies of water; i.e., those bodies of water that are classed as land by normal census definitions. The best estimates available indicate that there were 320,000 acres of small bodies of water in the Southeast River Basins area in 1954 as shown in Table 3.41. This had increased to 332,250 acres by 1959 and is projected to reach 548,200 acres by the year 2000. Increases in small bodies of water occur through the development of small ponds for agricultural and/or recreational purposes.

The 320,000 acres of small water bodies estimated for 1954 consisted of both streams and ponds. The increase shown for other years is the result of ponds built or projected as additions to current small bodies of water. Most of the ponds will be farm ponds. However, some ponds are expected to be constructed on other major land uses. As land shifts from one major land-use group to another, some of this water will also be involved in the shift. In the case of ponds, some will remain and others will be drained for construction purposes. In 1959, it was estimated that 64 percent of all small bodies of water were located on land classed as farmland. By 2000, 73 percent of all small bodies of water are expected to be located on farmland. Details of the present and future location of small bodies of water by river basins are given in Tables 3.81 through 3.113. It should be noted that the acreage of small bodies of water given for each time period is a part of the total 55.4 million acres of land in the Southeast River Basins area.

Studies made for the Commission by the U. S. Department of Agriculture, Soil Conservation Service, indicate that there were 33,000 farm ponds in the Southeast River Basins area in 1960. This number is projected to reach 54,900 by 1975 and 90,100 by the year 2000. Of the total ponds in 1960, less than 1 percent was located in the Blue Ridge province, 35 percent was in the Piedmont, 55 percent was in the Upper Coastal Plain, and 9 percent was in the Lower Coastal Plain. The projections for the year 2000 are that the 90,100 farm ponds in use will be distributed by provinces as follows: Blue Ridge, 1 percent; Piedmont, 40 percent; Upper Coastal Plain, 49 percent; and Lower Coastal Plain, 10 percent.

Farm Income

Gross incomes as used in this study are the product of unit prices times the quantity of the particular commodity. Actual prices were used to cover 1954 and 1959 sales. Future prices were developed as a special study by the U. S. Department of Agriculture, Economic Research Service. Basically, the Economic Research Service studies provided seasonal weighted prices, with an index of prices received by farmers of 267, and an index of prices paid by farmers of 300. This would give a parity ratio of 89. The same prices were used for both 1975 and 2000. Commodity prices used in this study are shown in Table 3.42. The same set of prices were used for all basins.

Cash receipts from farm marketings in the Southeast River Basins area amounted to about $774 million in 1959, as shown in Tables 3.115 and 3.116. Cash receipts from farm marketings are projected to reach more than $2 billion by

TABLE 3.41

Small Bodies of Water by Basins
(acres)

Basin	1954	1959	1975	2000
1	33,000	34,590	56,490	87,520
2	26,000	27,470	33,700	43,680
3	58,000	60,960	80,450	105,710
4	24,000	24,120	29,380	36,110
5	43,000	44,720	53,220	63,780
6	25,000	25,740	29,190	33,580
7	71,000	73,250	91,930	110,520
8	40,000	41,400	52,040	67,300
Total	320,000	332,250	426,400	548,200

the year 2000 (Tables 3.119 and 3.120). The Southeast River Basins area had a parity ratio of approximately 89 in 1954 (1910-14 = 100). This had dropped slightly below 80 in 1959. However, it is assumed in the long-term projected prices that the parity ratio will return to 89 for the time periods 1975 and 2000. Some of the gain in cash income would be due to the increase in prices received. The increase in prices received represented a change from a 240 index in 1959 to 267 for 1975 and 2000, or an increase of 11 percent. The bulk of the increased income in the future is due to the projected increase in production with only a small part due to the price change.

Production Expenses

The items included in production expenses were set up to coincide with the report "Production Expenses of Farm Operators, by States," U. S. Department of Agriculture, Agricultural Marketing Service, Agricultural Economics Division, Farm Income Branch. This system was followed for two reasons: (1) It was the only system for which a source of data was available that covered all production expenses by States for the current time periods under study; and (2) this system provided one step in the process of developing "Farm Proprietor's Personal Income" which was needed as a part of this study.

Data for many of the items included under production expenses, such as feed, livestock, seed, fertilizer and lime, gas and oil purchased, machine hire, and labor hired, were available by counties from the 1954 and 1959 Census of Agriculture. Actual production expenses of these items were developed by basins from these two census reports. The report previously mentioned was used in relation to the States involved as a guide for developing the data for the remaining

TABLE 3.42

Actual and Projected Prices Received by Farmers for Selected Commodities, Southeast River Basins (dollars)

Commodity	Unit	Actual		Projected
		1954	1959	1975 and 2000
Cotton	lb.	0.347	0.329	0.29
Cottonseed	ton	57.40	36.80	72.15
Tobacco	lb.	0.4942	0.581	0.50
Peanuts	lb.	0.1093	0.091	0.09
Corn	bu.	1.43	1.15	1.65
Soybeans	bu.	2.36	1.95	2.69
Wheat	bu.	2.10	1.80	1.82
All Hay	ton	25.00	26.50	30.44
Sweet potatoes	cwt.	5.00	4.70	4.10
Beef cattle	cwt.	11.99	19.30	19.00
Hogs	cwt.	21.60	14.50	20.00
Milk, wholesale	cwt.	5.01	5.88	6.00
Butterfat	lb.	---	0.51	0.60
Poultry	lb.	0.168	0.152	0.20
Eggs	doz.	0.42	0.414	0.60
Barley	bu.	---	1.05	1.49
Oats	bu.	0.70	0.73	1.04
Rye	bu.	---	1.92	1.94
Grain sorghum	cwt.	---	1.96	1.58
Potatoes	bu.	2.16	3.46	1.75
Peaches	bu.	---	2.60	3.44
Lespedeza seed	cwt.	---	15.50	20.50
Sheep	cwt.	5.90	5.40	5.70
Lamb	cwt.	19.50	18.40	19.30
Wool	lb.	0.53	0.44	0.46
Pulp	cord	5.00	5.50	5.50
Sawtimber and other wood products	million bd. ft.	25.00	25.00	25.00

cost items. This was done by relating items, by States, to selected units. For example, taxes paid by farm operators in the Southeast River Basins area States in 1959 were divided by the number of acres of farmland reported in the 1959 Census of Agriculture to determine the cost of taxes per acre. This cost, by States, was then applied to the Southeast River Basins area acreages after slight modifications to adjust the data to the Southeast River Basins area. Similar approaches were used to determine other cost items for 1954 and 1959. Production expenses for 1975 and 2000 were developed on an item-by-item basis. Physical quantities of items were first determined where possible. Prices paid, as developed for 1975 and 2000, were then applied to quantities to determine dollar costs. Where quantities could not be developed, then unit costs developed for 1954 and 1959 were adjusted by the relative prices paid index. These adjusted unit costs were then expanded to an expected unit cost for 1975 and 2000 by basins, provinces, or States, as the case might be.

Production expenses cover all cash items and some noncash items. The net cash income, cash receipts minus production expenses, represents the return to the operators, labor and management, unpaid family labor, and unmortgaged capital items. Projected net cash income increased slightly faster than the cash receipts from farm marketings. This was due to the projected increase in scale or size of operation. In both 1954 and 1959, farm operators received some income in the form of government payments. However, data were not secured to develop this source of income, nor would there be any means of projecting future incomes from this source. Consequently, both present and future incomes of farm operators are low by the amount of past government payments or by those that may be paid in the future. Not accounting for government payments for carrying out specific agricultural conservation program practices would affect cash income by less than 2 percent in any given year based on past payments by States in the Southeast region.

Since total production and marketing increased in all basins, cash receipts from farm marketing likewise increased in all basins. Percentagewise, some basins decreased in relation to 1959, while others increased as shown in Table 3.43. The strongest relative growth appears in the Apalachicola-Chattahoochee-Flint and Choctawhatchee-Perdido basins. Additional data by basins, States, and provinces are shown in Tables 3.115 through 3.120.

TABLE 3.43

Distribution of Total Cash Receipts from Farm Marketing by Basins (percent)

Basin	1959	1975	2000
1	12.96	12.62	12.55
2	6.00	5.40	4.94
3	20.34	20.54	19.63
4	5.10	4.93	4.72
5	12.58	12.40	12.24
6	4.95	4.69	4.36
7	27.41	28.14	29.66
8	10.66	11.28	11.90
Total	100.00	100.00	100.00

Number of Farms

In 1954 there were 213,900 farms in the Southeast River Basins area by census definition. By 1959 this number had been reduced to 139,900. Of this reduction, 13,995 were lost due to the change in definition of a census farm between 1954 and 1959. As an average, there was a 35-percent reduction in number of farms between 1954 and 1959. For that portion of the States within the study area, Alabama and Florida had a 33-percent reduction; Georgia, 35 percent; South Carolina, 37 percent; and North Carolina had no change in the small number of farms located in the Southeast River Basins area. The greatest percentage loss in farm numbers between 1954 and 1959 occurred in the Piedmont province, 42 percent, and in the Lower Coastal Plain, 32 percent. It is projected that the Southeast River Basins area will contain only 112,000 census farms (1959 definition) in 1975 and 93,700 by the year 2000. Detailed data on number of farms, present and projected, by States, provinces, and basins are shown in Table 3.44.

Size of Farms

The average farm in the Southeast River Basins area contained 195 acres in 1959. This varied by States in the Southeast River Basins area in 1959 from a low of 81 acres in North Carolina

to 255 acres in Florida. By provinces, the average farm in the Blue Ridge province in 1959 contained 94 acres. It has been projected that the amount of farmland in use in the Southeast River Basins area will decrease from the present 27,332,000 acres to 25,500,000 acres by 2000. The number of farms is also projected to decrease. The net result is that the average farm will increase in size from 195 acres in 1959 to 232 acres by 1975 and to 272 acres by the year 2000. Detailed data on average size of farms by States, provinces, and basins are shown in Table 3.44.

TABLE 3.44
Number and Average Size of Farms by Basins

Province, basin, and State[2]	Number of farms by years				Size of farms by years[1] (acre)		
	1954[3]	1959[1]	1975[1]	2000[1]	1959	1975	2000
All basins							
Alabama	34,100	23,400	18,800	15,700	176.0	211.4	253.0
Florida	23,500	15,800	12,700	10,600	255.2	300.2	346.9
Georgia	140,400	90,600	72,500	60,700	197.0	233.8	274.0
North Carolina	300	300	200	100	81.3	116.0	227.0
South Carolina	15,600	9,800	7,800	6,600	133.5	159.2	181.4
Total	213,900	139,900	112,000	93,700	195.4	232.1	272.1
Physiographic provinces							
Blue Ridge	3,400	3,100	2,800	2,400	94.5	99.7	112.0
Piedmont	69,000	39,900	30,800	23,500	143.2	173.8	232.6
Upper Coastal Plain	118,700	80,900	65,200	56,300	215.0	256.4	293.6
Lower Coastal Plain	22,800	16,000	13,200	11,500	245.6	276.6	299.7
Total	213,900	139,900	112,000	93,700	195.4	232.1	272.1
Savannah basin							
North Carolina							
Blue Ridge	300	300	200	100	81.3	116.0	227.0
South Carolina							
Blue Ridge	1,600	1,300	1,200	1,100	102.2	105.2	111.8
Piedmont	11,500	6,600	4,900	4,000	118.7	151.9	178.6
Upper Coastal Plain	2,000	1,500	1,300	1,200	193.6	213.0	223.8
Lower Coastal Plain	500	400	400	300	254.8	237.3	304.0
Subtotal, South Carolina	15,600	9,800	7,800	6,600	113.5	159.2	181.4
Georgia							
Blue Ridge	700	1,000	900	800	86.0	90.0	98.1
Piedmont	13,000	8,200	6,400	5,100	138.3	167.0	208.5
Upper Coastal Plain	3,100	2,000	1,600	1,500	258.8	317.0	335.4
Lower Coastal Plain	1,200	800	700	600	233.4	250.6	280.8
Subtotal, Georgia	18,000	12,000	9,600	8,000	160.4	190.9	226.7
Subtotal, Blue Ridge	2,600	2,600	2,300	2,000	93.5	100.2	112.1
Subtotal, Piedmont	24,500	14,800	11,300	9,100	129.5	160.4	195.4
Subtotal, Upper Coastal Plain	5,100	3,500	2,900	2,700	230.9	270.4	285.8
Subtotal, Lower Coastal Plain	1,700	1,200	1,100	900	240.5	245.7	288.6
Total, Savannah basin	33,900	22,100	17,600	14,700	147.4	176.0	206.4
Ogeechee basin							
Georgia							
Piedmont	700	400	300	300	211.8	246.0	270.5
Upper Coastal Plain	8,900	6,100	4,900	3,800	219.0	251.0	291.5
Lower Coastal Plain	2,500	1,700	1,500	1,400	253.6	257.5	287.8
Total, Ogeechee basin	12,100	8,200	6,700	5,500	225.8	252.2	289.4
Altamaha basin							
Georgia							
Piedmont	19,900	11,500	9,200	6,800	163.6	184.0	236.5
Upper Coastal Plain	19,300	13,100	10,300	9,500	219.4	266.2	283.2
Lower Coastal Plain	1,700	1,200	1,100	1,000	193.9	191.1	204.0
Total, Altamaha basin	40,900	25,800	20,600	17,300	193.4	225.5	260.3

(continued)

TABLE 3.44 — Continued

Province, basin, and State[2]	Number of farms by years				Size of farms by years[1] (acre)		
	1954[1]	1959[1]	1975[1]	2000[1]	1959	1975	2000
Satilla-St. Marys basins							
Florida							
Lower Coastal Plain	600	400	300	300	313.5	400.0	383.3
Georgia							
Upper Coastal Plain	300	200	200	200	168.5	160.0	150.0
Lower Coastal Plain	7,700	5,600	4,400	3,700	196.8	237.8	258.8
Subtotal, Georgia	8,000	5,800	4,600	3,900	195.8	234.4	253.2
Subtotal, Upper Coastal Plain	300	200	200	200	168.5	160.0	150.0
Subtotal, Lower Coastal Plain	8,300	6,000	4,700	4,000	204.6	248.1	268.1
Total, Satilla-St. Marys basin	8,600	6,200	4,900	4,200	203.4	244.5	262.5
Suwannee basin							
Florida							
Upper Coastal Plain	4,900	3,200	2,600	2,200	282.5	323.1	374.6
Lower Coastal Plain	3,000	2,000	1,600	1,400	293.2	334.5	373.6
Subtotal, Florida	7,900	5,200	4,200	3,600	286.6	327.4	374.2
Georgia							
Upper Coastal Plain	11,200	7,800	6,300	5,400	191.8	219.0	252.5
Lower Coastal Plain	2,800	2,000	1,500	1,200	225.0	276.0	337.5
Subtotal, Georgia	14,000	9,800	7,800	6,600	198.5	230.0	268.0
Subtotal, Upper Coastal Plain	16,100	11,000	8,900	7,600	218.2	249.4	287.9
Subtotal, Lower Coastal Plain	5,800	4,000	3,100	2,600	259.1	306.2	356.9
Total, Suwannee basin	21,900	15,000	12,000	10,200	229.1	264.1	305.5
Ochlockonee basin							
Florida							
Upper Coastal Plain	2,300	1,600	1,200	900	349.4	458.3	591.1
Lower Coastal Plain	1,400	1,000	900	800	542.8	558.6	521.8
Subtotal, Florida	3,700	2,600	2,100	1,700	423.8	501.3	558.5
Georgia							
Upper Coastal Plain	5,000	3,600	2,900	2,400	210.1	253.1	314.6
Subtotal Upper Coastal Plain	7,300	5,200	4,100	3,300	253.0	313.2	390.0
Subtotal, Lower Coastal Plain	1,400	1,000	900	800	542.8	558.6	521.8
Total, Ochlockonee basin	8,700	6,200	5,000	4,100	299.7	357.3	415.7
Apalachicola-Chattahoochee-Flint basins							
Alabama							
Piedmont	2,500	1,300	1,000	700	166.5	210.0	307.9
Upper Coastal Plain	7,400	5,200	4,300	3,700	186.1	222.8	259.8
Subtotal, Alabama	9,900	6,500	5,300	4,400	182.2	220.4	267.5
Florida							
Upper Coastal Plain	3,200	2,300	1,800	1,500	192.2	236.1	286.5
Lower Coastal Plain	200	100	100	100	443.0	440.0	403.0
Subtotal, Florida	3,400	2,400	1,900	1,600	202.6	246.8	293.8
Georgia							
Blue Ridge	800	500	500	400	99.6	97.6	111.3
Piedmont	21,400	11,900	8,900	6,600	135.4	175.6	238.1
Upper Coastal Plain	20,200	13,000	10,900	10,000	275.7	326.8	359.5
Subtotal, Georgia	42,400	25,400	20,300	17,000	206.5	254.9	306.5
Subtotal, Blue Ridge	800	500	500	400	99.6	97.6	111.3
Subtotal, Piedmont	23,900	13,200	9,900	7,300	138.5	179.1	244.8
Subtotal, Upper Coastal Plain	30,800	20,500	17,000	15,200	243.6	290.9	328.1
Subtotal, Lower Coastal Plain	200	100	100	100	443.0	440.0	403.0
Total, A-C-F basins	55,700	34,300	27,500	23,000	201.6	247.7	298.2

(continued)

TABLE 3.44 — Continued

Province, basin, and State[2]	Number of farms by years				Size of farms by years[1] (acre)		
	1954[3]	1959[1]	1975[1]	2000[1]	1959	1975	2000
Choctawhatchee-Perdido basins							
Florida							
Upper Coastal Plain	6,900	4,500	3,600	2,800	159.3	191.4	245.7
Lower Coastal Plain	1,000	700	600	600	159.0	178.3	178.3
Subtotal, Florida	7,900	5,200	4,200	3,400	159.3	189.5	233.8
Alabama							
Upper Coastal Plain	24,000	16,800	13,400	11,200	173.8	208.3	248.3
Lower Coastal Plain	200	100	100	100	154.0	148.0	145.0
Subtotal, Alabama	24,200	16,900	13,500	11,300	173.6	207.9	247.4
Subtotal, Upper Coastal Plain	30,900	21,300	17,000	14,000	170.7	204.7	247.8
Subtotal, Lower Coastal Plain	1,200	800	700	700	158.4	174.0	173.6
Total, Choctawhatchee-Perdido basins	32,100	22,100	17,700	14,700	170.3	203.5	244.2

NOTES: [1] Farms as defined in the 1959 Census of Agriculture; each place operated as a unit of 10 or more acres from which the sale of agricultural products totaled $50 or more, as well as each place operated as a unit of less than 10 acres from which the sale of agricultural products totaled $250 or more, was counted as a farm.
[2] Southeast River Basins portion of States.
[3] Farms as defined in the 1954 Census of Agriculture; each place operated as a unit of 3 or more acres on which the value of farm products produced totaled $150 or more, as well as each place of less than 3 acres from which the value of all agricultural products sold totaled $150 or more, was counted as a farm.

Capital Investment

The total capital investment in farm resources in the Southeast River Basins area amounted to $2,662 million in 1954. By 1959 this had increased to $2,826 million. It is projected that the capital investment in farm resources will reach $4,360 million by 1975 and $6,400 million by 2000. The average investment per farm for these time periods is as follows:

Year		
1954	12,450	(1954 dollars)
1959	20,200	(1959 dollars)
1975	38,900	(1959 dollars)
2000	68,300	(1959 dollars)

The expected growth in average investment per farm will be due to added acreages of land, better and more expensive homes and farm building, more and improved livestock, machinery, equipment, feed, seed, and supplies.

Summary of Land Data by Physiographic Provinces

The Southeast River Basins area was divided into eight river basins, each basin was further subdivided into one or more physiographic provinces. A total of three provinces was studied: The Blue Ridge, Piedmont, and Upper and Lower Coastal Plains. Data have been shown in earlier references with regard to provinces within basins. This Section summarizes province data as such, without regard to basins. Data were developed as a total for each province by combining the data of a specific province for all basins. As an example, both Basin 1 and Basin 7 contain some Blue Ridge province. The Blue Ridge province data of these two basins were combined to develop the total. Piedmont province is located in four of the eight basins. Portions of the Upper and Lower Coastal Plains are located in all eight basins under study.

Once data were developed by basins, further subdivisions into province within basins were made on a fraction of a county basis. For instance, 50 percent of County A might be in Basin 7. Then 20 percent of that part of County A in Basin 7 might be Piedmont; and 80 percent, Upper Coastal Plain. These percentages were used to fraction-out the county in a specific basin into provinces within this basin. In the development of 1954 data, Lower Coastal Plain data were not developed. However, such data were developed for 1959 and projected for 1975 and 2000. County data as to location by provinces and percentages of each county within specific provinces were developed as a part of the work of the Study Commission and made available

for use in this specific study. The acreages within each province and the percentage of the total land area of the Southeast River Basins area in each are as follows:

Province	Land area (acre)*	Percentage of the total
Blue Ridge	805,120	1.45
Piedmont	11,599,360	20.95
Coastal Plain		
Upper	30,257,920	54.66
Lower	12,696,320	22.94
Total	55,358,720	100.00

* Includes small bodies of water.

Total land area is developed as a constant for each province during the time periods used in this study. However, some large shifts are shown in major uses of land within the time periods studied. The Blue Ridge and Piedmont provinces are expected to become somewhat more extensive in their farming operations. The Coastal Plain province, and especially the Upper Coastal Plain, is projected to become more intensive in its farming operations. Detailed data on the use of all major types of land use are shown by provinces in Tables 3.81 through 3.113.

Blue Ridge Province

The 805,120 acres of land in the Blue Ridge province were studied in terms of four major land-use classes as shown in Table 3.45. Some 36 percent of all the land area was used in 1959 as farmland, 3 percent was noncensus farmland, 57 percent was nonfarm woodland, and 4 percent was used as social, service, and special use land. The acreage of farmland is projected to decrease over time while special use land is projected to increase in acreage. The other two major land uses are not expected to change greatly between now and 2000.

Of the total farmland in the Blue Ridge province in 1959, some 60 percent was in farm woodland. Considering all types of woodland—farm woodland, noncensus farm woodland, and nonfarm woodland—some 80 percent of all land in the Blue Ridge province was in woodland in 1959, 643,010 acres out of 805,120. By the year 2000, forest may occupy only 74 percent of the total land area. In 1959, only 14 percent of the total farmland in this province was in harvested cropland. Harvested cropland consisted of a small acreage of cotton, tobacco, and peanuts; but most of it was corn, small grain, and hay. Over time, cotton, tobacco, and peanuts will decrease in importance. However, feed for livestock and the number of livestock may increase in the area. Poultry, eggs, and beef cattle will likely increase most in this area.

Piedmont Province

The Piedmont province contains 21 percent of the total land of the Southeast River Basins area and is an important agricultural area. The bulk of the land of this province is divided between farmland and nonfarm woodland as shown in Table 3.46. At present, almost 5 percent of the land area of this province is used as service, social, and special use land. It is projected that, by the year 2000, almost 14 percent of the land area of this province will be in this type use. Most of the growth and development that will require such a large increase in this type of land is expected to occur in and around Atlanta.

It is expected that harvested cropland in the Piedmont province will not change much over

TABLE 3.45

Major Uses of Land in Blue Ridge Province
(acres)

Type	1959	1975	2000
Farmland (census)	293,000	279,200	268,700
Noncensus farmland	23,600	25,200	28,200
Nonfarm woodland	458,320	466,320	459,120
Service, social, special use	30,200	34,400	49,100
Total land use	805,120	805,120	805,120
Less small bodies of water	2,290	3,420	5,710
Net land area	802,830	801,700	799,410

the next 40 years, but it is expected that there will be about a 20 percent decrease between 1959 and 2000 in harvested, idle, and fallowed cropland combined. Some shifts are expected in the capability classes of land used for cropland purposes. Acreages of cotton, peanuts, soybeans, and corn are expected to decrease. On the other hand, acreages of small grain, hay crops, fruits and nuts, and truck crops are expected to show some increase over the next 40 years. The acreage of pasture is projected to increase along with a large increase in the number of beef cattle and some increase in dairy cattle.

Upper Coastal Plain

Seventy-eight percent of all land in the Southeast River Basins area is in the Coastal Plain, with 23 percent in the Lower Coastal Plain and 55 percent in the Upper Coastal Plain. The division of the Coastal Plain into an upper and lower phase was made as a part of the work of the U. S. Study Commission, Southeast River Basins.

Some 30 million acres, or 55 percent, of all the land in the Southeast River Basins area is located in the Upper Coastal Plain. In 1959, some 57 percent of all the land in this area was classed as farmland as shown in Table 3.47. This area, as a whole, contains the better of the farmland of the Southeast River Basins area, and it has the greatest potential for growth and development for agricultural production.

It is expected that the acreage of farmland will decrease about 5 percent between 1959 and 2000. However, the amount of agricultural production will greatly increase in this time period. Both an increase in yield and an increase in acreage of major crops are expected. As an example, the cotton acreages are projected to increase 47 percent between 1959 and 2000 in order to meet the production requirements from this area; tobacco would increase 155 percent; and peanuts, 65 percent; some decreases in acreage are expected to occur in corn and farm woodland. However, total production of corn and timber is expected to increase due to an increase in per acre yields. These changes offset

TABLE 3.46

Major Uses of Land in Piedmont Province
(acres)

Type	1959	1975	2000
Farmland (census)	5,711,700	5,352,600	5,254,160
Noncensus farmland	173,300	184,900	208,000
Nonfarm woodland	5,165,560	5,280,500	4,557,140
Service, social, special use	548,800	781,360	1,580,060
Total land use	11,599,360	11,599,360	11,599,360
Less small bodies of water	74,960	114,200	164,770
Net land area	11,524,400	11,485,160	11,434,590

TABLE 3.47

Major Uses of Land in Upper Coastal Plain
(acres)

Type	1959	1975	2000
Farmland (census)	17,397,300	16,717,600	16,530,800
Noncensus farmland	179,550	191,200	215,050
Nonfarm woodland	11,552,990	12,005,020	11,483,320
Service, social, special use	1,128,080	1,344,100	2,028,750
Total land use	30,257,920	30,257,920	30,257,920
Less small bodies of water	174,880	217,200	273,280
Net land area	30,083,040	30,040,720	29,984,604

the decrease in total farmland. Relatively speaking, this area will continue to be a producer of cash crops – cotton, tobacco, and peanuts.

Lower Coastal Plain

The land in the Lower Coastal Plain has more sandy soils than does the Upper Coastal Plain. Of the almost 13 million acres of total land area in the Lower Coastal Plain, 31 percent was classed as farmland, 58 percent as nonfarm woodland, and 11 percent as social, service, and special use land in 1959 as shown in Table 3.48. This is an area of large holdings of nonfarm woodland by wood-using industries. A considerable acreage of the special use land is in swamps and sand dunes along the coast. Some of this area would be suitable for development for seashore homes, parks, and recreational areas over the next 40 years.

The total acreage of farmland in this area is projected to decrease by 12 percent between 1959 and 2000, although total agricultural production and income are projected to increase. Total acreage of harvested cropland is projected to remain about constant between now and 2000. The acreage of farm woodland is expected to decrease by about the same amount as farmland. Cotton acreage is expected to decrease, while tobacco and peanut acreage may increase.

Summary of Land by States

The Southeast River Basins area includes land within five States. The amount of land by States and the percentage of the total are shown in the following summary.

State	Acreage of land*	Percentage of total acreage
North Carolina	112,000	0.20
South Carolina	2,853,760	5.16
Georgia	32,956,800	59.53
Florida	12,314,240	22.24
Alabama	7,121,920	12.87
Total	55,358,720	100.00

* Includes small water bodies.

All of the material on methodology and procedures that were given for the development of data by basins are applicable for the State summaries. State data were tabulated as a subdivision within basins as they were developed. To develop State totals, all data for a given State were added without regards to basin lines. For instance, parts of seven basins are located in Georgia. In the development of land-use data, an effort was made to give weight to State differences in past growth and development and to evaluate these past trends in light of the future. Some of these five States have had more rapid growth than others. To extend this thinking into the future became a matter of judgment. This judgment was applied as the basin data were developed. Consequently, no new or revised methods or procedures in the handling of data are involved. Of the parts of the five States in the Southeast River Basins area, the greatest changes in land use and in the production of agricultural products are expected in Georgia. Next in order of size of change would be Alabama, Florida, South Carolina, and then North Carolina.

TABLE 3.48

Major Uses of Land in Lower Coastal Plain
(acres)

Type	1959	1975	2000
Farmland (census)	3,930,000	3,650,600	3,446,340
Noncensus farmland	47,750	51,000	54,950
Nonfarm woodland	7,362,730	7,524,160	7,376,420
Service, social, special use	1,355,840	1,470,560	1,818,610
Total land use	12,696,320	12,696,320	12,696,320
Less small bodies of water	80,120	91,580	104,440
Net land area	12,616,200	12,604,740	12,591,880

North Carolina

The entire part of North Carolina that lies within the Southeast River Basins area is in the Blue Ridge province and within Basin 1. Only 22 percent of the 112,000 acres of Southeast River Basins land in North Carolina was used as farmland in 1959 as shown in Table 3.49. Some 73 percent of all the land was nonfarm woodland in 1959.

The North Carolina portion of the Southeast River Basins area constitutes a small portion of the agriculture of the total area. Some agricultural production will remain in this area over the next 40 years. The major agricultural production shifts are expected to be in the production of more intensive feed crops and the adding of more beef cattle and some increase in laying hens. Due largely to location, topography, and length of growing season, the agriculture of this part of the Southeast River Basins area will continue to be limited.

South Carolina

All of the land area of South Carolina in the Southeast River Basins area is in Basin 1. However, the South Carolina land involves the Blue Ridge, Piedmont, and Coastal Plain provinces. The percentage of the South Carolina land in the Southeast River Basins area is distributed as follows: Blue Ridge, 11 percent; Piedmont, 57 percent; Upper Coastal Plain, 23 percent; and Lower Coastal Plain, 9 percent. Almost half of the land in South Carolina in the Southeast River Basins area in 1959 was farmland, with most of the remaining half in nonfarm woodland, as shown in Table 3.50. Over the next 40 years, farmland and nonfarm woodland are projected to decrease slightly. Noncensus farmland and special use land are expected to increase slightly.

The amount of farmland in the South Carolina portion of the Southeast River Basins area is expected to decrease about 9 percent between 1959 and 2000. Nonfarm woodland is expected to decrease about 4 percent. Special use land is expected to increase more than 80 percent between 1959 and 2000. While total farmland is

TABLE 3.49

Major Uses of Land in North Carolina, Southeast River Basins Area
(acres)

Type	1959	1975	2000
Farmland (census)	24,400	23,200	22,700
Noncensus farmland	3,000	3,200	3,600
Nonfarm woodland	81,600	82,300	81,700
Social, service, special use	3,000	3,300	4,000
Total land use	112,000	112,000	112,000
Less small bodies of water	290	450	800
Net land area	111,710	111,550	111,200

TABLE 3.50

Major Uses of Land in South Carolina, Southeast River Basins Area
(acres)

Type	1959	1975	2000
Farmland (census)	1,308,400	1,242,100	1,197,100
Noncensus farmland	43,100	46,100	51,200
Nonfarm woodland	1,312,260	1,341,760	1,258,460
Social, service, special use	190,000	223,800	347,000
Total land use	2,853,760	2,853,760	2,853,760
Less small bodies of water	13,230	20,970	31,980
Net land area	2,840,530	2,832,790	2,821,780

expected to decrease, harvested cropland is expected to increase about 18 percent. Cotton acreage is expected to show little change. Small grain, hay, fruits and nuts, and commercial truck crops acreages are all expected to show some increases. Beef and veal, pork, and milk production are expected to triple between 1959 and 2000, while poultry and egg production is expected to double.

Georgia

Some or all of the river basins in the Southeast River Basins area, except Basin 8, are located in Georgia. One percent of the total Southeast River Basins land area in Georgia is in the Blue Ridge province; 29 percent is in the Piedmont; 48 percent is in the Upper Coastal Plain; and 22 percent is in the Lower Coastal Plain. Of the total Southeast River Basins land area in Georgia in 1959, some 54 percent was farmland as shown in Table 3.51. Only 39 percent was nonfarm woodland during the same year. Farmland is expected to decrease 7 percent between 1959 and 2000. Nonfarm woodland is expected to decrease only 3 percent.

Shifts are expected in the major types of land use in the Georgia portion of the Southeast River Basins area. Some of these shifts will be between provinces within the State portion of the study area. Cotton, tobacco, and peanut acreages are expected to increase greatly in Georgia. More of this increase is expected to occur in the Coastal areas than in the Blue Ridge and Piedmont provinces.

Florida

Parts of five of the river basins included in the Southeast River Basins study area are in Florida. All of the Florida land within the study area is in the Coastal Plain. Some 57 percent is Upper Coastal Plain and 43 percent is classed as Lower Coastal Plain. In the Florida portion of the Southeast River Basins area, there are approximately 7 million acres of Upper Coastal Plain and 5 million acres of Lower Coastal Plain land. Of the total land in the Florida portion

TABLE 3.51

Major Uses of Land in Georgia, Southeast River Basins Area
(acres)

Type	1959	1975	2000
Farmland (census)	17,848,300	16,947,700	16,630,800
Noncensus farmland	260,800	277,800	311,400
Nonfarm woodland	12,915,500	13,429,100	12,496,300
Social, service, special use	1,932,200	2,302,200	3,518,300
Total land use	32,956,800	32,956,800	32,956,800
Less small bodies of water	224,080	294,410	384,250
Net land area	32,732,720	32,662,390	32,572,550

TABLE 3.52

Major Uses of Land in Florida, Southeast River Basins Area
(acres)

Type	1959	1975	2000
Farmland (census)	4,032,300	3,812,900	3,676,700
Noncensus farmland	59,800	63,800	71,000
Nonfarm woodland	7,658,704	7,781,720	7,642,820
Social, service, special use	563,400	655,820	923,720
Total land use	12,314,240	12,314,240	12,314,240
Less small bodies of water	62,770	69,840	79,220
Net land area	12,251,470	12,244,400	12,235,020

of the Southeast River Basins area, approximately 33 percent was farmland in 1959 as shown in Table 3.52. Some 62 percent of all the land was used in 1959 as nonfarm woodland. Almost 5 percent of the land was special use land. Sand dunes along the coast constitute a significant acreage.

Florida can be expected to produce its share of the Southeast River Basins area requirements for agricultural products without making large shifts in land uses. Most of the increase in production is expected to occur in the Upper Coastal Plain part of Florida. Acreages of cotton, corn, and soybeans are expected to decrease between 1959 and 2000. However, acreages of tobacco, peanuts, hay crops, fruits and nuts, and commercial truck crops are expected to increase during this same time period.

Alabama

Parts of two of the eight river basins under study are located in Alabama. Of the land located in Alabama, 5 percent is classed as Piedmont; 94 percent, Upper Coastal Plain; and 1 percent, Lower Coastal Plain. For a long period of time, these areas produced farm income principally from cotton, peanuts, and hogs. The areas have a potential for agricultural production much greater than their past performances. Farmland in the Alabama portion of the Southeast River Basins area is expected to decrease about 4 percent between 1959 and 2000 as summarized in Table 3.53. Nonfarm woodland is expected to decrease about 7 percent during the same time period. Other land uses are expected to increase between 1959 and 2000.

Acreages of cotton, tobacco, and peanuts are expected to increase in the Alabama portion of the study area between 1959 and 2000. Soybean and corn acreages are expected to decrease. Most feed crop acreages are expected to increase. Production of livestock, livestock products, and cash crops is expected to increase in this area.

Conclusions

Agricultural data for the Southeast River Basins area for the past years show that resources have been only partially used. There is much idle or only partly used land. Yields of crops, livestock, and timber are low per acre, or per animal, or per man based on the method of measurement. Many parts of the Southeast River Basins are either underdeveloped or undeveloped. Many parts of the area that were once intensively cropped have been returned to timber as land too poor to farm. Present technology indicates that, while much of the land is of low natural fertility, it does have ability to respond to proper treatment and management. Under a high level of management, the land of the study area has a rather high potential to produce. The area potential exceeds the projected needs for agricultural products to a time beyond the projected requirements for 2000. It is expected that land will not become a limiting factor in the development and growth of the Southeast River Basins area between now and the year 2000. This would not be true at present production rates or without land development. Not only will work be needed in resources development but also additional research and educational work will be needed in order that the Southeast River Basins area will be able to approach its potential by 2000.

TABLE 3.53

Major Uses of Land in Alabama, Southeast River Basins Area
(acres)

Type	1959	1975	2000
Farmland (census)	4,118,600	3,974,100	3,972,700
Noncensus farmland	57,500	61,400	69,000
Nonfarm woodland	2,571,500	2,641,120	2,396,720
Social, service, special use	374,320	445,300	683,500
Total land use	7,121,920	7,121,920	7,121,920
Less small bodies of water	31,880	40,730	51,950
Net land area	7,090,040	7,081,190	7,069,970

TABLE 3.54

Crop and Livestock Production in Southeast River Basins — 1959*

Item	Unit	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Crops											
Cotton	lb.	..	22,765,000	237,065,500	6,804,500	53,188,000	1,287,500	75,322,500	228,550,000	14,663,000	319,823,000
Cottonseed	lb.	..	40,977,000	426,717,900	12,248,100	95,738,400	2,317,500	135,580,500	411,390,000	26,393,400	575,681,400
Tobacco	lb.	37,166	62,306	100,020,278	22,307,021	258,180	41,002	60,502	80,453,992	42,129,455	122,684,951
Peanuts	lb.	..	656,952	496,339,704	38,309,296	146,317,605	6,679	362,446	662,833,563	18,420,869	681,623,557
Soybeans	bu.	132	506,549	984,895	570,994	1,029,524	1,776	87,799	2,618,982	383,537	3,092,094
Corn	bu.	57,394	1,718,870	45,944,696	6,643,449	10,833,835	481,121	4,534,896	52,754,573	7,427,654	65,198,244
Sweet potatoes	bu.	722	107,039	1,716,762	101,212	203,534	8,913	263,891	1,522,185	334,280	2,129,269
Small grain	bu.	813	2,482,680	10,012,974	456,299	707,593	176,290	5,309,004	7,748,558	426,507	13,660,359
All hay	ton	1,973	53,394	381,831	44,270	43,331	12,148	223,492	250,046	39,123	524,799
Commercial truck	ton	370	30,670	322,960	111,150	71,750	2,450	59,930	419,830	54,690	536,900
Livestock products											
Beef and veal	lb.	472,500	19,383,800	274,787,200	64,886,500	75,470,000	4,721,800	111,128,500	267,947,000	51,202,700	435,000,000
Pork	lb.	238,800	11,192,600	329,209,600	62,400,000	97,959,000	2,932,200	39,465,900	380,207,900	78,394,000	501,000,000
Lamb and mutton	lb.	3,900	48,000	471,100	48,300	72,200	33,700	269,400	299,500	41,400	644,000
Poultry	lb.	277,600	12,189,700	817,694,700	14,678,000	22,160,000	71,672,400	635,112,500	117,672,700	42,542,400	867,000,000
Eggs	doz.	507,350	8,650,800	121,385,050	19,285,800	14,771,000	6,577,850	73,356,550	65,577,000	19,088,600	164,600,000
Milk	lb.	3,680,000	92,460,000	993,983,000	210,686,000	199,191,000	30,361,000	637,877,000	685,476,000	146,286,000	1,500,000,000
Livestock inventory											
Cattle and calves	hd.	2,100	86,150	1,219,550	288,200	335,000	20,970	491,880	1,190,600	227,550	1,931,000
Milk cows	hd.	800	20,100	216,000	45,800	43,300	6,600	138,600	149,000	31,800	326,000
Ewes	hd.	110	1,370	13,480	1,390	2,050	970	7,740	8,510	1,180	18,400
Hogs and pigs	hd.	1,250	58,600	1,721,950	326,700	512,500	15,350	206,500	1,988,850	410,300	2,621,000
Layers	no.	36,500	622,360	8,733,040	1,387,500	1,062,600	473,250	5,284,340	4,711,560	1,372,850	11,842,000

* Data shown for States include only that portion of the States included in the Southeast River Basins area.

TABLE 3.55

Crop and Livestock Production in Southeast River Basins — 1975*

Item	Unit	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Crops											
Cotton	lb.	..	30,500,000	381,800,000	10,028,000	97,672,000	1,000,000	84,250,000	414,482,000	20,268,000	520,000,000
Cottonseed	lb.	..	51,850,000	649,060,000	17,048,000	166,042,000	1,700,000	143,225,000	704,619,000	34,456,000	884,000,000
Tobacco	lb.	..	182,000	183,208,000	42,630,000	980,000	..	140,000	152,870,000	73,990,000	227,000,000
Peanuts	lb.	..	2,240,000	884,410,000	83,650,000	350,700,000	..	700,000	1,287,750,000	32,550,000	1,321,000,000
Soybeans	bu.	..	185,200	765,800	205,900	331,100	2,300	73,600	1,156,700	255,400	1,488,000
Corn	bu.	46,000	2,368,000	57,318,000	10,492,000	14,776,000	454,000	6,616,000	67,706,000	10,224,000	85,000,000
Sweet potatoes	bu.	..	182,200	2,616,700	207,400	393,700	6,800	453,600	2,297,100	642,500	3,400,000
Small grain	bu.	1,600	2,966,400	11,547,800	658,600	825,600	220,000	6,711,800	8,514,400	553,800	16,000,000
All hay	ton	2,800	121,700	799,500	121,300	154,700	25,300	523,850	582,500	68,350	1,200,000
Commercial truck	ton	400	43,600	634,400	256,000	90,800	2,800	87,100	806,600	128,700	1,025,200
Livestock products											
Beef and veal	lb.	1,000,000	38,750,000	541,500,000	126,750,000	150,000,000	9,250,000	207,587,000	543,780,000	97,383,000	858,000,000
Pork	lb.	381,000	20,828,000	606,702,000	121,107,000	178,982,000	4,572,000	65,787,000	719,397,000	138,244,000	928,000,000
Lamb and mutton	lb.	2,000	36,000	370,800	45,200	46,000	24,000	210,000	234,400	31,600	500,000
Poultry	lb.	385,000	17,066,000	1,128,717,000	20,242,000	30,590,000	99,690,000	875,900,000	162,868,000	58,542,000	1,197,000,000
Eggs	doz.	714,500	11,582,800	163,426,700	25,054,000	20,022,000	9,324,000	100,469,550	86,539,900	24,466,550	220,800,000
Milk	lb.	5,840,000	163,253,000	1,728,171,000	415,078,000	317,658,000	48,268,000	1,125,831,000	1,208,257,000	247,644,000	2,630,000,000

(continued)

TABLE 3.55—Continued

Item	Unit	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Livestock inventory											
Cattle and calves	hd.	4,000	155,000	2,165,000	507,000	599,000	37,000	827,900	2,176,000	389,100	3,430,000
Milk cows	hd.	800	22,100	233,900	56,200	43,000	6,600	152,200	163,600	33,600	356,000
Ewes	hd.	50	900	9,270	1,130	1,150	600	5,250	5,860	790	12,500
Hogs and pigs	hd.	1,500	82,000	2,385,700	476,800	704,000	18,000	259,000	2,829,000	544,000	3,650,000
Layers	no.	33,000	535,000	7,547,000	1,157,000	928,000	431,000	4,659,000	3,979,000	1,131,000	10,200,000

* Data shown for States include only that portion of the States included in the Southeast River Basins area.

TABLE 3.56

Crop and Livestock Production in Southeast River Basins — 2000*

Item	Unit	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Crops											
Cotton	lb.	0	42,000,000	536,105,000	11,585,000	160,310,000	700,000	103,110,000	622,520,000	23,670,000	750,000,000
Cottonseed	lb.	0	63,000,000	804,157,000	17,378,000	240,465,000	1,050,000	154,665,000	933,780,000	35,505,000	1,125,000,000
Tobacco	lb.	0	205,000	273,101,000	70,119,000	1,575,000	0	157,000	229,363,000	115,480,000	345,000,000
Peanuts	lb.	0	3,640,000	1,367,477,000	138,229,000	563,654,000	0	364,000	2,016,944,000	55,692,000	2,073,000,000
Soybeans	bu.	0	315,000	1,174,500	324,000	520,500	6,000	121,500	1,783,500	423,000	2,334,000
Corn	bu.	77,000	3,905,000	88,815,000	16,252,000	22,951,000	709,000	10,164,000	105,321,500	15,805,500	132,000,000
Sweet potatoes	bu.	0	315,000	4,070,000	437,500	577,500	8,800	734,500	3,592,200	1,064,500	5,400,000
Small grain	bu.	2,100	5,082,000	18,466,500	1,092,000	1,357,400	380,500	10,963,100	13,744,000	912,400	26,000,000
All hay	ton	4,400	198,000	1,205,900	190,300	236,400	39,600	766,480	918,900	110,020	1,835,000
Commercial truck	ton	900	69,000	1,016,400	432,600	141,600	7,200	132,300	1,305,800	215,200	1,660,500
Livestock products											
Beef and veal	lb.	1,716,000	66,352,000	869,052,000	213,070,000	237,810,000	15,444,000	335,516,000	876,776,000	160,264,000	1,388,000,000
Pork	lb.	668,000	34,068,000	961,618,000	226,452,000	278,194,000	7,014,000	96,692,000	1,169,992,000	227,302,000	1,501,000,000
Lamb and mutton	lb.	2,300	49,500	502,300	62,200	83,700	33,800	280,200	341,400	44,600	700,000
Poultry	lb.	624,000	25,600,000	1,828,980,000	32,615,000	48,181,000	169,250,000	1,414,677,000	257,223,000	94,850,000	1,936,000,000
Eggs	doz.	1,100,000	17,903,000	257,134,000	42,055,000	38,808,000	14,693,000	167,273,800	143,387,600	31,375,600	357,000,000
Milk	lb.	7,920,000	274,350,000	2,727,270,000	755,674,000	486,786,000	66,280,000	1,915,132,000	1,911,675,000	358,913,000	4,252,000,000
Livestock inventory											
Cattle and calves	hd.	6,000	232,000	3,036,000	745,000	831,000	54,000	1,169,000	3,067,000	560,000	4,850,000
Milk cows	hd.	900	31,000	307,800	85,300	55,000	7,500	216,100	215,700	40,700	480,000
Ewes	hd.	50	1,100	11,220	1,380	1,850	750	6,250	7,610	990	15,600
Hogs and pigs	hd.	2,000	102,000	2,884,000	678,000	834,000	21,000	289,500	3,508,500	681,000	4,500,000
Layers	no.	44,000	717,000	10,284,000	1,698,000	1,557,000	617,000	6,656,000	5,756,000	1,271,000	14,300,000

* Data shown for States include only that portion of the States included in the Southeast River Basins area.

TABLE 3.57

Crop and Livestock Production in the Savannah Basin—1959

Item	Unit	North Carolina	South Carolina			
		Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops							
Cotton	lb.	--	1,191,500	13,959,000	6,487,500	1,127,000	22,765,000
Cottonseed	lb.	--	2,144,700	25,126,200	11,677,500	2,028,600	40,977,000
Tobacco	lb.	37,166	3,836	34,533	12,167	11,770	62,306
Peanuts	lb.	--	6,679	44,051	389,846	216,376	656,952
Soybeans	bu.	132	1,324	58,613	300,174	146,438	506,549
Corn	bu.	57,394	165,468	607,113	675,341	270,948	1,718,870
Sweet potatoes	bu.	722	5,551	36,140	59,363	5,985	107,039
Small grain	bu.	813	167,019	1,694,522	510,360	110,779	2,482,680
All hay	ton	1,973	4,308	37,174	8,995	2,917	53,394
Commercial truck	ton	370	780	4,740	20,710	4,440	30,670
Livestock products							
Beef and veal	lb.	472,500	1,995,800	14,024,200	2,475,000	888,800	19,383,800
Pork	lb.	238,800	935,900	4,755,900	3,953,700	1,547,100	11,192,600
Lamb and mutton	lb.	3,900	9,400	36,500	1,400	700	48,000
Poultry	lb.	277,600	1,774,900	4,060,300	6,297,100	57,400	12,189,700
Eggs	doz.	507,350	1,283,700	5,895,000	1,060,000	412,100	8,650,800
Milk	lb.	3,680,000	11,500,000	69,460,000	9,200,000	2,300,000	92,460,000
Livestock inventory							
Cattle and calves	hd.	2,100	8,870	62,330	11,000	3,950	86,150
Milk cows	hd.	800	2,500	15,100	2,000	500	20,100
Ewes	hd.	110	270	1,040	40	20	1,370
Hogs and pigs	hd.	1,250	4,900	24,900	20,700	8,100	58,600
Layers	no.	36,500	92,350	424,100	76,260	29,650	622,360

Item	Unit	Georgia				
		Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops						
Cotton	lb.	53,000	17,539,500	13,042,500	1,508,500	32,143,500
Cottonseed	lb.	95,400	31,571,100	23,476,500	2,715,300	57,858,300
Tobacco	lb.	--	19,946	33,956	153,772	207,674
Peanuts	lb.	--	27,880	3,641,246	1,031,089	4,700,215
Soybeans	bu.	207	1,913	112,086	38,383	152,589
Corn	bu.	173,980	771,273	1,406,432	410,699	2,762,384
Sweet potatoes	bu.	1,670	28,231	24,630	13,610	68,141
Small grain	bu.	5,515	1,540,044	453,903	54,367	2,053,829
All hay	ton	4,387	41,015	12,000	4,462	61,864
Commercial truck	ton	850	7,140	12,490	2,480	22,960
Livestock products						
Beef and veal	lb.	1,462,500	18,573,700	6,795,000	2,587,500	29,418,700
Pork	lb.	1,050,500	7,961,000	7,449,000	4,221,100	20,681,600
Lamb and mutton	lb.	15,400	37,900	8,800	1,000	63,100
Poultry	lb.	37,215,900	160,888,200	800,300	122,300	199,026,700
Eggs	doz.	2,618,800	11,073,450	2,682,700	904,900	17,279,850
Milk	lb.	10,580,000	106,360,000	23,000,000	3,220,000	143,160,000
Livestock inventory						
Cattle and calves	hd.	6,500	82,550	30,200	11,500	130,750
Milk cows	hd.	2,300	23,100	5,000	700	31,100
Ewes	hd.	440	1,100	250	30	1,820
Hogs and pigs	hd.	5,500	41,550	39,000	22,100	108,150
Layers	no.	188,400	796,640	193,000	65,100	1,243,140

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Crops						
Cotton	lb.	1,244,500	31,498,500	19,530,000	2,635,500	54,908,500
Cottonseed	lb.	2,240,100	56,697,300	35,154,000	4,743,900	98,835,300
Tobacco	lb.	41,002	54,479	46,123	165,542	307,146
Peanuts	lb.	6,679	71,931	4,031,092	1,247,465	5,357,167
Soybeans	bu.	1,663	60,526	412,260	184,821	659,270
Corn	bu.	396,842	1,378,386	2,081,773	681,647	4,538,648
Sweet potatoes	bu.	7,943	64,371	83,993	19,595	175,902
Small grain	bu.	173,347	3,234,566	964,263	165,146	4,537,322
All hay	ton	10,668	78,189	20,995	7,379	117,231
Commercial truck	ton	2,000	11,880	33,200	6,920	54,000
Livestock products						
Beef and veal	lb.	3,930,800	32,597,900	9,270,000	3,476,300	49,275,000
Pork	lb.	2,225,200	12,716,900	11,402,700	5,768,200	32,113,000
Lamb and mutton	lb.	28,700	74,400	10,200	1,700	115,000
Poultry	lb.	39,268,400	164,948,500	7,097,400	179,700	211,494,000
Eggs	doz.	4,409,850	16,968,450	3,742,700	1,317,000	26,438,000
Milk	lb.	25,760,000	175,820,000	32,200,000	5,520,000	239,300,000
Livestock inventory						
Cattle and calves	hd.	17,470	144,880	41,200	15,450	219,000
Milk cows	hd.	5,600	38,200	7,000	1,200	52,000
Ewes	hd.	820	2,140	290	50	3,300
Hogs and pigs	hd.	11,650	66,450	59,700	30,200	168,000
Layers	no.	317,250	1,220,740	269,260	94,750	1,902,000

TABLE 3.58

Crop and Livestock Production in the Savannah Basin—1975

Item	Unit	North Carolina	South Carolina			
		Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops							
Cotton	lb.	--	1,000,000	15,000,000	13,000,000	1,500,000	30,500,000
Cottonseed	lb.	--	1,700,000	25,500,000	22,100,000	2,550,000	51,850,000
Tobacco	lb.	--	--	70,000	70,000	42,000	182,000
Peanuts	lb.	--	--	280,000	1,400,000	560,000	2,240,000
Soybeans	bu.	--	2,300	41,400	104,700	36,800	185,200
Corn	bu.	46,000	200,000	848,000	984,000	336,000	2,368,000
Sweet potatoes	bu.	--	6,800	54,000	107,900	13,500	182,200
Small grain	bu.	1,600	202,000	2,092,400	544,000	128,000	2,966,400
All hay	ton	2,800	10,800	90,000	17,100	3,800	121,700
Commercial truck	ton	400	1,000	6,000	30,200	6,400	43,600
Livestock products							
Beef and veal	lb.	1,000,000	4,000,000	28,575,000	4,400,000	1,775,000	38,750,000
Pork	lb.	381,000	1,524,000	8,382,000	7,874,000	3,048,000	20,828,000
Lamb and mutton	lb.	2,000	6,000	28,000	2,000	--	36,000
Poultry	lb.	385,000	2,485,000	5,684,000	8,811,000	86,000	17,066,000
Eggs	doz.	714,500	1,797,000	7,707,400	1,493,800	584,600	11,582,800
Milk	lb.	5,840,000	18,250,000	119,453,000	21,900,000	3,650,000	163,253,000
Livestock inventory							
Cattle and calves	hd.	4,000	16,000	114,300	17,600	7,100	155,000
Milk cows	hd.	800	2,500	16,100	3,000	500	22,100
Ewes	hd.	50	150	700	50	--	900
Hogs and pigs	hd.	1,500	6,000	33,000	31,000	12,000	82,000
Layers	no.	33,000	83,000	356,000	69,000	27,000	535,000

Item	Unit	Georgia				
		Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops						
Cotton	lb.	--	20,000,000	35,300,000	2,600,000	57,900,000
Cottonseed	lb.	--	34,000,000	60,010,000	4,420,000	98,430,000
Tobacco	lb.	--	70,000	70,000	378,000	518,000
Peanuts	lb.	--	140,000	10,080,000	2,380,000	12,600,000
Soybeans	bu.	--	6,900	91,900	38,000	136,800
Corn	bu.	140,000	1,288,000	1,918,000	616,000	3,962,000
Sweet potatoes	bu.	--	40,500	40,500	153,800	234,800
Small grain	bu.	10,000	2,229,000	646,000	70,000	2,955,000
All hay	ton	8,500	102,300	23,800	5,400	140,000
Commercial truck	ton	1,000	9,600	17,800	4,000	32,400
Livestock products						
Beef and veal	lb.	3,000,000	34,900,000	13,600,000	5,250,000	56,750,000
Pork	lb.	1,651,000	13,970,000	14,788,000	7,874,000	38,283,000
Lamb and mutton	lb.	12,000	30,000	8,000	--	50,000
Poultry	lb.	52,102,000	221,054,000	1,200,000	183,000	274,539,000
Eggs	doz.	3,680,500	14,392,900	3,767,000	1,277,300	23,117,700
Milk	lb.	16,790,000	178,907,000	43,800,000	5,110,000	244,607,000
Livestock inventory						
Cattle and calves	hd.	12,000	139,600	54,400	21,000	227,000
Milk cows	hd.	2,300	24,100	6,000	700	33,100
Ewes	hd.	300	750	200	--	1,250
Hogs and pigs	hd.	6,500	55,000	58,000	31,000	150,500
Layers	no.	170,000	665,000	174,000	59,000	1,068,000

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Crops						
Cotton	lb.	1,000,000	35,000,000	48,300,000	4,100,000	88,400,000
Cottonseed	lb.	1,700,000	59,500,000	82,110,000	6,970,000	150,280,000
Tobacco	lb.	--	140,000	140,000	420,000	700,000
Peanuts	lb.	--	420,000	11,480,000	2,940,000	14,840,000
Soybeans	bu.	2,300	48,300	196,600	74,800	322,000
Corn	bu.	386,000	2,136,000	2,902,000	952,000	6,376,000
Sweet potatoes	bu.	6,800	94,500	148,400	167,300	417,000
Small grain	bu.	213,600	4,321,400	1,190,000	198,000	5,923,000
All hay	ton	22,100	192,300	40,900	9,200	264,500
Commercial truck	ton	2,400	15,600	48,000	10,400	76,400
Livestock products						
Beef and veal	lb.	8,000,000	63,475,000	18,000,000	7,025,000	96,500,000
Pork	lb.	3,556,000	22,352,000	22,662,000	10,922,000	59,492,000
Lamb and mutton	lb.	20,000	58,000	10,000	--	88,000
Poultry	lb.	54,972,000	226,738,000	10,011,000	269,000	291,990,000
Eggs	doz.	6,192,000	22,100,300	5,260,800	1,861,900	35,415,000
Milk	lb.	40,880,000	298,360,000	65,700,000	8,760,000	413,700,000
Livestock inventory						
Cattle and calves	hd.	32,000	253,900	72,000	28,100	386,000
Milk cows	hd.	5,600	40,200	9,000	1,200	56,000
Ewes	hd.	500	1,450	250	--	2,200
Hogs and pigs	hd.	14,000	88,000	89,000	43,000	234,000
Layers	no.	286,000	1,021,000	243,000	86,000	1,636,000

TABLE 3.59

Crop and Livestock Production in the Savannah Basin—2000

Item	Unit	North Carolina	South Carolina				
		Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops							
Cotton	lb.	--	700,000	19,600,000	19,600,000	2,100,000	42,000,000
Cottonseed	lb.	--	1,050,000	29,400,000	29,400,000	3,150,000	63,000,000
Tobacco	lb.	--	--	79,000	79,000	47,000	205,000
Peanuts	lb.	--	--	--	2,548,000	1,092,000	3,640,000
Soybeans	bu.	--	6,000	60,000	189,000	60,000	315,000
Corn	bu.	77,000	302,000	1,320,000	1,761,000	522,000	3,905,000
Sweet potatoes	bu.	--	8,800	70,000	183,700	52,500	315,000
Small grain	bu.	2,100	344,400	3,570,000	966,000	201,600	5,082,000
All hay	ton	4,400	17,600	145,200	28,600	6,600	198,000
Commercial truck	ton	900	1,800	9,600	47,400	10,200	69,000
Livestock products							
Beef and veal	lb.	1,716,000	6,578,000	49,764,000	7,150,000	2,860,000	66,352,000
Pork	lb.	668,000	2,338,000	12,024,000	14,362,000	5,344,000	34,068,000
Lamb and mutton	lb.	2,300	9,000	36,000	4,500	--	49,500
Poultry	lb.	624,000	4,026,000	9,663,000	11,773,000	138,000	25,600,000
Eggs	dos.	1,100,000	2,775,000	11,912,000	2,328,000	888,000	17,903,000
Milk	lb.	7,920,000	24,780,000	208,860,000	35,400,000	5,310,000	274,350,000
Livestock inventory							
Cattle and calves	hd.	6,000	23,000	174,000	25,000	10,000	232,000
Milk cows	hd.	900	2,800	23,600	4,000	600	31,000
Ewes	hd.	50	200	800	100	0	1,100
Hogs and pigs	hd.	2,000	7,000	36,000	43,000	16,000	102,000
Layers	no.	44,000	111,000	472,000	97,000	37,000	717,000

Item	Unit	Georgia				
		Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Crops						
Cotton	lb.	--	25,200,000	49,300,000	3,500,000	78,000,000
Cottonseed	lb.	--	37,800,000	73,950,000	5,250,000	117,000,000
Tobacco	lb.	--	78,000	79,000	426,000	583,000
Peanuts	lb.	--	--	15,106,000	4,550,000	19,656,000
Soybeans	bu.	--	12,000	123,000	54,000	189,000
Corn	bu.	220,000	2,002,000	2,739,000	957,000	5,918,000
Sweet potatoes	bu.	--	52,500	70,000	226,500	349,000
Small grain	bu.	21,000	3,391,100	1,020,600	109,200	4,541,900
All hay	ton	13,200	143,000	35,900	9,900	202,000
Commercial truck	ton	1,500	14,700	26,400	6,000	48,600
Livestock products						
Beef and veal	lb.	4,862,000	50,726,000	23,452,000	9,152,000	88,192,000
Pork	lb.	2,672,000	20,374,000	24,923,000	13,360,000	61,329,000
Lamb and mutton	lb.	18,000	37,700	13,500	--	69,200
Poultry	lb.	88,600,000	355,223,000	1,920,000	293,000	446,036,000
Eggs	dos.	5,472,000	23,081,000	5,520,000	1,848,000	35,921,000
Milk	lb.	24,780,000	306,054,000	70,800,000	7,040,000	408,674,000
Livestock inventory						
Cattle and calves	hd.	17,000	177,000	82,000	32,000	308,000
Milk cows	hd.	2,800	34,500	8,000	800	46,100
Ewes	hd.	400	850	300	--	1,550
Hogs and pigs	hd.	8,000	61,000	75,000	40,000	184,000
Layers	no.	228,000	904,000	230,000	77,000	1,439,000

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Crops						
Cotton	lb.	700,000	44,800,000	68,900,000	5,600,000	120,000,000
Cottonseed	lb.	1,050,000	67,200,000	103,350,000	8,400,000	180,000,000
Tobacco	lb.	--	157,000	158,000	473,000	788,000
Peanuts	lb.	--	--	17,654,000	5,642,000	23,296,000
Soybeans	bu.	6,000	72,000	312,000	114,000	504,000
Corn	bu.	599,000	3,322,000	4,500,000	1,479,000	9,900,000
Sweet potatoes	bu.	8,800	122,500	253,700	279,000	664,000
Small grain	bu.	367,500	6,961,100	1,986,600	310,800	9,626,000
All hay	ton	35,200	288,200	64,500	16,500	404,400
Commercial truck	ton	4,200	24,300	73,800	16,200	118,500
Livestock products						
Beef and veal	lb.	13,156,000	100,490,000	30,602,000	12,012,000	156,260,000
Pork	lb.	5,678,000	32,398,000	39,285,000	18,704,000	96,065,000
Lamb and mutton	lb.	29,300	73,700	18,000	0	121,000
Poultry	lb.	93,250,000	364,886,000	13,693,000	431,000	472,260,000
Eggs	dos.	9,347,000	34,993,000	7,848,000	2,736,000	54,924,000
Milk	lb.	57,480,000	514,914,000	106,200,000	12,350,000	690,944,000
Livestock inventory						
Cattle and calves	hd.	46,000	351,000	107,000	42,000	546,000
Milk cows	hd.	6,500	58,100	12,000	1,400	78,000
Ewes	hd.	650	1,650	400	--	2,700
Hogs and pigs	hd.	17,000	97,000	118,000	56,000	288,000
Layers	no.	383,000	1,376,000	327,000	114,000	2,200,000

TABLE 3.60

Crop and Livestock Production in the Ogeechee Basin—1959

Item	Unit	Distribution by province			Total Basin 2
		Piedmont	Upper Coastal Plain	Lower Coastal Plain	
Crops					
Cotton	lb.	1,359,000	28,924,000	3,028,500	33,311,500
Cottonseed	lb.	2,446,200	52,063,200	5,451,300	59,960,700
Tobacco	lb.	--	9,725,800	3,036,533	12,762,333
Peanuts	lb.	5,400	18,126,195	5,806,700	23,938,295
Soybeans	bu.	961	197,253	45,227	243,441
Corn	bu.	63,908	4,358,583	969,470	5,391,961
Sweet potatoes	bu.	2,256	71,333	29,272	102,861
Small grain	bu.	28,927	1,004,326	82,069	1,115,322
All hay	ton	2,103	20,818	5,408	28,329
Commercial truck	ton	300	22,830	2,870	26,000
Livestock products					
Beef and veal	lb.	1,642,600	16,040,000	5,042,400	22,725,000
Pork	lb.	487,000	30,907,200	9,511,800	40,906,000
Lamb and mutton	lb.	3,500	25,000	3,500	32,000
Poultry	lb.	97,000	2,553,500	817,500	3,468,000
Eggs	doz.	403,100	5,657,300	1,862,600	7,923,000
Milk	lb.	11,960,000	52,440,000	18,400,000	82,800,000
Livestock inventory					
Cattle and calves	hd.	6,000	72,600	22,400	101,000
Milk cows	hd.	2,600	11,400	4,000	18,000
Ewes	hd.	100	700	100	900
Hogs and pigs	hd.	2,550	161,650	49,800	214,000
Layers	no.	29,000	407,000	134,000	570,000

TABLE 3.61

Crop and Livestock Production in the Ogeechee Basin—1975

Item	Unit	Distribution by province			Total Basin 2
		Piedmont	Upper Coastal Plain	Lower Coastal Plain	
Crops					
Cotton	lb.	1,750,000	41,450,000	3,600,000	46,800,000
Cottonseed	lb.	2,975,000	70,465,000	6,120,000	79,560,000
Tobacco	lb.	--	18,200,000	5,040,000	23,240,000
Peanuts	lb.	--	37,800,000	9,800,000	47,600,000
Soybeans	bu.	2,300	101,200	69,000	172,500
Corn	bu.	120,000	5,764,000	1,400,000	7,284,000
Sweet potatoes	bu.	--	108,000	54,000	162,000
Small grain	bu.	38,400	1,289,600	96,000	1,424,000
All hay	ton	4,750	42,600	8,550	55,900
Commercial truck	ton	2,000	37,200	4,800	44,000
Livestock products					
Beef and veal	lb.	2,612,000	35,530,000	6,358,000	44,500,000
Pork	lb.	509,000	60,005,000	15,250,000	75,764,000
Lamb and mutton	lb.	--	24,000	--	24,000
Poultry	lb.	132,000	3,533,000	1,125,000	4,790,000
Eggs	doz.	541,250	5,845,500	2,273,250	8,660,000
Milk	lb.	25,900,000	84,884,000	22,200,000	132,984,000

(continued)

TABLE 3.61—Continued

Item	Unit	Distribution by province			Total Basin 2
		Piedmont	Upper Coastal Plain	Lower Coastal Plain	
Livestock inventory					
Cattle and calves	hd.	8,000	145,000	25,000	178,000
Milk cows	hd.	3,500	11,500	3,000	18,000
Ewes	hd.	--	600	--	600
Hogs and pigs	hd.	2,000	236,000	60,000	298,000
Layers	no.	25,000	270,000	105,000	400,000

TABLE 3.62

Crop and Livestock Production in the Ogeechee Basin—2000

Item	Unit	Distribution by province			Total Basin 2
		Piedmont	Upper Coastal Plain	Lower Coastal Plain	
Crops					
Cotton	lb.	1,610,000	57,380,000	4,760,000	63,750,000
Cottonseed	lb.	2,415,000	86,070,000	7,140,000	95,625,000
Tobacco	lb.	--	23,625,000	6,930,000	30,555,000
Peanuts	lb.	--	58,968,000	15,652,000	74,620,000
Soybeans	bu.	4,500	160,500	105,000	270,000
Corn	bu.	132,000	9,092,000	2,090,000	11,314,000
Sweet potatoes	bu.	--	175,000	87,000	262,000
Small grain	bu.	84,000	2,057,800	172,200	2,314,000
All hay	ton	7,480	65,600	12,320	85,400
Commercial truck	ton	3,000	55,800	7,200	66,000
Livestock products					
Beef and veal	lb.	4,510,000	57,530,000	10,080,000	72,120,000
Pork	lb.	500,000	96,885,000	25,030,000	122,415,000
Lamb and mutton	lb.	--	31,000	--	31,000
Poultry	lb.	250,000	5,545,000	1,950,000	7,745,000
Eggs	doz.	748,800	7,115,600	2,745,600	10,610,000
Milk	lb.	44,300,000	106,300,000	26,580,000	177,180,000
Livestock inventory					
Cattle and calves	hd.	12,000	205,000	35,000	252,000
Milk cows	hd.	5,000	12,000	3,000	20,000
Ewes	hd.	--	700	--	700
Hogs and pigs	hd.	1 500	290,500	75,000	367,000
Layers	no.	30,000	285,000	110,000	425,000

TABLE 3.63

Crop and Livestock Production in the Altamaha Basin—1959

Item	Unit	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Crops					
Cotton	lb.	27,810,000	44,857,500	1,152,500	73,820,000
Cottonseed	lb.	50,058,000	80,743,500	2,074,500	132,876,000
Tobacco	lb.	6,023	12,801,113	3,327,245	16,134,381
Peanuts	lb.	56,696	53,466,725	214,113	53,767,534

(continued)

TABLE 3.63—Continued

Item	Unit	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Soybeans	bu.	16,028	358,011	2,048	376,087
Corn	bu.	1,417,951	6,844,000	588,538	8,850,489
Sweet potatoes	bu.	124,164	305,725	33,405	463,294
Small grain	bu.	1,397,761	2,022,599	9,521	3,429,881
All hay	ton	84,289	33,946	2,608	120,843
Commercial truck	ton	20,200	48,600	3,200	72,000
Livestock products					
Beef and veal	lb.	40,050,000	35,325,000	3,375,000	78,750,000
Pork	lb.	11,842,000	66,152,000	6,494,000	84,488,000
Lamb and mutton	lb.	90,600	42,000	3,500	136,000
Poultry	lb.	219,343,000	29,797,000	1,252,000	250,392,000
Eggs	doz.	24,924,000	12,278,000	882,000	38,084,000
Milk	lb.	303,756,000	87,438,000	13,806,000	405,000,000
Livestock inventory					
Cattle and calves	hd.	178,000	157,000	15,000	350,000
Milk cows	hd.	66,000	19,000	3,000	88,000
Ewes	hd.	2,600	1,200	100	3,900
Hogs and pigs	hd.	62,000	346,000	34,000	442,000
Layers	no.	1,800,000	877,000	63,000	2,740,000

TABLE 3.64

Crop and Livestock Production in the Altamaha Basin—1975

Item	Unit	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Crops					
Cotton	lb.	35,000,000	85,700,000	1,500,000	122,200,000
Cottonseed	lb.	59,500,000	145,690,000	2,550,000	207,740,000
Tobacco	lb.	--	30,660,000	4,200,000	34,860,000
Peanuts	lb.	280,000	106,680,000	700,000	107,660,000
Soybeans	bu.	23,000	234,600	11,500	269,100
Corn	bu.	1,800,000	10,908,000	800,000	13,508,000
Sweet potatoes	bu.	202,500	471,000	67,500	741,000
Small grain	bu.	1,600,000	1,978,000	16,000	3,594,000
All hay	ton	190,000	77,000	4,700	271,700
Commercial truck	ton	34,300	95,800	5,900	136,000
Livestock products					
Beef and veal	lb.	73,500,000	72,750,000	6,000,000	152,250,000
Pork	lb.	18,796,000	127,406,000	10,414,000	156,616,000
Lamb and mutton	lb.	68,000	32,000	4,000	104,000
Poultry	lb.	302,829,000	41,138,000	1,728,000	345,695,000
Eggs	doz.	33,224,000	16,588,000	1,188,000	51,000,000
Milk	lb.	524,521,000	147,740,000	22,161,000	694,422,000
Livestock inventory					
Cattle and calves	hd.	294,000	291,000	24,000	609,000
Milk cows	hd.	71,000	20,000	3,000	94,000
Ewes	hd.	1,700	800	100	2,600
Hogs and pigs	hd.	74,000	501,000	41,000	616,000
Layers	no.	1,548,000	754,000	54,000	2,356,000

TABLE 3.65

Crop and Livestock Production in the Altamaha Basin—2000

Item	Unit	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Crops					
Cotton	lb.	42,700,000	120,200,000	2,100,000	165,000,000
Cottonseed	lb.	64,050,000	180,300,000	3,150,000	247,500,000
Tobacco	lb.	--	34,965,000	6,300,000	41,265,000
Peanuts	lb.	364,000	166,712,000	1,820,000	168,896,000
Soybeans	bu.	45,000	348,000	30,000	423,000
Corn	bu.	2,750,000	16,962,000	1,265,000	20,977,000
Sweet potatoes	bu.	350,000	716,000	105,000	1,171,000
Small grain	bu.	2,520,000	3,284,400	33,600	5,838,000
All hay	ton	253,000	154,000	8,400	415,400
Commercial truck	ton	48,000	162,000	12,000	222,000
Livestock products					
Beef and veal	lb.	113,542,000	124,002,000	8,866,000	246,410,000
Pork	lb.	27,054,000	211,086,000	15,030,000	253,170,000
Lamb and mutton	lb.	94,500	45,000	4,500	144,000
Poultry	lb.	489,789,000	66,535,000	2,796,000	559,120,000
Eggs	doz.	52,346,000	24,500,000	1,800,000	78,646,000
Milk	lb.	770,666,000	212,592,000	26,574,000	1,009,832,000
Livestock inventory					
Cattle and calves	hd.	397,000	433,000	31,000	861,000
Milk cows	hd.	87,000	24,000	3,000	114,000
Ewes	hd.	2,100	1,000	100	3,200
Hogs and pigs	hd.	81,000	633,000	45,000	759,000
Layers	no.	2,098,000	980,000	72,000	3,150,000

TABLE 3.66

Crop and Livestock Production in the Satilla-St. Marys Basins—1959

Item	Unit	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
		Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops								
Cotton	lb.	--	496,000	5,579,000	6,075,000	496,000	5,579,000	6,075,000
Cottonseed	lb.	--	892,800	10,042,200	10,935,000	892,800	10,042,200	10,935,000
Tobacco	lb.	133,957	508,210	21,845,027	22,353,237	508,210	21,978,984	22,487,194
Peanuts	lb.	17,029	2,872,609	6,028,744	8,901,353	2,872,609	6,045,773	8,918,382
Soybeans	bu.	--	144	3,009	3,153	144	3,009	3,153
Corn	bu.	18,877	140,388	2,951,382	3,091,770	140,388	2,970,259	3,110,647
Sweet potatoes	bu.	1,933	4,511	155,065	159,576	4,511	156,998	161,509
Small grain	bu.	1	3,055	52,634	55,689	3,055	52,635	55,690
All hay	ton	1,617	215	9,772	9,987	215	11,389	11,604
Commercial truck	ton	500	300	5,900	6,200	300	6,400	6,700
Livestock products								
Beef and veal	lb.	3,487,500	450,000	14,512,500	14,962,500	450,000	18,000,000	18,450,000
Pork	lb.	974,000	1,012,000	30,701,000	31,713,000	1,012,000	31,675,000	32,687,000
Lamb and mutton	lb.	1,000	400	12,600	13,000	400	13,600	14,000
Poultry	lb.	1,928,000	447,800	29,567,200	30,015,000	447,800	31,495,200	31,943,000
Eggs	doz.	5,073,500	208,500	4,587,000	4,795,500	208,500	9,660,500	9,869,000
Milk	lb.	24,840,000	5,520,000	29,440,000	34,960,000	5,520,000	54,280,000	59,800,000

(continued)

TABLE 3.66—Continued

Item	Unit	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
		Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Livestock inventory								
Cattle and calves	hd.	15,500	2,000	64,500	66,500	2,000	80,000	82,000
Milk cows	hd.	5,400	1,200	6,400	7,600	1,200	11,800	13,000
Ewes	hd.	30	10	360	370	10	390	400
Hogs and pigs	hd.	5,100	5,300	160,600	165,900	5,300	165,700	171,000
Layers	no.	365,000	15,000	330,000	345,000	15,000	695,000	710,000

TABLE 3.67

Crop and Livestock Production in the Satilla-St. Marys Basins—1975

Item	Unit	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
		Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops								
Cotton	lb.	--	600,000	7,200,000	7,800,000	600,000	7,200,000	7,800,000
Cottonseed	lb.	--	1,020,000	12,240,000	13,260,000	1,020,000	12,240,000	13,260,000
Tobacco	lb.	490,000	910,000	36,960,000	37,870,000	910,000	37,450,000	38,360,000
Peanuts	lb.	140,000	4,060,000	9,800,000	13,860,000	4,060,000	9,940,000	14,000,000
Soybeans	bu.	--	4,600	71,300	75,900	4,600	71,300	75,900
Corn	bu.	72,000	160,000	3,600,000	3,760,000	160,000	3,672,000	3,832,000
Sweet potatoes	bu.	13,500	13,500	203,000	216,500	13,500	216,500	230,000
Small grain	bu.	3,200	3,200	70,600	73,800	3,200	73,800	77,000
All hay	ton	2,100	600	15,500	16,100	600	17,600	18,200
Commercial truck	ton	2,800	1,200	16,000	17,200	1,200	18,800	20,000
Livestock products								
Beef and veal	lb.	5,750,000	750,000	30,000,000	30,750,000	750,000	35,750,000	36,500,000
Pork	lb.	1,981,000	2,032,000	56,497,000	58,529,000	2,032,000	58,478,000	60,510,000
Lamb and mutton	lb.	1,200	400	10,400	10,800	400	11,600	12,000
Poultry	lb.	2,646,000	829,000	40,630,000	41,459,000	829,000	43,276,000	44,105,000
Eggs	doz.	6,480,000	237,600	5,837,400	6,075,000	237,600	12,317,400	12,555,000
Milk	lb.	38,418,000	10,343,000	54,671,000	65,014,000	10,343,000	93,089,000	103,432,000
Livestock inventory								
Cattle and calves	hd.	23,000	3,000	120,000	123,000	3,000	143,000	146,000
Milk cows	hd.	5,200	1,400	7,400	8,800	1,400	12,600	14,000
Ewes	hd.	30	10	260	270	10	290	300
Hogs and pigs	hd.	7,800	8,000	222,200	230,200	8,000	230,000	238,000
Layers	no.	300,000	11,000	269,000	280,000	11,000	569,000	580,000

TABLE 3.68

Crop and Livestock Production in the Satilla-St. Marys Basins—2000

Item	Unit	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
		Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops								
Cotton	lb.	--	630,000	6,870,000	7,500,000	630,000	6,870,000	7,500,000
Cottonseed	lb.	--	945,000	10,305,000	11,250,000	945,000	10,305,000	11,250,000
Tobacco	lb.	819,000	1,386,000	55,440,000	56,826,000	1,386,000	56,259,000	57,645,000

(continued)

TABLE 3.68—Continued

Item	Unit	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
		Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Peanuts	lb.	273,000	7,644,000	17,745,000	25,389,000	7,644,000	18,018,000	25,662,000
Soybeans	bu.	--	6,000	114,000	120,000	6,000	114,000	120,000
Corn	bu.	110,000	253,000	5,588,000	5,841,000	253,000	5,698,000	5,951,000
Sweet potatoes	bu.	35,000	35,000	297,000	332,000	35,000	332,000	367,000
Small grain	bu.	8,400	8,400	110,200	118,600	8,000	118,600	127,000
All hay	ton	3,300	900	23,700	24,600	900	27,000	27,900
Commercial truck	ton	4,200	1,800	24,000	25,800	1,800	28,200	30,000
Livestock products								
Beef and veal	lb.	9,438,000	1,144,000	48,368,000	49,512,000	1,144,000	57,806,000	58,950,000
Pork	lb.	3,674,000	4,008,000	90,048,000	94,056,000	4,008,000	93,722,000	97,730,000
Lamb and mutton	lb.	1,400	500	16,100	16,600	500	17,500	18,000
Poultry	lb.	4,280,000	1,341,000	65,709,000	67,050,000	1,341,000	69,989,000	71,330,000
Eggs	doz.	7,875,000	288,000	6,809,000	7,097,000	288,000	14,684,000	14,972,000
Milk	lb.	46,953,000	14,160,000	98,351,000	112,511,000	14,160,000	145,304,000	159,464,000
Livestock inventory								
Cattle and calves	hd.	33,000	4,000	169,000	173,000	4,000	202,000	206,000
Milk cows	hd.	5,300	1,600	11,100	12,700	1,600	16,400	18,000
Ewes	hd.	30	10	360	370	10	190	400
Hogs and pigs	hd.	11,000	12,000	270,000	282,000	12,000	281,000	293,000
Layers	no.	315,000	12,000	273,000	285,000	12,000	588,000	600,000

TABLE 3.69

Crop and Livestock Production in the Suwannee Basin—1959

Item	Unit	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	578,000	234,500	812,500	22,863,500	1,423,000	24,286,500	23,441,500	1,657,500	25,099,000
Cottonseed	lb.	1,040,400	422,100	1,462,500	41,154,300	2,561,400	43,715,700	42,194,700	2,983,500	45,178,200
Tobacco	lb.	10,195,837	4,248,001	14,443,838	26,562,750	7,841,753	34,404,503	36,758,587	12,089,754	48,848,341
Peanuts	lb.	2,752,642	984,753	3,737,395	91,884,554	2,402,046	94,286,600	94,637,196	3,386,799	98,023,995
Soybeans	bu.	2,518	200	2,718	43,997	2,162	46,159	46,515	2,362	48,877
Corn	bu.	1,664,762	558,681	2,223,443	5,972,085	1,151,610	7,123,695	7,636,847	1,710,291	9,347,138
Sweet potatoes	bu.	29,409	23,707	53,116	361,420	60,476	421,896	390,829	84,183	475,012
Small grain	bu.	45,597	19,466	65,063	358,669	33,456	392,125	404,266	52,922	457,188
All hay	ton	3,771	3,346	7,117	24,792	4,083	28,875	28,563	7,429	35,992
Commercial truck	ton	44,900	25,300	70,200	62,700	2,100	64,800	107,600	27,400	135,000
Livestock products										
Beef and veal	lb.	13,500,000	9,450,000	22,950,000	21,825,000	4,725,000	26,550,000	35,325,000	14,175,000	49,500,000
Pork	lb.	16,617,000	7,831,000	24,448,000	43,227,000	10,123,000	53,350,000	59,844,000	17,954,000	77,798,000
Lamb and mutton	lb.	7,000	7,000	14,000	39,000	7,000	46,000	46,000	14,000	60,000
Poultry	lb.	2,317,000	4,003,000	6,320,000	6,344,000	3,810,000	10,154,000	8,661,000	7,813,000	16,474,000
Eggs	doz.	2,571,500	2,112,800	4,684,300	5,697,000	1,570,700	7,267,700	8,268,500	3,683,500	11,952,000
Milk	lb.	27,600,000	18,400,000	46,000,000	50,600,000	9,200,000	59,800,000	78,200,000	27,600,000	105,800,000
Livestock inventory										
Cattle and calves	hd.	60,000	42,000	102,000	97,000	21,000	118,000	157,000	63,000	220,000
Milk cows	hd.	6,000	4,000	10,000	11,000	2,000	13,000	17,000	6,000	23,000
Ewes	hd.	200	200	400	1,100	200	1,300	1,300	400	1,700
Hogs and pigs	hd.	87,000	41,000	128,000	226,000	53,000	279,000	313,000	94,000	407,000
Layers	no.	185,000	152,000	337,000	410,000	113,000	523,000	595,000	265,000	860,000

TABLE 3.70

Crop and Livestock Production in the Suwannee Basin—1975

Item	Unit	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	1,100,000	500,000	1,600,000	37,400,000	2,600,000	40,000,000	38,500,000	3,100,000	41,600,000
Cottonseed	lb.	1,870,000	850,000	2,720,000	63,580,000	4,420,000	68,000,000	65,450,000	5,270,000	70,720,000
Tobacco	lb.	21,000,000	8,680,000	29,680,000	49,340,000	15,680,000	65,020,000	70,340,000	24,360,000	94,700,000
Peanuts	lb.	5,320,000	2,240,000	7,560,000	139,720,000	3,500,000	143,220,000	145,040,000	5,740,000	150,780,000
Soybeans	bu.	4,600	2,300	6,900	41,400	11,500	52,900	46,000	13,800	59,800
Corn	bu.	2,920,000	1,160,000	4,080,000	6,400,000	1,308,000	7,708,000	9,320,000	2,468,000	11,788,000
Sweet potatoes	bu.	54,000	40,000	94,000	433,000	81,000	514,000	487,000	121,000	608,000
Small grain	bu.	99,000	38,000	137,000	421,000	44,000	465,000	520,000	82,000	602,000
All hay	ton	10,300	7,800	18,100	38,500	5,700	44,200	48,800	13,500	62,300
Commercial truck	ton	120,000	68,000	188,000	166,000	6,000	172,000	286,000	74,000	360,000
Livestock products										
Beef and veal	lb.	26,750,000	18,750,000	45,500,000	43,500,000	9,500,000	53,000,000	70,250,000	28,250,000	98,500,000
Pork	lb.	33,020,000	15,748,000	48,768,000	80,660,000	14,732,000	95,392,000	113,680,000	30,480,000	144,160,000
Lamb and mutton	lb.	6,000	6,000	12,000	30,000	6,000	36,000	36,000	12,000	48,000
Poultry	lb.	3,197,000	5,524,000	8,721,000	8,766,000	5,258,000	14,024,000	11,963,000	10,782,000	32,745,000
Eggs	doz.	3,326,400	2,721,600	6,048,000	7,291,600	2,030,400	9,322,000	10,618,000	4,752,000	15,370,000
Milk	lb.	48,100,000	33,300,000	81,400,000	81,112,000	14,800,000	95,912,000	129,212,000	48,100,000	177,312,000
Livestock inventory										
Cattle and calves	hd.	107,000	75,000	182,000	174,000	38,000	212,000	281,000	113,000	394,000
Milk cows	hd.	6,500	4,500	11,000	11,000	2,000	13,000	17,500	6,500	24,000
Ewes	hd.	150	150	300	750	150	900	900	300	1,200
Hogs and pigs	hd.	130,000	62,000	192,000	317,000	58,000	375,000	447,000	120,000	567,000
Layers	no.	154,000	126,000	280,000	336,000	94,000	430,000	490,000	220,000	710,000

TABLE 3.71

Crop and Livestock Production in the Suwannee Basin—2000

Item	Unit	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	1,050,000	560,000	1,610,000	47,740,000	3,150,000	50,890,000	48,790,000	3,710,000	52,500,000
Cottonseed	lb.	1,575,000	840,000	2,415,000	71,610,000	4,725,000	76,335,000	73,185,000	5,565,000	78,750,000
Tobacco	lb.	35,910,000	14,805,000	50,715,000	84,179,000	26,933,000	111,112,000	120,089,000	41,738,000	161,827,000
Peanuts	lb.	9,100,000	3,640,000	12,740,000	214,760,000	5,460,000	220,220,000	223,860,000	9,100,000	232,960,000
Soybeans	bu.	6,000	3,000	9,000	66,000	18,000	84,000	72,000	21,000	93,000
Corn	bu.	4,538,000	1,776,000	6,314,000	9,955,000	2,035,000	11,990,000	14,493,000	3,811,000	18,304,000
Sweet potatoes	bu.	88,000	70,000	158,000	681,000	122,000	803,000	769,000	192,000	961,000
Small grain	bu.	168,000	63,000	231,000	681,000	67,000	748,000	849,000	130,000	979,000
All hay	ton	16,700	13,000	29,700	57,200	8,800	66,000	73,900	21,800	95,700
Commercial truck	ton	204,000	114,000	318,000	278,000	10,000	288,000	482,000	124,000	606,000
Livestock products										
Beef and veal	lb.	46,332,000	33,462,000	79,794,000	65,024,000	14,872,000	79,896,000	111,356,000	48,334,000	159,690,000
Pork	lb.	60,788,000	29,058,000	89,846,000	119,929,000	23,380,000	143,309,000	180,717,000	52,438,000	233,155,000
Lamb and mutton	lb.	9,000	9,000	18,000	40,000	9,000	49,000	49,000	18,000	67,000
Poultry	lb.	5,179,000	8,949,000	14,128,000	14,139,000	8,518,000	22,657,000	19,318,000	17,467,000	36,785,000
Eggs	doz.	4,075,000	3,350,000	7,425,000	8,943,000	2,350,000	11,293,000	13,018,000	5,700,000	18,718,000
Milk	lb.	66,450,000	48,675,000	115,125,000	104,591,000	19,470,000	124,061,000	171,041,000	68,145,000	239,186,000

(continued)

TABLE 3.71—Continued

Item	Unit	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Livestock inventory										
Cattle and calves	hd.	162,000	117,000	279,000	227,000	52,000	279,000	389,000	169,000	558,000
Milk cows	hd.	7,500	5,500	13,000	11,800	2,200	14,000	19,300	7,700	27,000
Ewes	hd.	200	200	400	900	200	1,100	1,100	400	1,500
Hogs and pigs	hd.	182,000	87,000	269,000	360,000	70,000	430,000	542,000	157,000	699,000
Layers	no.	163,000	134,000	297,000	353,000	100,000	453,000	516,000	234,000	750,000

TABLE 3.72

Crop and Livestock Production in the Ochlockonee Basin—1959

Item	Unit	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Crops								
Cotton	lb.	235,500	171,000	406,500	8,079,000	8,314,500	171,000	8,485,500
Cottonseed	lb.	423,900	307,800	731,700	17,542,200	14,966,100	307,800	15,273,900
Tobacco	lb.	4,812,594	1,531,397	6,343,991	8,944,298	13,756,892	1,531,397	15,288,289
Peanuts	lb.	1,114,318	467,299	1,581,617	26,358,025	27,472,343	467,299	27,939,642
Soybeans	bu.	3,614	664	4,278	24,651	28,265	664	28,929
Corn	bu.	1,242,087	303,437	1,545,524	4,342,579	5,584,666	303,437	5,888,103
Sweet potatoes	bu.	16,014	6,161	22,175	100,674	116,688	6,161	122,849
Small grain	bu.	23,676	12,469	36,145	123,058	146,734	12,469	159,203
All hay	ton	14,837	2,319	17,156	14,056	28,893	2,319	31,212
Commercial truck	ton	8,000	4,700	12,700	40,300	48,300	4,700	53,000
Livestock products								
Beef and veal	lb.	8,100,000	4,050,000	12,150,000	11,250,000	19,350,000	4,050,000	23,400,000
Pork	lb.	5,157,000	4,584,000	9,741,000	20,843,000	26,000,000	4,584,000	30,584,000
Lamb and mutton	lb.	3,500	--	3,500	17,500	21,000	--	21,000
Poultry	lb.	1,435,000	380,000	1,815,000	2,438,000	3,873,000	380,000	4,253,000
Eggs	doz.	1,724,000	695,000	2,419,000	3,558,000	5,282,000	695,000	5,977,000
Milk	lb.	23,000,000	13,800,000	36,800,000	18,400,000	41,400,000	13,800,000	55,200,000
Livestock inventory								
Cattle and calves	hd.	36,000	18,000	54,000	50,000	86,000	18,000	104,000
Milk cows	hd.	5,000	3,000	8,000	4,000	9,000	3,000	12,000
Ewes	hd.	100	--	100	500	600	--	600
Hogs and pigs	hd.	27,000	24,000	51,000	109,000	136,000	24,000	160,000
Layers	no.	124,000	50,000	174,000	256,000	380,000	50,000	430,000

TABLE 3.73

Crop and Livestock Production in the Ochlockonee Basin—1975

Item	Unit	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Crops								
Cotton	lb.	300,000	200,000	500,000	15,100,000	15,400,000	200,000	15,600,000
Cottonseed	lb.	510,000	340,000	850,000	25,670,000	26,180,000	340,000	26,520,000
Tobacco	lb.	7,700,000	2,520,000	10,220,000	14,280,000	21,980,000	2,520,000	24,500,000
Peanuts	lb.	2,100,000	910,000	3,010,000	49,210,000	51,310,000	910,000	52,220,000

(continued)

TABLE 3.73—Continued

Item	Unit	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Soybeans	bu.	6,900	3,500	10,400	10,300	17,200	3,500	20,700
Corn	bu.	1,360,000	640,000	2,000,000	4,184,000	5,544,000	640,000	6,184,000
Sweet potatoes	bu.	40,500	13,500	54,000	135,000	175,500	13,500	189,000
Small grain	bu.	41,600	22,400	64,000	154,000	195,600	22,400	218,000
All hay	ton	22,200	4,300	26,500	21,000	43,200	4,300	47,500
Commercial truck	ton	18,000	10,800	28,800	87,200	105,200	10,800	116,000
Livestock products								
Beef and veal	lb.	16,750,000	8,250,000	25,000,000	23,000,000	39,750,000	8,250,000	48,000,000
Pork	lb.	9,652,000	8,636,000	18,288,000	38,408,000	48,060,000	8,636,000	56,696,000
Lamb and mutton	lb.	4,000	--	4,000	12,000	16,000	--	16,000
Poultry	lb.	1,980,000	524,000	2,504,000	3,371,000	5,351,000	524,000	5,875,000
Eggs	doz.	1,922,000	778,000	2,700,000	4,010,000	5,932,000	778,000	6,710,000
Milk	lb.	44,400,000	25,550,000	69,950,000	33,482,000	77,882,000	25,550,000	103,432,000
Livestock inventory								
Cattle and calves	hd.	67,000	33,000	100,000	92,000	159,000	33,000	192,000
Milk cows	hd.	6,000	3,500	9,500	4,500	10,500	3,500	14,000
Ewes	hd.	100	--	100	300	400	--	400
Hogs and pigs	hd.	38,000	34,000	72,000	151,000	189,000	34,000	223,000
Layers	no.	89,000	36,000	125,000	185,000	274,000	36,000	310,000

TABLE 3.74

Crop and Livestock Production in the Ochlockonee Basin—2000

Item	Unit	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Crops								
Cotton	lb.	245,000	140,000	385,000	14,615,000	14,860,000	140,000	15,000,000
Cottonseed	lb.	368,000	210,000	578,000	21,922,000	22,290,000	210,000	22,500,000
Tobacco	lb.	11,655,000	3,780,000	15,435,000	21,420,000	33,075,000	3,780,000	36,855,000
Peanuts	lb.	3,276,000	1,456,000	4,732,000	77,168,000	80,444,000	1,456,000	81,900,000
Soybeans	bu.	10,500	6,000	16,500	16,500	27,000	6,000	33,000
Corn	bu.	2,090,000	990,000	3,080,000	6,523,000	8,613,000	990,000	9,603,000
Sweet potatoes	bu.	70,000	17,000	87,000	210,000	280,000	17,000	297,000
Small grain	bu.	67,200	37,800	105,000	248,000	315,200	37,800	353,000
All hay	ton	34,100	6,600	40,700	31,900	66,000	6,600	72,600
Commercial truck	ton	30,000	18,000	48,000	132,000	162,000	18,000	180,000
Livestock products								
Beef and veal	lb.	26,884,000	13,156,000	40,040,000	37,510,000	64,394,000	13,156,000	77,550,000
Pork	lb.	15,698,000	14,028,000	29,726,000	61,999,000	77,697,000	14,028,000	91,725,000
Lamb and mutton	lb.	4,500	--	4,500	17,500	22,000	--	22,000
Poultry	lb.	3,208,000	849,000	4,057,000	5,443,000	8,651,000	849,000	9,500,000
Eggs	doz.	2,325,000	950,000	3,275,000	4,830,000	7,155,000	950,000	8,105,000
Milk	lb.	62,006,000	35,440,000	97,446,000	53,160,000	115,166,000	35,440,000	150,606,000
Livestock inventory								
Cattle and calves	hd.	94,000	46,000	140,000	131,000	225,000	46,000	271,000
Milk cows	hd.	7,000	4,000	11,000	6,000	13,000	4,000	17,000
Ewes	hd.	100	--	100	400	500	--	500
Hogs and pigs	hd.	47,000	42,000	89,000	186,000	233,000	42,000	275,000
Layers	no.	93,000	38,000	131,000	194,000	287,000	38,000	325,000

TABLE 3.75

Crop and Livestock Production in the Apalachicola-Chattahoochee-Flint Basins—1959

Item	Unit	Alabama			Florida			Georgia			
		Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Crops											
Cotton	lb.	2,215,500	14,157,000	16,372,500	1,595,000	38,000	1,633,000	43,000	12,439,500	46,867,500	59,350,000
Cottonseed	lb.	3,987,900	25,482,600	29,470,500	2,871,000	68,400	2,939,400	77,400	22,391,100	84,361,500	106,830,000
Tobacco	lb.	--	--	--	1,340,732	--	1,340,732	--	--	5,213,852	5,213,852
Peanuts	lb.	15,408	48,638,324	48,653,732	20,655,639	233,742	20,889,381	--	213,011	284,174,671	284,387,682
Soybeans	bu.	88	5,476	5,564	37,934	5,751	43,685	113	10,196	128,506	138,815
Corn	bu.	177,125	2,341,745	2,518,870	1,402,502	19,392	1,421,894	84,279	1,497,526	12,800,013	14,381,818
Sweet potatoes	bu.	9,400	52,690	62,090	12,750	430	13,180	970	63,700	335,650	400,320
Small grain	bu.	28,174	205,952	234,126	80,372	4,608	84,980	2,943	619,576	2,220,551	2,843,070
All hay	ton	5,795	11,425	17,220	6,432	315	6,747	1,480	53,106	63,291	117,877
Commercial truck	ton	1,350	22,500	23,850	12,350	100	12,450	450	26,200	64,050	90,700
Livestock products											
Beef and veal	lb.	4,972,000	16,498,000	21,470,000	9,040,000	384,000	9,424,000	791,000	31,866,000	58,474,000	91,131,000
Pork	lb.	1,432,000	21,010,000	22,442,000	10,696,000	497,000	11,193,000	707,000	12,988,000	63,533,000	77,228,000
Lamb and mutton	lb.	17,500	17,500	35,000	7,000	500	7,500	5,000	83,500	75,000	163,500
Poultry	lb.	3,954,000	7,205,000	11,159,000	1,675,000	67,000	1,742,000	32,404,000	246,770,000	43,027,000	322,201,000
Eggs	doz.	1,176,000	3,475,000	4,651,000	2,702,000	210,000	2,912,000	2,168,000	29,885,000	10,424,000	42,477,000
Milk	lb.	17,484,000	34,507,000	51,991,000	27,606,000	1,840,000	29,446,000	4,601,000	128,857,000	116,405,000	249,863,000
Livestock inventory											
Cattle and calves	hd.	22,000	73,000	95,000	40,000	1,700	41,700	3,500	141,000	258,800	403,300
Milk cows	hd.	3,800	7,500	11,300	6,000	400	6,400	1,000	28,000	25,300	54,300
Ewes	hd.	500	500	1,000	200	10	210	150	2,400	2,140	4,690
Hogs and pigs	hd.	7,500	110,000	117,500	56,000	2,600	58,600	3,700	68,000	332,200	403,900
Layers	no.	84,600	250,000	334,600	194,400	15,100	209,500	156,000	2,150,000	749,900	3,055,900

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Crops						
Cotton	lb.	43,000	14,655,000	62,619,500	38,000	77,355,500
Cottonseed	lb.	77,400	26,379,000	112,715,100	68,400	139,239,900
Tobacco	lb.	--	--	6,554,584	--	6,554,584
Peanuts	lb.	--	228,419	353,468,634	233,742	353,930,795
Soybeans	bu.	113	10,284	171,916	5,751	188,064
Corn	bu.	84,279	1,674,651	16,544,260	19,392	18,322,582
Sweet potatoes	bu.	970	73,100	401,090	430	475,590
Small grain	bu.	2,943	647,750	2,506,875	4,608	3,162,176
All hay	ton	1,480	58,901	81,148	315	141,844
Commercial truck	ton	450	27,550	98,900	100	127,000
Livestock products						
Beef and veal	lb.	791,000	36,838,000	84,012,000	384,000	122,025,000
Pork	lb.	707,000	14,420,000	95,239,000	497,000	110,863,000
Lamb and mutton	lb.	5,000	101,000	99,500	500	206,000
Poultry	lb.	32,404,000	250,724,000	51,907,000	67,000	335,102,000
Eggs	doz	2,168,000	31,061,000	16,601,000	210,000	50,040,000
Milk	lb.	4,601,000	146,341,000	178,518,000	1,840,000	331,300,000
Livestock inventory						
Cattle and calves	hd.	3,500	163,000	371,800	1,700	540,000
Milk cows	hd.	1,000	31,800	38,800	400	72,000
Ewes	hd.	150	2,900	2,840	10	5,900
Hogs and pigs	hd.	3,700	75,500	498,200	2,600	580,000
Layers	no.	156,000	2,234,600	1,194,300	15,100	3,600,000

TABLE 3.76

Crop and Livestock Production in the Apalachicola-Chattahoochee-Flint Basins—1975

Item	Unit	Alabama			Florida			Georgia			
		Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Crops											
Cotton	lb.	2,500,000	28,300,000	30,800,000	2,000,000	--	2,000,000	--	10,000,000	82,000,000	92,000,000
Cottonseed	lb.	4,250,000	48,110,000	52,360,000	3,400,000	--	3,400,000	--	17,000,000	139,400,000	156,400,000
Tobacco	lb.	--	--	--	2,240,000	--	2,240,000	--	--	7,420,000	7,420,000
Peanuts	lb.	--	114,380,000	114,380,000	43,820,000	--	43,820,000	--	--	510,260,000	510,260,000
Soybeans	bu.	--	18,400	18,400	46,000	--	46,000	--	--	48,300	48,300
Corn	bu.	280,000	3,680,000	3,960,000	1,960,000	40,000	2,000,000	68,000	2,280,000	14,564,000	16,912,000
Sweet potatoes	bu.	21,600	108,000	129,600	27,000	--	27,000	--	175,000	478,400	613,400
Small grain	bu.	38,400	198,400	236,800	92,800	6,400	99,200	6,400	713,600	2,162,000	2,882,000
All hay	ton	12,900	37,000	49,900	20,000	400	20,400	3,200	123,900	123,500	250,600
Commercial truck	ton	1,600	34,400	36,000	18,800	400	19,200	400	33,500	111,600	145,600
Livestock products											
Beef and veal	lb.	9,750,000	32,750,000	42,500,000	18,000,000	750,000	18,750,000	1,250,000	58,250,000	121,750,000	181,250,000
Pork	lb.	2,540,000	38,862,000	41,402,000	19,812,000	508,000	20,320,000	1,016,000	21,590,000	121,104,000	143,710,000
Lamb and mutton	lb.	10,000	10,000	20,000	6,000	--	6,000	4,000	74,000	56,000	134,000
Poultry	lb.	5,457,000	9,943,000	15,400,000	2,311,000	95,000	2,406,000	44,718,000	340,744,000	59,377,000	444,839,000
Eggs	doz.	1,706,000	4,990,000	6,696,000	3,910,000	302,000	4,212,000	3,132,000	42,898,000	15,212,000	61,242,000
Milk	lb.	29,552,000	66,492,000	96,044,000	51,716,000	3,694,000	55,410,000	7,388,000	247,498,000	206,864,000	461,750,000
Livestock inventory											
Cattle and calves	hd.	39,000	131,000	170,000	72,000	3,000	75,000	5,000	233,000	486,000	724,000
Milk cows	hd.	4,000	9,000	13,000	7,000	500	7,500	1,000	33,500	28,000	62,500
Ewes	hd.	250	250	500	150	--	150	100	1,850	1,400	3,350
Hogs and pigs	hd.	10,000	153,000	163,000	78,000	2,000	80,000	4,000	85,000	476,000	565,000
Layers	no.	79,000	231,000	310,000	181,000	14,000	195,000	145,000	1,986,000	697,000	2,828,000

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Crops						
Cotton	lb.	--	12,500,000	112,300,000	--	124,800,000
Cottonseed	lb.	--	21,250,000	190,910,000	--	212,160,000
Tobacco	lb.	--	--	9,660,000	--	9,660,000
Peanuts	lb.	--	--	668,460,000	--	668,460,000
Soybeans	bu.	--	--	112,700	--	112,700
Corn	bu.	68,000	2,560,000	20,204,000	40,000	22,872,000
Sweet potatoes	bu.	--	156,600	613,400	--	770,000
Small grain	bu.	6,400	752,000	2,453,200	6,400	3,218,000
All hay	ton	3,200	136,800	180,500	400	320,900
Commercial truck	ton	400	35,200	164,800	400	200,800
Livestock products						
Beef and veal	lb.	1,250,000	68,000,000	172,500,000	750,000	242,500,000
Pork	lb.	1,016,000	24,130,000	179,778,000	508,000	205,432,000
Lamb and mutton	lb.	4,000	84,000	72,000	--	160,000
Poultry	lb.	44,718,000	346,201,000	71,631,000	95,000	462,645,000
Eggs	doz.	3,132,000	44,604,000	24,112,000	302,000	72,150,000
Milk	lb.	7,388,000	277,050,000	325,072,000	3,694,000	613,204,000
Livestock inventory						
Cattle and calves	hd.	5,000	272,000	689,000	3,000	969,000
Milk cows	hd.	1,000	37,500	44,000	500	83,000
Ewes	hd.	100	2,100	1,800	--	4,000
Hogs and pigs	hd.	4,000	95,000	707,000	2,000	808,000
Layers	no.	145,000	2,065,000	1,109,000	14,000	3,333,000

TABLE 3.77

Crop and Livestock Production in the Apalachicola-Chattahoochee-Flint Basins—2000

Item	Unit	Alabama			Florida			Georgia			
		Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Crops											
Cotton	lb.	3,500,000	51,100,000	54,600,000	2,800,000	--	2,800,000	--	10,500,000	145,850,000	156,350,000
Cottonseed	lb.	5,250,000	76,650,000	81,900,000	4,200,000	--	4,200,000	--	15,750,000	218,775,000	234,525,000
Tobacco	lb.	--	--	--	3,150,000	--	3,150,000	--	--	11,340,000	11,340,000
Peanuts	lb.	--	192,920,000	192,920,000	74,620,000	--	74,620,000	--	--	781,528,000	781,528,000
Soybeans	bu.	--	30,000	30,000	60,000	15,000	75,000	--	--	72,000	72,000
Corn	bu.	440,000	5,720,000	6,160,000	3,025,000	82,000	3,107,000	110,000	3,520,000	22,622,000	26,252,000
Sweet potatoes	bu.	35,000	140,000	175,000	70,000	35,000	105,000	--	227,000	716,000	943,000
Small grain	bu.	67,900	336,000	403,000	151,000	17,000	168,000	13,000	1,331,000	3,314,000	4,658,000
All hay	ton	19,800	57,200	77,000	30,800	2,200	33,000	4,400	198,000	178,200	380,600
Commercial truck	ton	3,000	54,000	57,000	30,000	3,000	33,000	3,000	54,000	177,000	234,000
Livestock products											
Beef and veal	lb.	16,874,000	50,622,000	67,496,000	27,742,000	1,430,000	29,172,000	2,288,000	100,100,000	193,024,000	295,412,000
Pork	lb.	3,340,000	66,800,000	70,140,000	35,404,000	1,336,000	36,740,000	1,336,000	33,400,000	190,604,000	225,340,000
Lamb and mutton	lb.	22,500	22,500	45,000	9,000	--	9,000	4,500	89,500	81,000	175,000
Poultry	lb.	9,823,000	13,920,000	23,743,000	3,466,000	142,000	3,608,000	76,000,000	549,929,000	95,000,000	720,929,000
Eggs	doz.	3,240,000	7,800,000	11,040,000	7,008,000	552,000	7,560,000	5,616,000	75,946,000	27,175,000	108,737,000
Milk	lb.	53,100,000	141,600,000	194,700,090	97,350,000	8,800,000	106,150,000	8,800,000	532,152,000	300,900,000	841,852,000
Livestock inventory											
Cattle and calves	hd.	59,000	177,000	236,000	97,000	5,000	102,000	8,000	350,000	674,000	1,032,000
Milk cows	hd.	6,000	16,000	22,000	11,000	1,000	12,000	1,000	60,000	34,000	95,000
Ewes	hd.	500	500	1,000	200	--	200	100	2,000	1,800	3,900
Hogs and pigs	hd.	10,000	200,000	210,000	106,000	4,000	110,000	4,000	100,000	572,000	676,000
Layers	no.	135,000	312,000	447,000	292,000	23,000	315,000	234,000	3,017,000	1,087,000	4,338,000

(continued)

TABLE 3.77—Continued

Item	Unit	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Crops						
Cotton	lb.	--	14,000,000	199,750,000	--	213,750,000
Cottonseed	lb.	--	21,000,000	299,625,000	--	320,625,000
Tobacco	lb.	--	--	14,490,000	--	14,490,000
Peanuts	lb.	--	--	1,049,068,000	--	1,049,068,000
Soybeans	bu.	--	--	162,000	15,000	177,000
Corn	bu.	110,000	3,960,000	31,367,000	82,000	35,519,000
Sweet potatoes	bu.	--	262,000	926,000	35,000	1,223,000
Small grain	bu.	13,000	1,398,000	3,801,000	17,000	5,229,000
All hay	ton	4,400	217,800	266,200	2,200	490,600
Commercial truck	ton	3,000	57,000	261,000	3,000	324,000
Livestock products						
Beef and veal	lb.	2,288,000	116,974,000	271,388,000	1,430,000	392,080,000
Pork	lb.	1,336,000	36,740,000	292,808,000	1,336,000	332,220,000
Lamb and mutton	lb.	4,500	112,000	112,500	--	229,000
Poultry	lb.	76,000,000	559,752,000	112,386,000	142,000	748,280,000
Eggs	doz.	5,616,000	79,186,000	41,983,000	552,000	127,337,000
Milk	lb.	8,800,000	585,252,000	539,850,000	8,800,000	1,142,702,000
Livestock inventory						
Cattle and calves	hd.	8,000	409,000	948,000	5,000	1,370,000
Milk cows	hd.	1,000	66,000	61,000	1,000	129,000
Ewes	hd.	100	2,500	2,500	--	5,100
Hogs and pigs	hd.	4,000	110,000	878,000	4,000	996,000
Layers	no.	234,000	3,152,000	1,691,000	23,000	5,100,000

TABLE 3.78

Crop and Livestock Production in the Choctawhatchee-Perdido Basins—1959

Item	Unit	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	3,573,500	379,000	3,952,500	36,793,500	22,000	36,815,500	40,367,000	401,000	40,768,000
Cottonseed	lb.	6,432,300	682,200	7,114,500	66,228,300	39,600	66,267,900	72,660,600	721,800	73,382,400
Tobacco	lb.	44,503	--	44,503	258,180	--	258,180	302,683	--	302,683
Peanuts	lb.	11,095,037	988,837	12,083,874	97,663,732	141	97,663,873	108,758,769	988,978	109,747,747
Soybeans	bu.	460,945	59,368	520,313	943,673	80,287	1,023,960	1,404,618	139,655	1,544,273
Corn	bu.	1,290,967	142,744	1,433,711	8,273,089	41,876	8,314,965	9,564,056	184,620	9,748,676
Sweet potatoes	bu.	9,211	1,597	10,880	138,805	2,639	141,444	148,016	4,236	152,252
Small grain	bu.	241,599	28,511	270,110	454,841	18,626	473,467	696,440	47,137	743,577
All hay	ton	9,711	1,922	11,633	25,757	354	26,111	35,468	2,276	37,744
Commercial truck	ton	14,600	700	15,300	45,500	2,400	47,900	60,100	3,100	63,200
Livestock products										
Beef and veal	lb.	14,625,000	2,250,000	16,875,000	53,550,000	450,000	54,000,000	68,175,000	2,700,000	70,875,000
Pork	lb.	14,325,000	1,719,000	16,044,000	75,326,000	191,000	75,517,000	89,651,000	1,910,000	91,561,000
Lamb and mutton	lb.	21,000	1,800	22,800	34,400	2,800	37,200	55,400	4,600	60,000
Poultry	lb.	2,355,000	518,000	2,873,000	10,981,000	20,000	11,001,000	13,336,000	538,000	13,874,000
Eggs	doz.	3,544,000	653,000	4,197,000	9,995,000	125,000	10,120,000	13,539,000	778,000	14,317,000
Milk	lb.	64,400,000	9,200,000	73,600,000	145,360,000	1,840,000	147,200,000	209,760,000	11,040,000	220,800,000
Livestock inventory										
Cattle and calves	hd.	65,000	10,000	75,000	238,000	2,000	240,000	303,000	12,000	315,000
Milk cows	hd.	14,000	2,000	16,000	31,600	400	32,000	45,600	2,400	48,000
Ewes	hd.	600	50	650	970	80	1,050	1,570	130	1,700
Hogs and pigs	hd.	75,000	9,000	84,000	394,000	1,000	395,000	469,000	10,000	479,000
Layers	no.	255,000	47,000	302,000	719,000	9,000	728,000	974,000	56,000	1,030,000

TABLE 3.79

Crop and Livestock Production in the Choctawhatchee-Perdido Basins—1975

Item	Unit	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	5,360,000	568,000	5,928,000	66,872,000	--	66,872,000	72,232,000	568,000	72,800,000
Cottonseed	lb.	9,112,000	966,000	10,078,000	113,682,000	--	113,682,000	122,794,000	966,000	123,760,000
Tobacco	lb.	--	--	--	980,000	--	980,000	980,000	--	980,000
Peanuts	lb.	26,600,000	2,520,000	29,120,000	236,320,000	--	236,320,000	262,920,000	2,520,000	265,440,000
Soybeans	bu.	138,000	4,600	142,600	305,800	6,900	312,700	443,800	11,500	455,300
Corn	bu.	2,120,000	220,000	2,340,000	10,784,000	32,000	10,816,000	12,904,000	252,000	13,156,000
Sweet potatoes	bu.	16,200	2,700	18,900	264,100	--	264,100	280,300	2,700	283,000
Small grain	bu.	320,000	35,200	355,200	564,800	24,000	588,800	884,800	59,200	944,000
All hay	ton	45,600	8,600	54,200	103,300	1,500	104,800	148,900	10,100	159,000
Commercial truck	ton	16,400	800	17,200	52,000	2,800	54,800	68,400	3,600	72,000
Livestock products										
Beef and veal	lb.	27,500,000	4,250,000	31,750,000	106,750,000	750,000	107,500,000	134,250,000	5,000,000	139,250,000
Pork	lb.	28,448,000	3,302,000	31,750,000	137,326,000	254,000	137,580,000	165,774,000	3,556,000	169,330,000
Lamb and mutton	lb.	20,000	2,000	22,000	24,000	2,000	26,000	44,000	4,000	48,000
Poultry	lb.	3,250,000	715,000	3,965,000	15,162,000	28,000	15,190,000	18,412,000	743,000	19,155,000
Eggs	doz.	4,774,000	840,000	5,614,000	13,172,000	154,000	13,326,000	17,946,000	994,000	18,940,000
Milk	lb.	148,000,000	21,900,000	169,900,000	219,424,000	2,190,000	221,614,000	367,424,000	24,090,000	391,514,000
Livestock inventory										
Cattle and calves	hd.	110,000	17,000	127,000	426,000	3,000	429,000	536,000	20,000	556,000
Milk cows	hd.	20,000	3,000	23,000	29,700	300	30,000	49,700	3,300	53,000
Ewes	hd.	500	50	550	600	50	650	1,100	100	1,200
Hogs and pigs	hd.	112,000	13,000	125,000	540,000	1,000	541,000	652,000	14,000	666,000
Layers	no.	217,000	40,000	257,000	611,000	7,000	618,000	828,000	47,000	875,000

TABLE 3.80

Crop and Livestock Production in the Choctawhatchee-Perdido Basins—2000

Item	Unit	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
		Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Crops										
Cotton	lb.	6,300,000	490,000	6,790,000	105,710,000	--	105,710,000	112,010,000	490,000	112,500,000
Cottonseed	lb.	9,450,000	735,000	10,185,000	158,565,000	--	158,565,000	168,015,000	735,000	168,750,000
Tobacco	lb.	--	--	--	1,575,000	--	1,575,000	1,575,000	--	1,575,000
Peanuts	lb.	41,860,000	4,004,000	45,864,000	370,734,000	--	370,734,000	412,594,000	4,004,000	416,598,000
Soybeans	bu.	216,000	7,500	223,500	480,000	10,500	490,500	696,000	18,000	714,000
Corn	bu.	3,300,000	341,000	3,641,000	16,741,500	49,500	16,791,000	20,041,500	390,500	20,432,000
Sweet potatoes	bu.	35,000	17,500	52,500	402,500	--	402,500	437,500	17,500	455,000
Small grain	bu.	520,800	58,800	579,600	920,800	33,600	954,400	1,441,600	92,400	1,534,000
All hay	ton	70,400	13,200	83,600	157,400	2,000	159,400	227,800	15,200	243,000
Commercial truck	ton	27,000	2,400	29,400	80,400	4,200	84,600	107,400	6,600	114,000
Livestock products										
Beef and veal	lb.	47,190,000	7,436,000	54,626,000	169,170,000	1,144,000	170,314,000	216,360,000	8,580,000	224,940,000
Pork	lb.	59,786,000	6,680,000	66,466,000	207,720,000	334,000	208,054,000	267,506,000	7,014,000	274,520,000
Lamb and mutton	lb.	27,000	2,300	29,300	36,400	2,300	38,700	63,400	4,600	68,000
Poultry	lb.	5,362,000	1,180,000	6,542,000	24,392,000	46,000	24,438,000	29,754,000	1,226,000	30,980,000
Eggs	doz.	14,000,000	1,920,000	15,920,000	27,480,000	288,000	27,768,000	41,480,000	2,208,000	43,688,000
Milk	lb.	356,000,000	34,000,000	390,000,000	290,366,000	1,720,000	292,086,000	646,366,000	35,720,000	682,086,000
Livestock inventory										
Cattle and calves	hd.	165,000	26,000	191,000	591,000	4,000	595,000	756,000	30,000	786,000
Milk cows	hd.	40,000	40,000	44,000	32,800	200	33,000	72,800	4,200	77,000
Ewes	hd.	600	50	650	800	50	850	1,400	100	1,500
Hogs and pigs	hd.	179,000	20,000	199,000	623,000	1,000	624,000	802,000	21,000	823,000
Layers	no.	560,000	80,000	640,000	1,098,000	12,000	1,110,000	1,658,000	92,000	1,750,000

TABLE 3.81
Major Uses of Land in the Southeast River Basins Area—1959
(acres)

Item	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Onfarm land										
Cropland										
Cotton	--	57,240	597,540	23,450	158,070	3,130	191,590	604,480	37,100	836,300
Cottonseed	--	--	--	--	--	--	--	--	--	--
Tobacco	20	80	68,810	16,740	250	30	90	57,050	28,730	85,900
Peanuts (picked and threshed)	--	1,170	464,320	41,610	181,500	20	800	670,840	16,940	688,600
Soybeans	30	28,720	126,590	26,600	48,360	1,040	15,360	175,130	38,770	230,300
Corn	1,360	83,360	2,312,870	427,590	576,620	15,250	245,560	2,705,100	435,890	3,401,800
Sweet potatoes	10	1,030	15,000	1,170	2,190	80	2,540	13,140	3,640	19,400
Small grain	50	89,100	345,270	19,510	24,670	6,600	198,570	257,090	16,340	478,600
All hay	1,550	47,000	310,530	37,120	69,400	10,350	203,740	227,390	24,120	465,600
Fruits and nuts	90	3,850	188,890	40,190	24,180	1,270	39,100	195,390	21,440	257,200
Commercial truck	100	8,290	87,230	30,080	19,400	660	16,200	113,470	14,770	145,100
Miscellaneous and other	90	7,160	126,050	72,140	5,060	1,170	22,500	157,920	28,910	210,500
Subtotal harvested cropland	3,300	327,000	4,643,100	736,200	1,109,700	39,600	936,050	5,177,000	666,650	6,819,300
Idle, fallow, or failure	1,100	116,000	1,064,600	291,900	200,900	21,500	475,500	1,007,400	170,100	1,674,500
Pasture										
Cropland pastured	1,300	110,500	1,214,300	268,500	273,400	13,900	595,200	1,082,000	176,900	1,868,000
Woodland pastured	4,200	146,600	2,914,700	1,335,600	905,200	29,400	1,039,900	3,053,100	1,183,900	5,306,300
Other pasture	3,200	105,700	1,155,200	341,400	422,400	32,300	668,500	1,131,500	195,600	2,027,900
Subtotal all pasture	8,700	362,800	5,284,200	1,945,500	1,601,000	75,600	2,303,600	5,266,600	1,556,400	9,202,200
Woodland not pastured	10,300	460,700	6,355,800	878,600	1,083,400	146,000	1,819,900	5,454,300	1,368,600	8,788,800
Other farmland										
Farmsteads, roads, etc.	450	14,700	135,950	23,700	35,000	4,650	59,800	121,350	24,000	209,800
Other onfarm land	460	18,220	210,660	131,690	63,770	4,100	68,430	245,340	106,930	424,800
Small bodies of water	90	8,980	153,990	24,710	24,830	1,550	48,420	125,310	37,320	212,600
Subtotal other farmland with water	1,000	41,900	500,600	180,100	123,600	10,300	176,650	492,000	168,250	847,200
Subtotal other farmland without water	910	32,920	346,610	155,390	98,770	8,750	128,230	366,690	130,930	634,600
Total farmland with small bodies of water	24,400	1,308,400	17,848,300	4,032,300	4,118,600	293,000	5,711,700	17,397,300	3,930,000	27,332,000
Total farmland without small bodies of water	24,310	1,299,420	17,694,310	4,007,590	4,093,770	291,450	5,663,280	17,271,990	3,892,680	27,119,400
Off-farm agricultural land										
Cropland										
Corn	130	1,770	10,670	2,400	2,830	1,020	7,180	7,800	1,800	17,800
Hay	--	100	900	120	180	--	600	600	100	1,300
Other	40	610	3,620	930	1,200	350	2,430	3,010	610	6,400
Pasture	600	8,400	50,160	11,640	13,200	4,800	34,200	36,660	8,340	84,000
Woodland	1,210	17,950	110,240	25,110	17,690	9,290	70,970	68,990	22,950	172,200
Other farmland										
Farmsteads, roads, etc.	150	2,100	12,540	2,910	3,300	1,200	8,550	9,160	2,090	21,000
Other off-farm land	860	12,100	72,210	16,370	18,860	6,900	48,730	52,385	11,385	119,400
Small bodies of water	10	70	1,460	320	240	40	640	945	475	2,100
Subtotal other farmland with water	1,020	14,270	85,210	19,600	22,400	8,140	57,920	62,490	13,950	142,500
Subtotal other farmland without water	1,010	14,200	83,750	19,280	22,160	8,100	57,280	61,545	13,475	140,400
Total off-farm land with water	3,000	43,100	260,800	59,800	57,500	23,600	173,300	179,550	47,750	424,200
Total off-farm land without water	2,990	43,030	259,340	59,480	57,260	23,560	172,660	178,605	47,275	422,100
Nonfarm woodland with water	81,600	1,312,260	12,915,500	7,658,740	2,571,500	458,320	5,165,560	11,552,990	7,362,730	24,539,600
Small bodies of water	180	3,710	59,970	34,750	5,740	640	23,100	44,590	36,020	104,350
Nonfarm woodland without water	81,420	1,308,550	12,855,530	7,623,990	2,565,760	457,680	5,142,460	11,508,400	7,326,710	24,435,250
Total agricultural land with water	109,000	2,663,760	31,024,600	11,750,840	6,747,600	774,920	11,050,560	29,129,840	11,340,480	52,295,800
Small bodies of water	280	12,760	215,420	59,780	30,810	2,230	72,160	170,845	73,815	319,050
Total agricultural land without water	108,720	2,651,000	30,809,180	11,691,060	6,716,790	772,690	10,987,400	28,958,995	11,266,665	51,976,750
Social, service, other land with water	3,000	190,000	1,932,200	563,400	374,320	30,200	548,800	1,128,080	1,355,840	3,062,920
Small bodies of water	10	470	8,660	2,990	1,070	60	2,800	4,035	6,305	13,200
Social, service, other land without water	2,990	189,530	1,923,540	560,410	373,250	30,140	546,000	1,124,045	1,349,535	3,049,720
Total land area with water	112,000	2,853,760	32,956,800	12,314,240	7,121,920	805,120	11,599,360	30,257,920	12,696,320	55,358,720
Small bodies of water	290	13,230	224,080	62,770	31,880	2,290	74,960	174,880	80,120	332,250
Total land area without water	111,710	2,840,530	32,732,720	12,251,470	7,090,040	802,830	11,524,400	30,083,040	12,616,200	55,026,470
Summary of woodland without water										
Farm woodland pastured	4,200	146,600	2,914,700	1,335,600	905,200	29,400	1,039,900	3,053,100	1,183,900	5,306,300
Farm woodland not pastured	10,300	460,700	6,355,800	878,600	1,083,400	146,000	1,819,900	5,454,300	1,368,600	8,788,800
Off-farm agricultural woodland	1,210	17,950	110,240	25,110	17,690	9,290	70,970	68,990	22,950	172,200
Nonfarm woodland	81,420	1,308,550	12,855,530	7,623,990	2,565,760	457,680	5,142,460	11,508,400	7,326,710	24,435,250
Total woodland	97,130	1,933,800	22,236,270	9,863,300	4,572,050	642,370	8,073,230	20,084,790	9,902,160	38,702,550
Control for small water bodies										
Water on farms (Census)	90	8,980	153,990	24,710	24,830	1,550	48,420	125,310	37,320	212,600
Water on nonagricultural farms	10	70	1,460	320	240	40	640	945	475	2,100
Water on nonfarm woodland	180	3,710	59,970	34,750	5,740	640	23,100	44,590	36,020	104,350
Water on social, service, other land	10	470	8,660	2,990	1,070	60	2,800	4,035	6,305	13,200
Total small bodies of water	290	13,230	224,080	62,770	31,880	2,290	74,960	174,880	80,120	332,250
Percent of all small bodies of water on Census farms	31	68	69	39	78	68	65	72	47	64

TABLE 3.82
Major Uses of Land in the Southeast River Basins Area—1975
(acres)

Item	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Onfarm land										
Cropland										
Cotton	--	61,000	763,600	20,050	195,350	2,000	168,500	828,950	40,550	1,040,000
Cottonseed	--	--	--	--	--	--	--	--	--	--
Tobacco	--	130	130,720	30,450	700	--	100	109,050	52,850	162,000
Peanuts (picked and threshed)	--	1,600	631,750	59,750	250,500	--	500	919,850	23,250	943,600
Soybeans	--	8,050	33,300	8,950	14,400	100	3,200	50,300	11,100	64,700
Corn	1,150	59,200	1,432,950	262,300	369,400	11,350	165,400	1,692,650	255,600	2,125,000
Sweet potatoes	--	1,350	19,390	1,540	2,920	50	3,360	17,020	4,770	25,200
Small grain	50	92,700	360,850	20,600	25,800	6,850	209,750	266,050	17,350	500,000
All hay	1,500	64,000	420,800	63,800	81,500	13,900	274,800	306,500	36,400	631,600
Fruits and nuts	90	3,800	187,360	39,750	24,000	1,240	38,150	194,510	21,100	255,000
Commercial truck	110	10,900	158,590	64,000	22,700	710	20,200	203,490	31,900	256,300
Miscellaneous and other	100	8,200	102,060	19,010	17,230	1,300	18,340	110,130	16,830	146,600
Subtotal harvested cropland	3,000	310,930	4,241,370	590,200	1,004,500	37,500	902,300	4,698,500	511,700	6,150,000
Idle, fallow, or failure	300	40,500	421,840	96,360	93,000	4,600	108,200	477,950	61,250	652,000
Pasture										
Cropland pastured	4,000	154,000	2,057,000	485,000	498,000	37,000	836,300	1,965,300	359,400	3,198,000
Woodland pastured	5,000	174,000	2,865,500	954,500	768,000	43,000	1,000,000	3,011,100	712,900	4,767,000
Other pasture	3,000	103,000	1,148,200	279,800	366,000	25,000	510,000	1,190,100	174,900	1,900,000
Subtotal all pasture	12,000	431,000	6,070,700	1,719,300	1,632,000	105,000	2,346,300	6,166,500	1,247,200	9,865,000
Woodland not pastured	6,950	419,570	5,695,540	1,273,540	1,114,800	120,350	1,813,500	4,892,900	1,683,650	8,510,400
Other farmland										
Farmsteads, roads, etc.	350	13,700	130,420	23,130	34,000	4,950	54,990	118,040	23,620	201,600
Other onfarm land	370	10,210	175,690	81,380	63,750	4,200	43,590	205,250	78,340	331,400
Small bodies of water	230	16,190	212,140	28,990	32,050	2,580	83,720	158,460	44,840	289,600
Subtotal other farmland with water	950	40,100	518,250	133,500	129,800	11,750	182,300	481,750	146,800	822,600
Subtotal other farmland without water	720	23,910	306,110	104,510	97,750	9,170	98,580	323,290	101,960	533,000
Total farmland with small bodies of water	23,200	1,242,100	16,947,700	3,812,900	3,974,100	279,200	5,352,600	16,717,600	3,650,600	26,000,000
Total farmland without small bodies of water	22,970	1,225,910	16,735,560	3,783,910	3,942,050	276,620	5,268,880	16,559,140	3,605,760	25,710,400
Off-farm agricultural land										
Cropland										
Corn	170	2,390	14,290	3,400	3,750	1,340	9,720	10,500	2,440	24,000
Hay	--	150	1,100	200	250	--	750	800	150	1,700
Other	50	820	5,000	1,250	1,480	410	3,530	3,830	830	8,600
Pasture	700	9,800	58,520	13,580	15,400	5,600	39,900	42,800	9,700	98,000
Woodland	1,410	20,960	127,230	29,140	21,260	11,100	82,500	80,850	25,550	200,000
Other farmland										
Farmsteads, roads, etc.	200	2,600	15,770	3,450	4,080	1,380	10,780	11,300	2,640	26,100
Other off-farm land	660	9,300	54,280	12,440	14,920	5,320	37,020	40,075	9,185	91,600
Small bodies of water	10	80	1,610	340	260	50	700	1,045	505	2,300
Subtotal other farmland with water	870	11,980	71,660	16,230	19,260	6,750	48,500	52,420	12,330	120,000
Subtotal other farmland without water	860	11,900	70,050	15,890	19,000	6,700	47,800	51,375	11,825	117,700
Total off-farm land with water	3,200	46,100	277,800	63,800	61,400	25,200	184,900	191,200	51,000	452,300
Total off-farm land without water	3,190	46,020	276,190	63,460	61,140	25,150	184,200	190,155	50,495	450,000
Nonfarm woodland with water	82,300	1,341,760	13,429,100	7,781,720	2,641,120	466,320	5,280,500	12,005,020	7,524,160	25,276,000
Small bodies of water	200	4,220	70,080	37,200	7,100	720	26,140	52,450	39,490	118,800
Nonfarm woodland without water	82,100	1,337,540	13,359,020	7,744,520	2,634,020	465,600	5,254,360	11,952,570	7,484,670	25,157,200
Total agricultural land with water	108,700	2,629,960	30,654,600	11,658,420	6,676,620	770,720	10,818,000	28,913,820	11,225,760	51,728,300
Small bodies of water	440	20,490	283,830	66,530	39,410	3,350	110,560	211,955	84,835	410,700
Total agricultural land without water	108,260	2,609,470	30,370,770	11,591,890	6,637,210	767,370	10,707,440	28,701,865	11,140,925	51,317,600
Social, service, other land with water	3,300	223,800	2,302,200	655,820	445,300	34,400	781,360	1,344,100	1,470,560	3,630,420
Small bodies of water	10	480	10,580	3,310	1,320	70	3,640	5,245	6,745	15,700
Social, service, other land without water	3,290	223,320	2,291,620	652,510	443,980	34,330	777,720	1,338,855	1,463,815	3,614,720
Total land area with water	112,000	2,853,760	32,956,800	12,314,240	7,121,920	805,120	11,599,360	30,257,920	12,696,320	55,358,720
Small bodies of water	450	20,970	294,410	69,840	40,730	3,420	114,200	217,200	91,580	426,400
Total land area without water	111,550	2,832,790	32,622,390	12,244,400	7,081,190	801,700	11,485,160	30,040,720	12,604,740	54,932,320
Summary of woodland without water										
Farm woodland pastured	5,000	174,000	2,865,500	954,500	768,000	43,000	1,000,000	3,011,100	712,900	4,767,000
Farm woodland not pastured	6,950	419,570	5,695,540	1,273,540	1,114,800	120,350	1,813,500	4,892,900	1,683,650	8,510,400
Off-farm agricultural woodland	1,410	20,960	127,230	29,140	21,260	11,100	82,500	80,850	25,500	200,000
Nonfarm woodland	82,100	1,337,540	13,359,020	7,744,520	2,634,020	465,600	5,254,360	11,952,570	7,484,670	25,157,200
Total woodland	95,460	1,952,070	22,047,290	10,001,700	4,538,080	640,050	8,150,360	19,937,420	9,906,770	38,634,600
Control for small water bodies										
Water on farms	230	16,190	212,140	28,990	32,050	2,580	83,720	158,460	44,840	289,600
Water on nonagricultural farms	10	80	1,610	340	260	50	700	1,045	505	2,300
Water on nonfarm woodland	200	4,220	70,080	37,200	7,100	720	26,140	52,450	39,490	118,800
Water on social, service, other land	10	480	10,580	3,310	1,320	70	3,640	5,245	6,745	15,700
Total small bodies of water	450	20,970	294,410	69,840	40,730	3,420	114,200	217,200	91,580	426,400
Percent of all small bodies of water on farms	51	77	72	42	79	75	73	73	49	68

TABLE 3.83
Major Uses of Land in the Southeast River Basins Area—2000
(acres)

Item	Total North Carolina	Total South Carolina	Total Georgia	Total Florida	Total Alabama	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total SERB area
Onfarm land										
Cropland										
Cotton	--	60,000	765,850	16,550	229,000	1,000	147,300	889,300	33,800	1,071,400
Cottonseed	--	--	--	--	--	--	--	--	--	--
Tobacco	--	130	173,350	44,520	1,000	--	100	145,580	73,320	219,000
Peanuts (picked and threshed)	--	2,000	751,350	75,950	309,700	--	200	1,108,200	30,600	1,139,000
Soybeans	--	10,500	39,150	10,800	17,350	200	4,050	59,450	14,100	77,800
Corn	1,400	71,000	1,614,800	295,500	417,300	12,900	184,800	1,914,900	287,400	2,400,000
Sweet potatoes	--	1,800	23,300	2,500	3,300	50	4,200	20,550	6,100	30,900
Small grain	50	121,000	439,650	26,000	32,300	9,050	261,050	327,200	21,700	619,000
All hay	2,000	90,000	548,100	86,500	107,500	18,000	348,400	417,700	50,000	834,100
Fruits and nuts	120	5,000	233,930	51,050	29,900	1,820	46,300	244,280	27,600	320,000
Commercial truck	150	11,500	169,450	72,100	23,600	1,200	22,050	217,650	35,900	276,800
Miscellaneous and other	80	12,070	143,670	25,630	30,550	1,880	27,250	159,190	23,680	212,000
Subtotal harvested cropland	3,800	385,000	4,902,600	707,100	1,201,500	46,100	1,045,700	5,504,000	604,200	7,200,000
Idle, fallow, or failure	350	38,500	333,750	79,700	77,700	4,150	83,610	393,300	48,940	530,000
Pasture										
Cropland pastured	7,000	260,000	3,318,400	824,600	790,000	62,000	1,364,300	3,181,800	591,900	5,200,000
Woodland pastured	4,000	158,000	2,480,600	866,400	649,000	36,000	870,000	2,621,800	630,200	4,158,000
Other pasture	3,000	97,000	1,017,900	265,100	317,000	23,000	455,000	1,063,300	158,700	1,700,000
Subtotal all pasture	14,000	515,000	6,816,900	1,956,100	1,756,000	121,000	2,689,300	6,866,900	1,380,800	11,058,000
Woodland not pastured	3,480	210,310	4,018,710	804,100	806,200	84,710	1,230,480	3,262,690	1,264,920	5,842,800
Other farmland										
Farmsteads, roads, etc	200	13,200	121,400	21,200	31,400	4,800	47,000	112,600	23,000	187,400
Other onfarm land	300	8,200	143,820	71,650	57,730	3,170	28,310	181,210	69,010	281,700
Small bodies of water	570	26,890	293,620	36,850	42,170	4,770	129,760	210,100	55,470	400,100
Subtotal other farmland with water	1,070	48,290	558,840	129,700	131,300	12,740	205,070	503,910	147,480	869,200
Subtotal other farmland without water	500	21,400	265,220	92,850	89,130	7,970	75,310	293,810	92,010	469,100
Total farmland with small bodies of water	22,700	1,197,100	16,630,800	3,676,700	3,972,700	268,700	5,254,160	16,530,800	3,446,340	25,500,000
Total farmland without small bodies of water	22,130	1,170,210	16,337,180	3,639,850	3,930,530	263,930	5,124,400	16,320,700	3,390,870	25,099,900
Off-farm agricultural land										
Cropland										
Corn	220	3,200	18,720	4,490	4,970	1,740	12,810	13,790	3,260	31,600
Hay	--	250	1,480	350	320	100	950	1,070	280	2,400
Other	70	1,080	6,560	1,610	1,880	550	4,730	4,930	990	11,200
Pasture	900	12,600	75,240	17,460	19,800	7,200	51,500	55,000	12,300	126,000
Woodland	1,700	23,980	149,780	33,230	26,310	12,960	97,830	96,620	27,590	235,000
Other farmland										
Farmsteads, roads, etc	200	3,000	17,950	4,130	4,270	1,620	12,400	13,020	2,960	30,000
Other off-farm land	500	7,000	39,795	9,305	10,700	3,970	26,960	29,410	6,960	67,300
Small bodies of water	10	90	1,875	425	300	60	820	1,210	610	2,700
Subtotal other farmland with water	710	10,090	59,620	13,860	15,720	5,650	40,180	43,640	10,530	100,000
Subtotal other farmland without water	700	10,000	57,745	13,435	15,420	5,590	39,360	42,430	9,920	97,340
Total off-farm land with water	3,600	51,200	311,400	71,000	69,000	28,200	208,000	215,050	54,950	506,200
Total off-farm land without water	3,590	51,110	309,525	70,575	68,700	28,140	207,180	213,840	54,340	503,500
Nonfarm woodland with water	81,700	1,258,460	12,496,300	7,642,820	2,396,720	459,120	4,557,140	11,483,320	7,376,420	23,876,000
Small bodies of water	210	4,350	72,495	37,345	7,400	770	26,780	54,270	39,980	121,800
Nonfarm woodland without water	81,490	1,254,110	12,423,805	7,605,475	2,389,320	458,350	4,530,360	11,429,050	7,336,440	23,754,200
Total agricultural land with water	108,000	2,506,760	29,438,500	11,390,520	6,438,420	756,020	10,019,300	28,229,170	10,877,710	49,882,200
Small bodies of water	790	31,330	367,990	74,620	49,870	5,600	157,360	265,580	96,060	524,600
Total agricultural land without water	107,210	2,475,430	29,070,510	11,315,900	6,388,550	750,420	9,861,940	27,963,590	10,781,650	49,357,600
Social, service, other land with water	4,000	347,000	3,518,300	923,720	683,500	49,100	1,580,060	2,028,750	1,818,610	5,476,520
Small bodies of water	10	650	16,260	4,600	2,080	110	7,410	7,700	8,380	23,600
Social, service, other land without water	3,990	346,350	3,502,040	919,120	681,420	48,990	1,572,650	2,021,050	1,810,230	5,452,920
Total land area with water	112,000	2,853,760	32,956,800	12,314,240	7,121,920	805,120	11,599,360	30,257,920	12,696,320	55,358,720
Small bodies of water	800	31,980	384,250	79,220	51,950	5,710	164,770	273,280	104,440	548,200
Total land area without water	111,200	2,821,780	32,572,550	12,235,020	7,069,970	799,410	11,434,590	29,984,640	12,591,880	54,810,520
Summary of woodland without water										
Farm woodland pastured	4,000	158,000	2,480,600	866,400	649,000	36,000	870,000	2,621,800	630,200	4,158,000
Farm woodland not pastured	3,480	210,310	4,018,710	804,100	806,200	84,710	1,230,480	3,262,690	1,264,920	5,842,800
Off-farm agricultural woodland	1,700	23,980	149,780	33,230	26,310	12,960	97,830	96,620	27,590	235,000
Nonfarm woodland	81,490	1,254,110	12,423,805	7,605,475	2,389,320	458,350	4,530,360	11,429,050	7,336,440	23,754,200
Total woodland	90,670	1,646,400	19,072,895	9,309,205	3,870,830	592,020	6,728,670	17,410,160	9,259,150	33,990,000
Control for small water bodies										
Water on farms	570	26,890	293,620	36,850	42,170	4,770	129,760	210,100	55,470	400,100
Water on nonagricultural farms	10	90	1,875	425	300	60	820	1,210	610	2,700
Water on nonfarm woodland	210	4,350	72,495	37,345	7,400	770	26,780	54,270	39,980	121,800
Water on social, service, other land	10	650	16,260	4,600	2,080	110	7,410	7,700	8,380	23,600
Total small bodies of water	800	31,980	384,250	79,220	51,950	5,710	164,770	273,280	104,440	548,200
Percent of all small bodies of water on farms	71	84	76	47	81	84	79	77	53	73

TABLE 3.84
Major Uses of Land in the Savannah Basin by States—1959
(acres)

Item	North Carolina	South Carolina					Georgia				
	Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Onfarm land											
Cropland											
Cotton	--	2,940	35,800	16,100	2,400	57,240	100	45,960	33,440	3,360	82,860
Cottonseed	--	--	--	--	--	--	--	--	--	--	--
Tobacco	20	10	50	10	10	80	--	30	30	140	200
Peanuts (picked and threshed)	--	20	110	760	280	1,170	--	80	5,270	1,180	6,530
Soybeans	30	410	6,330	16,340	5,640	28,720	500	1,070	13,720	5,960	21,250
Corn	1,360	7,080	29,810	34,700	11,770	83,360	4,390	44,700	71,550	20,540	141,180
Sweet potatoes	10	50	340	550	90	1,030	10	240	250	860	1,360
Small grain	50	6,090	62,780	16,380	3,850	89,100	300	66,150	19,500	2,100	88,050
All hay	1,550	4,060	35,080	6,400	1,460	47,000	3,500	38,650	9,600	2,300	54,050
Fruits and nuts	90	410	1,120	2,060	260	3,850	570	1,660	2,460	570	5,260
Commercial truck	100	210	1,280	5,600	1,200	8,290	230	1,930	3,380	670	6,210
Miscellaneous and other	90	520	4,000	1,800	840	7,160	400	3,230	2,300	1,020	6,950
Subtotal harvested cropland	3,300	21,800	176,700	100,700	27,800	327,000	10,000	203,700	161,500	38,700	413,900
Idle, fallow, or failure	1,100	13,000	73,100	22,200	7,700	116,000	4,900	97,300	40,900	6,800	149,900
Pasture											
Cropland pastured	1,300	7,400	80,500	17,800	4,800	110,500	3,800	80,700	44,500	10,800	139,800
Woodland pastured	4,200	15,100	102,100	20,700	8,700	146,600	6,300	231,200	60,900	31,100	329,500
Other pasture	3,200	14,900	80,500	8,200	2,100	105,700	8,700	133,400	16,800	5,100	164,000
Subtotal all pasture	8,700	37,400	263,100	46,700	15,600	362,800	18,800	445,300	122,200	47,000	633,300
Woodland not pastured	10,300	56,600	245,400	111,900	46,800	460,700	49,200	355,700	181,200	83,400	669,500
Other farmland											
Farmsteads, roads, etc	450	1,950	9,900	2,250	600	14,700	1,500	12,250	3,000	1,200	17,950
Other onfarm land	460	1,930	9,090	5,060	2,140	18,220	510	13,490	2,330	6,670	23,000
Small bodies of water	90	120	6,010	1,590	1,260	8,980	1,090	6,260	6,470	2,930	16,750
Subtotal other farmland with water	1,000	4,000	25,000	8,900	4,000	41,900	3,100	32,000	11,800	10,800	57,700
Subtotal other farmland without water	910	3,880	18,990	7,310	2,740	32,920	2,010	25,740	5,330	7,870	40,950
Total farmland with small bodies of water	24,400	132,800	783,300	290,400	101,900	1,308,400	86,000	1,134,000	517,600	186,700	1,924,300
Total farmland without small bodies of water	24,310	132,680	777,290	283,810	100,640	1,299,420	84,910	1,127,740	511,130	183,770	1,907,550
Off-farm agricultural land											
Cropland											
Corn	130	380	1,130	130	130	1,770	380	1,240	250	130	2,000
Hay	--	--	100	--	--	100	--	200	--	--	200
Other	40	130	400	40	40	610	130	490	90	40	750
Pasture	600	1,800	5,400	600	600	8,400	1,800	6,000	1,200	600	9,600
Woodland	1,210	3,630	11,700	1,310	1,310	17,950	3,630	13,480	2,620	1,310	21,040
Other farmland											
Farmsteads, roads, etc	150	450	1,350	150	150	2,100	450	1,500	300	150	2,400
Other off-farm land	860	2,600	7,780	860	860	12,100	2,600	8,650	1,730	860	13,840
Small bodies of water	10	10	40	10	10	70	10	40	10	10	70
Subtotal other farmland with water	1,020	3,060	9,170	1,020	1,020	14,270	3,060	10,190	2,040	1,020	16,310
Subtotal other farmland without water	1,010	3,050	9,130	1,010	1,010	14,200	3,050	10,150	2,030	1,010	16,240
Total off-farm land with water	3,000	9,000	27,900	3,100	3,100	43,100	9,000	31,600	6,200	3,100	49,900
Total off-farm land without water	2,990	8,990	27,860	3,090	3,090	43,030	8,990	31,560	6,190	3,090	49,830
Nonfarm woodland with water	81,600	167,080	739,720	329,580	75,880	1,312,260	121,480	824,640	372,600	141,680	1,460,400
Small bodies of water	180	240	2,550	820	100	3,710	140	2,230	1,010	380	3,760
Nonfarm woodland without water	81,420	166,840	737,170	328,760	75,780	1,308,550	121,340	822,410	371,590	141,300	1,456,640
Total agricultural land with water	109,000	308,880	1,550,920	623,080	180,880	2,663,760	216,480	1,990,240	896,400	331,480	3,434,600
Small bodies of water	280	370	8,600	2,420	1,370	12,760	1,240	8,530	7,490	3,320	20,580
Total agricultural land without water	108,720	308,510	1,542,320	620,660	179,510	2,651,000	215,240	1,981,710	888,910	328,160	3,414,020
Social, service, other land with water	3,000	6,000	83,000	31,000	70,000	190,000	12,000	52,000	38,000	89,000	191,000
Small bodies of water	10	10	210	80	170	470	30	150	90	220	490
Social, service, other land without water	2,990	5,990	82,790	30,920	69,830	189,530	11,970	51,850	37,910	88,780	190,510
Total land area with water	112,000	314,880	1,633,920	654,080	250,880	2,853,760	228,480	2,042,240	934,400	420,480	3,625,600
Small bodies of water	290	380	8,810	2,500	1,540	13,230	1,270	8,680	7,580	3,540	21,070
Total land area without water	111,710	314,500	1,625,110	651,580	249,340	2,840,530	227,210	2,033,560	926,820	416,940	3,604,530
Summary of woodland without water											
Farm woodland pastured	4,200	15,100	102,100	20,700	8,700	146,600	6,300	231,200	60,900	31,100	329,500
Farm woodland not pastured	10,300	56,600	245,400	111,900	46,800	460,700	49,200	355,700	181,200	83,400	669,500
Off-farm agricultural woodland	1,210	3,630	11,700	1,310	1,310	17,950	3,630	13,480	2,620	1,310	21,040
Nonfarm woodland	81,420	166,840	737,170	328,760	75,780	1,308,550	121,340	822,410	371,590	141,300	1,456,640
Total woodland	97,130	242,170	1,096,370	462,670	132,590	1,933,800	180,470	1,422,790	616,310	257,110	2,476,680
Control for small water bodies											
Water on farms (Census)	90	120	6,010	1,590	1,260	8,980	1,090	6,260	6,470	2,930	16,750
Water on nonagricultural farms	10	10	40	10	10	70	10	40	10	10	70
Water on nonfarm woodland	180	240	2,550	820	100	3,710	140	2,230	1,010	380	3,760
Water on social, service, other land	10	10	210	80	170	470	30	150	90	220	490
Total small bodies of water	290	380	8,810	2,500	1,540	13,230	1,270	8,680	7,580	3,540	21,070
Percent of all small bodies of water on Census farms	31	32	68	64	82	68	86	72	85	83	79

TABLE 3.85

Major Uses of Land in the Savannah Basin by Provinces—1959
(acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Onfarm land					
Cropland					
Cotton	3,040	81,760	49,540	5,760	140,100
Cottonseed	--	--	--	--	--
Tobacco	30	80	40	150	300
Peanuts (picked and threshed)	20	190	6,030	1,460	7,700
Soybeans	940	7,400	30,060	11,600	50,000
Corn	12,830	74,510	106,250	32,310	225,900
Sweet potatoes	70	580	800	950	2,400
Small grain	6,440	128,930	35,880	5,950	177,200
All hay	9,110	73,730	16,000	3,760	102,600
Fruits and nuts	1,070	2,780	4,520	830	9,200
Commercial truck	540	3,210	8,980	1,870	14,600
Miscellaneous and other	1,010	7,230	4,100	1,860	14,200
Subtotal harvested cropland	35,100	380,400	262,200	66,500	744,200
Idle, fallow, or failure	19,000	170,400	63,100	14,500	267,000
Pasture					
Cropland pastured	12,500	161,200	62,300	15,600	251,600
Woodland pastured	25,600	333,300	81,600	39,800	480,300
Other pasture	26,800	213,900	25,000	7,200	272,900
Subtotal all pasture	64,900	708,400	168,900	62,600	1,004,800
Woodland not pastured	116,100	601,100	293,100	130,200	1,140,500
Other farmland					
Farmsteads, roads, etc.	3,900	22,150	5,250	1,800	33,100
Other onfarm land	2,900	22,580	7,390	8,810	41,680
Small bodies of water	1,300	12,270	8,060	4,190	25,820
Subtotal other farmland with water	8,100	57,000	20,700	14,800	100,600
Subtotal other farmland without water	6,800	44,730	12,640	10,610	74,780
Total farmland with small bodies of water	243,200	1,917,300	808,000	288,600	3,257,100
Total farmland without small bodies of water	241,900	1,905,030	799,940	284,410	3,231,280
Off-farm agricultural land					
Cropland					
Corn	890	2,370	380	260	3,900
Hay	--	300	--	--	300
Other	300	890	130	80	1,400
Pasture	4,200	11,400	1,800	1,200	18,600
Woodland	8,470	25,180	3,930	2,620	40,200
Other farmland					
Farmsteads, roads, etc.	1,050	2,850	450	300	4,650
Other off-farm land	6,060	16,430	2,590	1,720	26,800
Small bodies of water	30	80	20	20	150
Subtotal other farmland with water	7,140	19,360	3,060	2,040	31,600
Subtotal other farmland without water	7,110	19,280	3,040	2,020	31,450
Total off-farm land with water	21,000	59,500	9,300	6,200	96,000
Total off-farm land without water	20,970	59,420	9,280	6,180	95,850
Nonfarm woodland with water	370,160	1,564,360	702,180	217,560	2,854,260
Small bodies of water	560	4,780	1,830	480	7,650
Nonfarm woodland without water	369,600	1,559,580	700,350	217,080	2,846,610
Total agricultural land with water	634,360	3,541,160	1,519,480	512,360	6,207,360
Small bodies of water	1,890	17,130	9,910	4,690	33,620
Total agricultural land without water	632,470	3,524,030	1,509,570	507,670	6,173,740
Social, service, other land with water	21,000	135,000	69,000	159,000	384,000
Small bodies of water	50	360	170	390	970
Social, service, other land without water	20,950	134,640	68,830	158,610	383,030
Total land area with water	655,360	3,676,160	1,588,480	671,360	6,591,360
Small bodies of water	1,940	17,490	10,080	5,080	34,590
Total land area without water	653,420	3,658,670	1,578,400	666,280	6,556,770
Summary of woodland without water					
Farm woodland pastured	25,600	333,300	81,600	39,800	480,300
Farm woodland not pastured	116,100	601,100	293,100	130,200	1,140,500
Off-farm agricultural woodland	8,470	25,180	3,930	2,620	40,200
Nonfarm woodland	369,600	1,559,580	700,350	217,080	2,846,610
Total woodland	519,770	2,519,160	1,078,980	389,700	4,507,610
Control for small water bodies					
Water on farms (Census)	1,300	12,270	8,060	4,190	25,820
Water on nonagricultural farms	30	80	20	20	150
Water on nonfarm woodland	560	4,780	1,830	480	7,650
Water on social, service, other land	50	360	170	390	970
Total small bodies of water	1,940	17,490	10,080	5,080	34,590
Percent of all small bodies of water on Census farms	67	70	80	82	75

TABLE 3.86
Major Uses of Land in the Savannah Basin by States—1975
(acres)

Item	North Carolina	South Carolina					Georgia				
	Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Onfarm land											
Cropland											
Cotton	--	2,000	30,000	26,000	3,000	61,000	--	40,000	70,600	5,200	115,800
Cottonseed	--	--	--	--	--	--	--	--	--	--	--
Tobacco	--	--	50	50	30	130	--	50	50	270	370
Peanuts (picked and threshed)	--	--	200	1,000	400	1,600	--	100	7,200	1,700	9,000
Soybeans	--	100	1,800	4,550	1,600	8,050	--	300	4,000	1,650	5,950
Corn	1,150	5,000	21,200	24,600	8,400	59,200	3,500	32,200	47,950	15,400	99,050
Sweet potatoes	0	50	400	800	100	1,350	--	300	300	1,150	1,750
Small grain	50	6,300	65,400	17,000	4,000	92,700	300	69,650	20,200	2,200	92,350
All hay	1,500	5,700	47,300	9,000	2,000	64,000	5,000	53,000	12,500	3,200	73,700
Fruits and nuts	90	400	1,100	2,050	250	3,800	550	1,650	2,460	550	5,210
Commercial truck	110	250	1,500	7,550	1,600	10,900	250	2,400	4,440	1,000	8,090
Miscellaneous and other	100	600	3,050	2,930	1,620	8,200	400	1,350	4,670	1,680	8,100
Subtotal harvested cropland	3,000	20,400	172,000	95,530	23,000	310,930	10,000	201,000	174,370	34,000	419,370
Idle, fallow, or failure	300	2,700	24,000	11,000	2,800	40,500	1,200	28,000	16,300	5,000	50,500
Pasture											
Cropland pastured	4,000	16,000	113,000	18,000	7,000	154,000	12,000	142,000	53,000	19,000	226,000
Woodland pastured	5,000	18,000	129,000	20,000	7,000	174,000	14,000	159,000	59,000	21,000	253,000
Other pasture	3,000	11,000	76,000	12,000	4,000	103,000	8,000	94,000	35,000	13,000	150,000
Subtotal all pasture	12,000	45,000	318,000	50,000	18,000	431,000	34,000	395,000	147,000	53,000	629,000
Woodland not pastured	6,950	54,300	206,100	111,870	47,300	419,570	32,800	413,700	157,980	73,000	677,480
Other farmland											
Farmsteads, roads, etc.	350	2,100	8,600	2,300	700	13,700	1,600	11,350	2,800	1,200	16,950
Other onfarm land	370	1,010	3,070	4,350	1,780	10,210	170	2,360	410	5,960	8,900
Small bodies of water	230	690	12,330	1,850	1,320	16,190	1,230	17,290	8,340	3,240	30,100
Subtotal other farmland with water	950	3,800	24,000	8,500	3,800	40,100	3,000	31,000	11,550	10,400	55,950
Subtotal other farmland without water	720	3,110	11,670	6,650	2,480	23,910	1,770	13,710	3,210	7,160	25,850
Total farmland with small bodies of water	23,200	126,200	744,100	276,900	94,900	1,242,100	81,000	1,068,700	507,200	175,400	1,832,300
Total farmland without small bodies of water	22,970	125,510	731,770	275,050	93,580	1,225,910	79,770	1,051,410	498,860	172,160	1,802,200
Off-farm agricultural land											
Cropland											
Corn	170	500	1,550	170	170	2,390	500	1,700	370	170	2,740
Hay	--	--	150	--	--	150	--	250	--	--	250
Other	50	150	570	50	50	820	150	730	100	50	1,030
Pasture	700	2,100	6,300	700	700	9,800	2,100	7,000	1,400	700	11,200
Woodland	1,410	4,340	13,600	1,510	1,510	20,960	4,340	15,450	3,020	1,320	24,130
Other farmland											
Farmsteads, roads, etc.	200	500	1,700	200	200	2,600	500	1,900	400	200	3,000
Other off-farm land	660	2,000	5,980	660	660	9,300	2,000	6,520	1,300	850	10,670
Small bodies of water	10	10	50	10	10	80	10	50	10	10	80
Subtotal other farmland with water	870	2,510	7,730	870	870	11,980	2,510	8,470	1,710	1,060	13,750
Subtotal other farmland without water	860	2,500	7,680	860	860	11,900	2,500	8,420	1,700	1,050	13,670
Total off-farm land with water	3,200	9,600	29,900	3,300	3,300	46,100	9,600	33,600	6,600	3,300	53,100
Total off-farm land without water	3,190	9,590	29,850	3,290	3,290	46,020	9,590	33,550	6,590	3,290	53,020
Nonfarm woodland with water	82,300	172,480	759,920	336,680	72,680	1,341,760	123,480	869,940	373,600	135,380	1,502,400
Small bodies of water	200	270	2,910	930	110	4,220	160	2,540	1,150	430	4,280
Nonfarm woodland without water	82,100	172,210	757,010	335,750	72,570	1,337,540	123,320	867,400	372,450	134,950	1,498,120
Total agricultural land with water	108,700	308,280	1,533,920	616,880	170,880	2,629,960	214,080	1,973,240	887,400	314,080	3,387,800
Small bodies of water	440	970	15,290	2,790	1,440	20,490	1,400	19,880	9,500	3,680	34,460
Total agricultural land without water	108,260	307,310	1,518,630	614,090	169,440	2,609,470	212,680	1,952,360	877,900	310,400	3,353,340
Social, service, other land with water	3,300	6,600	100,000	37,200	80,000	223,800	14,400	70,000	47,000	106,400	237,800
Small bodies of water	10	10	220	80	170	480	30	200	100	280	610
Social, service, other land without water	3,290	6,590	99,780	37,120	79,830	223,320	14,370	69,800	46,900	106,120	237,190
Total land area with water	112,000	314,880	1,633,920	654,080	250,880	2,853,760	228,480	2,042,240	934,400	420,480	3,625,600
Small bodies of water	450	980	15,510	2,870	1,610	20,970	1,430	20,080	9,600	3,960	35,070
Total land area without water	111,550	313,900	1,618,410	651,210	249,270	2,832,790	227,050	2,022,160	924,800	416,520	3,590,530
Summary of woodland without water											
Farm woodland pastured	5,000	18,000	129,000	20,000	7,000	174,000	14,000	159,000	59,000	21,000	253,000
Farm woodland not pastured	6,950	54,300	206,100	111,870	47,300	419,570	32,800	413,700	157,980	73,000	677,480
Off-farm agricultural woodland	1,410	4,340	13,600	1,510	1,510	20,960	4,340	15,450	3,020	1,320	24,130
Nonfarm woodland	82,100	172,210	757,010	335,750	72,570	1,337,540	123,320	867,400	372,450	134,950	1,498,120
Total woodland	95,460	248,850	1,105,710	469,130	128,380	1,952,070	174,460	1,455,550	592,450	230,270	2,452,730
Control for small water bodies											
Water on farms	230	690	12,330	1,850	1,320	16,190	1,230	17,290	8,340	3,240	30,100
Water on nonagricultural farms	10	10	50	10	10	80	10	50	10	10	80
Water on nonfarm woodland	200	270	2,910	930	110	4,220	160	2,540	1,150	430	4,280
Water on social, service, other land	10	10	220	80	170	480	30	200	100	280	610
Total small bodies of water	450	980	15,510	2,870	1,610	20,970	1,430	20,080	9,600	3,960	35,070
Percent of all small bodies of water on farms	51	70	79	64	82	77	86	86	87	82	86

TABLE 3.87

Major Uses of Land in the Savannah Basin by Provinces—1975
(acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Onfarm land					
Cropland					
Cotton	2,000	70,000	96,600	8,200	176,800
Cottonseed	--	--	--	--	--
Tobacco	--	100	100	300	500
Peanuts (picked and threshed)	--	300	8,200	2,100	10,600
Soybeans	100	2,100	8,550	3,250	14,000
Corn	9,650	53,400	72,550	23,800	159,400
Sweet potatoes	50	700	1,100	1,250	3,100
Small grain	6,650	135,050	37,200	6,200	185,100
All hay	12,200	100,300	21,500	5,200	139,200
Fruits and nuts	1,040	2,750	4,510	800	9,100
Commercial truck	610	3,900	11,990	2,600	19,100
Miscellaneous and other	1,100	4,400	7,600	3,300	16,400
Subtotal harvested cropland	33,400	373,000	269,900	57,000	733,300
Idle, fallow, or failure	4,200	52,000	27,300	7,800	91,300
Pasture					
Cropland pastured	32,000	255,000	71,000	26,000	384,000
Woodland pastured	37,000	288,000	79,000	28,000	432,000
Other pasture	22,000	170,000	47,000	17,000	256,000
Subtotal all pasture	91,000	713,000	197,000	71,000	1,072,000
Woodland not pastured	94,050	619,800	269,850	120,300	1,104,000
Other farmland					
Farmsteads, roads, etc.	4,050	19,950	5,100	1,900	31,000
Other onfarm land	1,550	5,430	4,760	7,740	19,480
Small bodies of water	2,150	29,620	10,190	4,560	46,520
Subtotal other farmland with water	7,750	55,000	20,050	14,200	97,000
Subtotal other farmland without water	5,600	25,380	9,860	9,640	50,480
Total farmland with small bodies of water	230,400	1,812,800	784,100	270,300	3,097,600
Total farmland without small bodies of water	228,250	1,783,180	773,910	265,740	3,051,080
Off-farm agricultural land					
Cropland					
Corn	1,170	3,250	540	340	5,300
Hay	--	400	--	--	400
Other	350	1,300	150	100	1,900
Pasture	4,900	13,300	2,100	1,400	21,700
Woodland	10,090	29,050	4,530	2,830	46,500
Other farmland					
Farmsteads, roads, etc.	1,200	3,600	600	400	5,800
Other off-farm land	4,660	12,500	1,960	1,510	20,630
Small bodies of water	30	100	20	20	170
Subtotal other farmland with water	5,890	16,200	2,580	1,930	26,600
Subtotal other farmland without water	5,860	16,100	2,560	1,910	26,430
Total off-farm land with water	22,400	63,500	9,900	6,600	102,400
Total off-farm land without water	22,370	63,400	9,880	6,580	102,230
Nonfarm woodland with water	378,260	1,860	710,280	208,060	2,926,460
Small bodies of water	630	5,450	2,080	540	8,700
Nonfarm woodland without water	377,630	1,624,410	708,200	207,520	2,917,760
Total agricultural land with water	631,060	3,506,160	1,504,280	484,960	6,126,460
Small bodies of water	2,810	35,170	12,290	5,120	55,390
Total agricultural land without water	628,250	3,470,990	1,491,990	479,840	6,071,070
Social, service, other land with water	24,300	170,000	84,200	186,400	464,900
Small bodies of water	50	420	180	450	1,100
Social, service, other land without water	24,250	169,580	84,020	185,950	463,800
Total land area with water	655,360	3,676,160	1,588,480	671,360	6,591,360
Small bodies of water	2,860	35,590	12,470	5,570	56,490
Total land area without water	652,500	3,640,570	1,576,010	665,790	6,534,870
Summary of woodland without water					
Farm woodland pastured	37,000	288,000	79,000	28,000	432,000
Farm woodland not pastured	94,050	619,800	269,850	120,300	1,104,000
Off-farm agricultural woodland	10,090	29,050	4,530	2,830	46,500
Nonfarm woodland	377,630	1,624,410	708,200	207,520	2,917,760
Total woodland	518,770	2,561,260	1,061,580	358,650	4,500,260
Control for small water bodies					
Water on farms	2,150	29,620	10,190	4,560	46,520
Water on nonagricultural farms	30	100	20	20	170
Water on nonfarm woodland	630	5,450	2,080	540	8,700
Water on social, service, other land	50	420	180	450	1,100
Total small bodies of water	2,860	35,590	12,470	5,570	56,490
Percent of all small bodies of water on farms	75	83	82	82	82

TABLE 3.88
Major Uses of Land in the Savannah Basin by States—2000
(acres)

Item	North Carolina	South Carolina					Georgia				
	Blue Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total
Onfarm land											
Cropland											
Cotton	--	1,000	28,000	28,000	3,000	60,000	--	36,000	70,400	5,000	111,400
Cottonseed	--	--	--	--	--	--	--	--	--	--	--
Tobacco	--	--	50	50	30	130	--	50	50	270	370
Peanuts (picked and threshed)	--	--	--	1,400	600	2,000	--	--	8,300	2,500	10,800
Soybeans	--	200	2,000	6,300	2,000	10,500	--	400	4,100	1,800	6,300
Corn	1,400	5,500	24,000	32,000	9,500	71,000	4,000	36,400	49,800	17,400	107,600
Sweet potatoes	--	50	400	1,050	300	1,800	--	300	400	1,300	2,000
Small grain	50	8,200	85,000	23,000	4,800	121,000	500	80,750	24,300	2,600	108,150
All hay	2,000	8,000	66,000	13,000	3,000	90,000	6,000	65,000	16,300	4,500	91,800
Fruits and nuts	120	500	1,900	2,300	300	5,000	700	1,800	3,080	800	6,380
Commercial truck	150	300	1,600	7,900	1,700	11,500	250	2,450	4,450	1,000	8,150
Miscellaneous and other	80	750	4,550	4,000	2,770	12,070	550	1,850	7,320	1,830	11,550
Subtotal harvested cropland	3,800	24,500	213,500	119,000	28,000	385,000	12,000	225,000	188,500	39,900	464,500
Idle, fallow, or failure	350	2,500	21,200	12,000	2,800	38,500	900	16,750	15,000	2,700	35,350
Pasture											
Cropland pastured	7,000	26,000	195,000	29,000	10,000	260,000	20,000	212,000	89,000	32,000	353,000
Woodland pastured	4,000	15,000	120,000	17,000	6,000	158,000	12,000	129,000	54,000	20,000	215,000
Other pasture	3,000	10,000	72,000	11,000	4,000	97,000	7,000	77,000	33,000	12,000	129,000
Subtotal all pasture	14,000	51,000	387,000	57,000	20,000	515,000	39,000	418,000	176,000	64,000	697,000
Woodland not pastured	3,480	39,810	60,950	72,540	37,010	210,310	23,420	358,530	109,050	53,210	544,210
Other farmland											
Farmsteads, roads, etc.	200	2,200	8,000	2,400	600	13,200	1,600	10,200	3,000	1,200	16,000
Other onfarm land	300	800	2,500	3,500	1,400	8,200	150	1,900	350	4,680	7,080
Small bodies of water	570	2,190	21,150	2,160	1,390	26,890	1,430	33,220	11,260	3,710	49,560
Subtotal other farmland with water	1,070	5,190	31,650	8,060	3,390	48,290	3,180	45,320	14,550	9,590	72,640
Subtotal other farmland without water	500	3,000	10,500	5,900	2,000	21,400	1,750	12,100	3,350	5,880	23,080
Total farmland with small bodies of water	22,700	123,000	714,300	268,600	91,200	1,197,100	78,500	1,063,600	503,100	168,500	1,813,700
Total farmland without small bodies of water	22,130	120,810	693,150	266,440	89,810	1,170,210	77,070	1,030,380	491,900	164,790	1,764,140
Off-farm agricultural land											
Cropland											
Corn	220	660	2,100	220	220	3,200	660	2,210	490	220	3,580
Hay	--	50	200	--	--	250	50	300	--	--	350
Other	70	200	740	70	70	1,080	200	950	130	70	1,350
Pasture	900	2,700	8,100	900	900	12,600	2,700	9,200	1,800	700	14,400
Woodland	1,700	4,980	15,400	1,800	1,800	23,980	4,980	18,620	3,370	1,750	28,720
Other farmland											
Farmsteads, roads, etc.	200	600	2,000	200	200	3,000	600	2,200	400	200	3,400
Other off-farm land	500	1,500	4,500	500	500	7,000	1,500	4,550	1,100	750	7,900
Small bodies of water	10	10	60	10	10	90	10	70	10	10	100
Subtotal other farmland with water	710	2,110	6,560	710	710	10,090	2,110	6,820	1,510	960	11,400
Subtotal other farmland without water	700	2,100	6,500	700	700	10,000	2,100	6,750	1,500	950	11,300
Total off-farm land with water	3,600	10,700	33,100	3,700	3,700	51,200	10,700	38,100	7,300	3,700	59,800
Total off-farm land without water	3,590	10,690	33,040	3,690	3,690	51,110	10,690	38,030	7,290	3,690	59,700
Nonfarm woodland with water	81,700	173,180	726,520	318,780	39,980	1,258,460	116,280	828,540	353,000	80,480	1,378,300
Small bodies of water	210	290	3,000	940	120	4,350	170	2,570	1,160	440	4,340
Nonfarm woodland without water	81,490	172,890	723,520	317,840	39,860	1,254,110	116,110	825,970	351,840	80,040	1,373,960
Total agricultural land with water	108,000	306,880	1,473,920	591,080	134,880	2,506,760	205,480	1,930,240	863,400	252,680	3,251,800
Small bodies of water	790	2,490	24,210	3,110	1,520	31,330	1,610	35,860	12,370	4,160	54,000
Total agricultural land without water	107,210	304,390	1,449,710	587,970	133,360	2,475,430	203,870	1,894,380	851,030	248,520	3,197,800
Social, service, other land with water	4,000	8,000	160,000	63,000	116,000	347,000	23,000	112,000	71,000	167,800	373,800
Small bodies of water	10	10	320	120	200	650	40	280	130	290	740
Social, service, other land without water	3,990	7,990	159,680	62,880	115,800	346,350	22,960	111,720	70,870	167,510	373,060
Total land area with water	112,000	314,880	1,633,920	654,080	250,880	2,853,760	228,480	2,042,240	934,400	420,480	3,625,600
Small bodies of water	800	2,500	24,530	3,230	1,720	31,980	1,650	36,140	12,500	4,450	54,740
Total land area without water	111,200	312,380	1,609,390	650,850	249,160	2,821,780	226,830	2,006,100	921,900	416,030	3,570,860
Summary of woodland without water											
Farm woodland pastured	4,000	15,000	120,000	17,000	6,000	158,000	12,000	129,000	54,000	20,000	215,000
Farm woodland not pastured	3,480	39,810	60,950	72,540	37,010	210,310	23,420	358,530	109,050	53,210	544,210
Off-farm agricultural woodland	1,700	4,980	15,400	1,800	1,800	23,980	4,980	18,620	3,370	1,750	28,720
Nonfarm woodland	81,490	172,890	723,520	317,840	39,860	1,254,110	116,110	825,970	351,840	80,040	1,373,960
Total woodland	90,670	232,680	919,870	409,180	84,670	1,646,400	156,510	1,332,120	518,260	155,000	2,161,890
Control for small water bodies											
Water on farms	570	2,190	21,150	2,160	1,390	26,890	1,430	33,220	11,200	3,710	49,560
Water on nonagricultural farms	10	10	60	10	10	90	10	70	10	10	100
Water on nonfarm woodland	210	290	3,000	940	120	4,350	170	2,570	1,160	440	4,340
Water on social, service, other land	10	10	320	120	200	650	40	280	130	290	740
Total small bodies of water	800	2,500	24,530	3,230	1,720	31,980	1,650	36,140	12,500	4,450	54,740
Percent of all small bodies of water on farms	71	88	86	67	81	84	87	92	90	83	91

TABLE 3.89

Major Uses of Land in the Savannah Basin by Provinces—2000
(acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 1
Onfarm land					
Cropland					
Cotton	1,000	64,000	98,400	8,000	171,400
Cottonseed	--	--	--	--	--
Tobacco	--	100	100	300	500
Peanuts (picked and threshed)	--	--	9,700	3,100	12,800
Soybeans	200	2,400	10,400	3,800	16,800
Corn	10,900	60,400	81,800	26,900	180,000
Sweet potatoes	50	700	1,450	1,600	3,800
Small grain	8,750	165,750	47,300	7,400	229,200
All hay	16,000	131,000	29,300	7,500	183,800
Fruits and nuts	1,320	3,700	5,380	1,100	11,500
Commercial truck	700	4,050	12,350	2,700	19,800
Miscellaneous and other	1,380	6,400	11,320	4,600	23,700
Subtotal harvested cropland	40,300	438,500	307,500	67,000	853,300
Idle, fallow, or failure	3,750	37,950	27,000	5,500	74,200
Pasture					
Cropland pastured	53,000	407,000	118,000	42,000	620,000
Woodland pastured	31,000	249,000	71,000	26,000	377,000
Other pasture	20,000	149,000	44,000	16,000	229,000
Subtotal all pasture	104,000	805,000	233,000	84,000	1,226,000
Woodland not pastured	66,710	419,480	181,590	90,220	758,000
Other farmland					
Farmsteads, roads, etc	4,000	18,200	5,400	1,800	29,400
Other onfarm land	1,250	4,400	3,850	6,080	15,580
Small bodies of water	4,190	54,370	13,360	5,100	77,020
Subtotal other farmland with water	9,440	76,970	22,610	12,980	122,000
Subtotal other farmland without water	5,250	22,600	9,250	7,880	44,980
Total farmland with small bodies of water	224,200	1,777,900	771,700	259,700	3,033,500
Total farmland without small bodies of water	220,010	1,723,530	758,340	254,600	2,956,480
Off-farm agricultural land					
Cropland					
Corn	1,540	4,310	710	440	7,000
Hay	100	500	--	--	600
Other	470	1,690	200	140	2,500
Pasture	6,300	17,300	2,700	1,600	27,900
Woodland	11,660	34,020	5,170	3,550	54,400
Other farmland					
Farmsteads, roads, etc	1,400	4,200	600	400	6,600
Other off-farm land	3,500	9,050	1,600	1,250	15,400
Small bodies of water	30	130	20	20	200
Subtotal other farmland with water	4,930	13,380	2,220	1,670	22,200
Subtotal other farmland without water	4,900	13,250	2,200	1,650	22,000
Total off-farm land with water	25,000	71,200	11,000	7,400	114,600
Total off-farm land without water	24,970	71,070	10,980	7,380	114,400
Nonfarm woodland with water	371,160	1,555,060	671,780	120,460	2,718,460
Small bodies of water	670	5,570	2,100	560	8,900
Nonfarm woodland without water	370,490	1,549,490	669,680	119,900	2,709,560
Total agricultural land with water	620,360	3,404,160	1,454,480	387,560	5,866,560
Small bodies of water	4,890	60,070	15,480	5,680	86,120
Total agricultural land without water	615,470	3,344,090	1,439,000	381,880	5,780,440
Social, service, other land with water	35,000	272,000	134,000	283,800	724,800
Small bodies of water	60	600	250	490	1,400
Social, service, other land without water	34,940	271,400	133,750	283,310	723,400
Total land area with water	655,360	3,676,160	1,588,480	671,360	6,591,360
Small bodies of water	4,950	60,670	15,730	6,170	87,520
Total land area without water	650,410	3,615,490	1,572,750	665,190	6,503,840
Summary of woodland without water					
Farm woodland pastured	31,000	249,000	71,000	26,000	377,000
Farm woodland not pastured	66,710	419,480	181,590	90,220	758,000
Off-farm agricultural woodland	11,660	34,020	5,170	3,550	54,400
Nonfarm woodland	370,490	1,549,490	669,680	119,900	2,709,560
Total woodland	479,860	2 251,990	927,440	239,670	3,898,960
Control for small water bodies					
Water on farms	4,190	54,370	13,360	5,100	77,020
Water on nonagricultural farms	30	130	20	20	200
Water on nonfarm woodland	670	5,570	2,100	560	8,900
Water on social, service, other land	60	600	250	490	1,400
Total small bodies of water	4,950	60,670	15,730	6,170	87,520
Percent of all small bodies of water on farms	85	90	85	83	88

TABLE 3.90

Major Uses of Land in the Ogeechee Basin—1959
(acres)

Item	Georgia			
	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 2
Onfarm land				
Cropland				
Cotton	3,800	72,100	6,600	82,500
Cottonseed	--	--	--	--
Tobacco	--	6,340	1,960	8,300
Peanuts (picked and threshed)	10	19,640	5,150	24,800
Soybeans	200	21,000	5,600	26,800
Corn	4,800	235,500	48,900	289,200
Sweet potatoes	30	610	260	900
Small grain	1,080	38,860	2,660	42,600
All hay	1,960	16,320	3,420	21,700
Fruits and nuts	300	7,550	1,150	9,000
Commercial truck	80	6,060	760	6,900
Miscellaneous and other	990	17,520	290	18,800
Subtotal harvested cropland	13,250	441,500	76,750	531,500
Idle, fallow, or failure	6,300	89,500	16,200	112,000
Pasture				
Cropland pastured	7,200	84,800	18,700	110,700
Woodland pastured	18,700	136,400	81,400	236,500
Other pasture	9,000	45,100	24,400	78,500
Subtotal all pasture	34,900	266,300	124,500	425,700
Woodland not pastured	28,000	509,900	185,100	723,000
Other farmland				
Farmsteads, roads, etc	600	9,150	2,550	12,300
Other onfarm land	1,270	7,140	20,880	29,290
Small bodies of water	380	12,310	5,220	17,910
Subtotal other farmland with water	2,250	28,600	28,650	59,500
Subtotal other farmland without water	1,870	16,290	23,430	41,590
Total farmland with small bodies of water	84,700	1,335,800	431,200	1,851,700
Total farmland without small bodies of water	84,320	1,323,490	425,980	1,833,790
Off-farm agricultural land				
Cropland				
Corn	100	450	350	900
Hay	20	50	30	100
Other	40	140	120	300
Pasture	600	1,800	1,800	4,200
Woodland	2,180	5,740	4,780	12,700
Other farmland				
Farmsteads, roads, etc	150	450	450	1,050
Other off-farm land	500	3,000	2,380	5,880
Small bodies of water	10	70	90	170
Subtotal other farmland with water	660	3,520	2,920	7,100
Subtotal other farmland without water	650	3,450	2,830	6,930
Total off-farm land with water	3,600	11,700	10,000	25,300
Total off-farm land without water	3,590	11,630	9,910	25,130
Nonfarm woodland with water	73,380	607,140	597,960	1,278,480
Small bodies of water	150	4,070	4,120	8,340
Nonfarm woodland without water	73,230	603,070	593,840	1,270,140
Total agricultural land with water	161,680	1,954,640	1,039,160	3,155,480
Small bodies of water	540	16,450	9,430	26,420
Total agricultural land without water	161,140	1,938,190	1,029,730	3,129,060
Social, service, other land with water	6,000	30,000	287,560	323,560
Small bodies of water	20	100	930	1,050
Social, service, other land without water	5,980	29,900	286,630	322,510
Total land area with water	167,680	1,984,640	1,326,720	3,479,040
Small bodies of water	560	16,550	10,360	27,470
Total land area without water	167,120	1,968,090	1,316,360	3,451,570
Summary of woodland without water				
Farm woodland pastured	18,700	136,400	81,400	236,500
Farm woodland not pastured	28,000	509,900	185,100	723,000
Off-farm agricultural woodland	2,180	5,740	4,780	12,700
Nonfarm woodland	73,230	603,070	593,840	1,270,140
Total woodland	122,110	1,255,110	865,120	2,242,340
Control for small water bodies				
Water on farms (Census)	380	12,310	5,220	17,910
Water on nonagricultural farms	10	70	90	170
Water on nonfarm woodland	150	4,070	4,120	8,340
Water on social, service, other land	20	100	930	1,050
Total small bodies of water	560	16,550	10,360	27,470
Percent of small bodies of water on Census farms	68	74	50	65

TABLE 3.91

Major Uses of Land in the Ogeechee Basin—1975
(acres)

Item	Georgia			
	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 2
Onfarm land				
Cropland				
Cotton	3,500	82,900	7,200	93,600
Cottonseed	--	--	--	--
Tobacco	--	13,000	3,600	16,600
Peanuts (picked and threshed)	--	27,000	7,000	34,000
Soybeans	100	4,400	3,000	7,500
Corn	3,000	144,100	35,000	182,100
Sweet potatoes	--	800	400	1,200
Small grain	1,200	40,300	3,000	44,500
All hay	2,500	22,400	4,500	29,400
Fruits and nuts	300	7,450	1,150	8,900
Commercial truck	500	9,300	1,200	11,000
Miscellaneous and other	900	8,050	1,950	10,900
Subtotal harvested cropland	12,000	359,700	68,000	439,700
Idle, fallow, or failure	1,200	36,000	6,800	44,000
Pasture				
Cropland pastured	9,300	128,200	22,500	160,000
Woodland pastured	13,000	139,000	60,000	212,000
Other pasture	6,000	48,000	20,000	74,000
Subtotal all pasture	28,300	315,200	102,500	446,000
Woodland not pastured	30,000	490,000	180,000	700,000
Other farmland				
Farmsteads, roads, etc	540	8,760	2,700	12,000
Other onfarm land	930	3,780	20,380	25,090
Small bodies of water	830	16,260	5,820	22,910
Subtotal other farmland with water	2,300	28,800	28,900	60,000
Subtotal other farmland without water	1,470	12,540	23,080	37,090
Total farmland with small bodies of water	73,800	1,229,700	386,200	1,689,700
Total farmland without small bodies of water	72,970	1,213,440	380,380	1,666,790
Off-farm agricultural land				
Cropland				
Corn	150	600	450	1,200
Hay	20	50	30	100
Other	50	200	150	400
Pasture	700	2,100	2,100	4,900
Woodland	2,480	6,250	5,670	14,400
Other farmland				
Farmsteads, roads, etc	180	640	580	1,400
Other off-farm land	400	2,080	1,930	4,410
Small bodies of water	20	80	90	190
Subtotal other farmland with water	600	2,800	2,600	6,000
Subtotal other farmland without water	580	2,720	2,510	5,810
Total off-farm land with water	4,000	12,000	11,000	27,000
Total off-farm land without water	3,980	11,920	10,910	26,810
Nonfarm woodland with water	83,480	709,940	640,960	1,434,380
Small bodies of water	170	5,180	4,150	9,500
Nonfarm woodland without water	83,310	704,760	636,810	1,424,880
Total agricultural land with water	161,280	1,951,640	1,038,160	3,151,080
Small bodies of water	1,020	21,520	10,060	32,600
Total agricultural land without water	160,260	1,930,120	1,028,100	3,118,480
Social, service, other land with water	6,400	33,000	288,560	327,960
Small bodies of water	30	130	940	1,100
Social, service, other land without water	6,370	32,870	287,620	326,860
Total land area with water	167,680	1,984,640	1,326,720	3,479,040
Small bodies of water	1,050	21,650	11,000	33,700
Total land area without water	166,630	1,962,990	1,315,720	3,445,340
Summary of woodland without water				
Farm woodland pastured	13,000	139,000	60,000	212,000
Farm woodland not pastured	30,000	490,000	180,000	700,000
Off-farm agricultural woodland	2,480	6,250	5,670	14,400
Nonfarm woodland	83,310	704,760	636,810	1,424,880
Total woodland	128,790	1,340,010	882,480	2,351,280
Control for small water bodies				
Water on farms	830	16,260	5,820	22,910
Water on nonagricultural farms	20	80	90	190
Water on nonfarm woodland	170	5,180	4,150	9,500
Water on social, service, other land	30	130	940	1,100
Total small bodies of water	1,050	21,650	11,000	33,700
Percent of all small bodies of water on farms	79	75	53	68

TABLE 3.92

Major Uses of Land in the Ogeechee Basin—2000
(acres)

Item	Georgia			
	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 2
Onfarm land				
Cropland				
Cotton	2,300	82,000	6,800	91,100
Cottonseed	--	--	--	--
Tobacco	--	15,000	4,400	19,400
Peanuts (picked and threshed)	--	32,400	8,600	41,000
Soybeans	150	5,350	3,500	9,000
Corn	2,400	165,300	38,000	205,700
Sweet potatoes	--	1,000	500	1,500
Small grain	2,000	49,000	4,100	55,100
All hay	3,400	29,800	5,600	38,800
Fruits and nuts	600	8,800	1,600	11,000
Commercial truck	500	9,300	1,200	11,000
Miscellaneous and other	650	13,050	1,700	15,400
Subtotal harvested cropland	12,000	411,000	76,000	499,000
Idle, fallow, or failure	860	29,500	5,440	35,800
Pasture				
Cropland pastured	16,300	207,200	36,500	260,000
Woodland pastured	12,000	123,000	50,000	185,000
Other pasture	5,000	45,000	16,000	66,000
Subtotal all pasture	33,300	375,200	102,500	511,000
Woodland not pastured	32,000	259,000	190,000	481,000
Other farmland				
Farmsteads, roads, etc	600	7,600	2,800	11,000
Other onfarm land	990	1,370	19,080	21,440
Small bodies of water	1,410	24,030	7,120	32,560
Subtotal other farmland with water	3,000	33,000	29,000	65,000
Subtotal other farmland without water	1,590	8,970	21,880	32,440
Total farmland with small bodies of water	81,160	1,107,700	402,940	1,591,800
Total farmland without small bodies of water	79,750	1,083,670	395,820	1,559,240
Off-farm agricultural land				
Cropland				
Corn	200	800	600	1,600
Hay	20	50	30	100
Other	100	200	200	500
Pasture	900	2,700	2,700	6,300
Woodland	2,780	7,750	6,170	16,700
Other farmland				
Farmsteads, roads, etc	200	750	650	1,600
Other off-farm land	270	1,360	1,550	3,180
Small bodies of water	30	90	100	220
Subtotal other farmland with water	500	2,200	2,300	5,000
Subtotal other farmland without water	470	2,110	2,200	4,780
Total off-farm land with water	4,500	13,700	12,000	30,200
Total off-farm land without water	4,470	13,610	11,900	29,980
Nonfarm woodland with water	74,520	826,740	600,020	1,501,280
Small bodies of water	180	5,300	4,220	9,700
Nonfarm woodland without water	74,340	821,440	595,800	1,491,580
Total agricultural land with water	160,180	1,948,140	1,014,960	3,123,280
Small bodies of water	1,620	29,420	11,440	42,480
Total agricultural land without water	158,560	1,918,720	1,003,520	3,080,800
Social, service, other land with water	7,500	36,500	311,760	355,760
Small bodies of water	30	210	960	1,200
Social, service, other land without water	7,470	36,290	310,800	354,560
Total land area with water	167,680	1,984,640	1,326,720	3,479,040
Small bodies of water	1,650	29,630	12,400	43,680
Total land area without water	166,030	1,955,010	1,314,320	3,435,360
Summary of woodland without water				
Farm woodland pastured	12,000	123,000	50,000	185,000
Farm woodland not pastured	32,000	259,000	190,000	481,000
Off-farm agricultural woodland	2,780	7,750	6,170	16,700
Nonfarm woodland	74,340	821,440	595,800	1,491,580
Total woodland	121,120	1,211,190	841,970	2,174,280
Control for small water bodies				
Water on farms	1,410	24,030	7,120	32,560
Water on nonagricultural farms	30	90	100	220
Water on nonfarm woodland	180	5,300	4,220	9,700
Water on social, service, other land	30	210	960	1,200
Total small bodies of water	1,650	29,630	12,400	43,680
Percent of all small bodies of water on farms	85	81	57	75

TABLE 3.93

Major Uses of Land in the Altamaha Basin—1959
(acres)

Item	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Onfarm land				
Cropland				
Cotton	68,520	116,640	3,040	188,200
Cottonseed	--	--	--	--
Tobacco	10	10,220	2,370	12,600
Peanuts (picked and threshed)	150	55,700	250	56,100
Soybeans	3,890	35,760	1,950	41,600
Corn	78,460	473,280	35,760	587,500
Sweet potatoes	1,100	2,800	300	4,200
Small grain	46,460	60,700	340	107,500
All hay	73,800	29,760	1,840	105,400
Fruits and nuts	16,400	39,500	500	56,400
Commercial truck	5,460	13,180	860	19,500
Miscellaneous and other	7,050	19,460	1,090	27,600
Subtotal harvested cropland	301,300	857,000	48,300	1,206,600
Idle, fallow, or failure	161,800	161,900	8,400	332,100
Pasture				
Cropland pastured	224,800	176,400	9,700	410,900
Woodland pastured	349,700	453,500	35,100	838,300
Other pasture	213,100	104,700	16,000	333,800
Subtotal all pasture	787,600	734,600	60,800	1,583,000
Woodland not pastured	573,700	1,061,300	107,100	1,742,100
Other farmland				
Farmsteads, roads, etc	17,250	19,650	1,800	38,700
Other onfarm land	22,380	16,440	4,970	43,790
Small bodies of water	17,870	23,510	1,330	42,710
Subtotal other farmland with water	57,500	59,600	8,100	125,200
Subtotal other farmland without water	39,630	36,090	6,770	82,490
Total farmland with small bodies of water	1,881,900	2,874,400	232,700	4,989,000
Total farmland without small bodies of water	1,864,030	2,850,890	231,370	4,946,290
Off-farm agricultural land				
Cropland				
Corn	1,800	1,000	100	2,900
Hay	130	70	--	200
Other	650	350	100	1,100
Pasture	8,400	4,800	600	13,800
Woodland	24,920	14,380	1,900	41,200
Other farmland				
Farmsteads, roads, etc	2,100	1,200	150	3,450
Other off-farm land	12,000	6,900	730	19,630
Small bodies of water	200	100	20	320
Subtotal other farmland with water	14,300	8,200	900	23,400
Subtotal other farmland without water	14,100	8,100	880	23,080
Total off-farm land with water	50,200	28,800	3,600	82,600
Total off-farm land without water	50,000	28,700	3,580	82,280
Nonfarm woodland with water	1,521,740	1,743,560	475,900	3,741,200
Small bodies of water	3,230	8,770	3,910	15,910
Nonfarm woodland without water	1,518,510	1,734,790	471,990	3,725,290
Total agricultural land with water	3,453,840	4,646,760	712,200	8,812,800
Small bodies of water	21,800	32,380	5,260	58,940
Total agricultural land without water	3,432,540	4,614,380	706,940	8,753,860
Social, service, other land with water	182,000	143,000	127,480	452,480
Small bodies of water	810	630	580	2,020
Social, service, other land without water	181,190	142,370	126,900	450,460
Total land area with water	3,635,840	4,789,760	839,680	9,265,280
Small bodies of water	22,110	33,010	5,840	60,960
Total land area without water	3,613,730	4,756,750	833,840	9,204,320
Summary of woodland without water				
Farm woodland pastured	349,700	453,500	35,100	838,300
Farm woodland not pastured	573,700	1,061,300	107,100	1,742,100
Off-farm agricultural woodland	24,920	14,380	1,900	41,200
Nonfarm woodland	1,518,510	1,734,790	471,990	3,725,290
Total woodland	2,466,830	3,263,970	616,090	6,346,890
Control for small water bodies				
Water on farms (Census)	17,870	23,510	1,330	42,710
Water on nonagricultural farms	200	100	20	320
Water on nonfarm woodland	3,230	8,770	3,910	15,910
Water on social, service, other land	810	630	580	2,020
Total small bodies of water	22,110	33,010	5,840	60,960
Percent of all small bodies of water on Census farms	81	71	23	70

TABLE 3.94

Major Uses of Land in the Altamaha Basin—1975
(acres)

Item	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Onfarm land				
Cropland				
Cotton	70,000	171,400	3,000	244,400
Cottonseed	--	--	--	--
Tobacco	--	21,900	3,000	24,900
Peanuts (picked and threshed)	200	76,200	500	76,900
Soybeans	1,000	10,200	500	11,700
Corn	45,000	272,700	20,000	337,700
Sweet potatoes	1,500	3,500	500	5,500
Small grain	50,000	61,800	500	112,300
All hay	100,000	40,500	2,500	143,000
Fruits and nuts	16,000	39,400	500	55,900
Commercial truck	7,000	25,800	1,200	34,000
Miscellaneous and other	7,300	19,800	800	27,900
Subtotal harvested cropland	298,000	743,200	33,000	1,074,200
Idle, fallow, or failure	33,000	84,000	3,600	120,600
Pasture				
Cropland pastured	299,000	255,000	22,000	576,000
Woodland pastured	391,000	333,000	29,000	753,000
Other pasture	164,000	137,000	12,000	313,000
Subtotal all pasture	854,000	725,000	63,000	1,642,000
Woodland not pastured	452,000	1,131,800	102,600	1,686,400
Other farmland				
Farmsteads, roads, etc	16,500	18,500	2,000	37,000
Other onfarm land	12,360	9,050	4,080	25,490
Small bodies of water	27,140	30,450	1,920	59,510
Subtotal other farmland with water	56,000	58,000	8,000	122,000
Subtotal other farmland without water	28,860	27,550	6,080	62,490
Total farmland with small bodies of water	1,693,000	2,742,000	210,200	4,645,200
Total farmland without small bodies of water	1,655,860	2,711,550	208,280	4,585,690
Off-farm agricultural land				
Cropland				
Corn	2,380	1,350	170	3,900
Hay	130	70	--	200
Other	900	500	100	1,500
Pasture	9,800	5,600	700	16,100
Woodland	28,390	16,380	1,930	46,700
Other farmland				
Farmsteads, roads, etc	2,700	1,500	200	4,400
Other off-farm land	9,090	5,190	680	14,960
Small bodies of water	210	110	20	340
Subtotal other farmland with water	12,000	6,800	900	19,700
Subtotal other farmland without water	11,790	6,690	880	19,360
Total off-farm land with water	53,600	30,700	3,800	88,100
Total off-farm land without water	53,390	30,590	3,780	87,760
Nonfarm woodland with water	1,637,240	1,860,060	485,300	3,982,600
Small bodies of water	3,700	9,900	4,500	18,100
Nonfarm woodland without water	1,633,540	1,850,160	480,800	3,964,500
Total agricultural land with water	3,383,840	4,632,760	699,300	8,715,900
Small bodies of water	31,050	40,460	6,440	77,950
Total agricultural land without water	3,352,790	4,592,300	692,860	8,637,950
Social, service, other land with water	252,000	157,000	140,380	549,380
Small bodies of water	1,000	800	700	2,500
Social, service, other land without water	251,000	156,200	139,680	546,880
Total land area with water	3,635,840	4,789,760	839,680	9,265,280
Small bodies of water	32,050	41,260	7,140	80,450
Total land area without water	3,603,790	4,748,500	832,540	9,184,830
Summary of woodland without water				
Farm woodland pastured	391,000	333,000	29,000	753,000
Farm woodland not pastured	452,000	1,131,800	102,600	1,686,400
Off-farm agricultural woodland	28,390	16,380	1,930	46,700
Nonfarm woodland	1,633,540	1,850,160	480,800	3,964,500
Total woodland	2,504,930	3,331,340	614,330	6,450,600
Control for small water bodies				
Water on farms	27,140	30,450	1,920	59,510
Water on nonagricultural farms	210	110	20	340
Water on nonfarm woodland	3,700	9,900	4,500	18,100
Water on social, service, other land	1,000	800	700	2,500
Total small bodies of water	32,050	41,260	7,140	80,450
Percent of all small bodies of water on farms	85	74	27	74

TABLE 3.95

Major Uses of Land in the Altamaha Basin—2000
(acres)

Item	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total Basin 3
Onfarm land				
Cropland				
Cotton	61,000	171,700	3,000	235,700
Cottonseed	--	--	--	--
Tobacco	--	22,200	4,000	26,200
Peanuts (picked and threshed)	200	91,600	1,000	92,800
Soybeans	1,500	11,600	1,000	14,100
Corn	50,000	308,400	23,000	381,400
Sweet potatoes	2,000	4,100	600	6,700
Small grain	60,000	78,200	800	139,000
All hay	115,000	70,000	3,800	188,800
Fruits and nuts	18,000	51,100	1,000	70,100
Commercial truck	8,000	27,000	2,000	37,000
Miscellaneous and other	10,300	27,100	1,800	39,200
Subtotal harvested cropland	326,000	863,000	42,000	1,231,000
Idle, fallow, or failure	26,000	69,000	3,000	98,000
Pasture				
Cropland pastured	464,000	443,000	33,000	940,000
Woodland pastured	324,000	310,000	23,000	657,000
Other pasture	140,000	130,000	10,000	280,000
Subtotal all pasture	928,000	883,000	66,000	1,877,000
Woodland not pastured	264,000	809,800	84,000	1,157,800
Other farmland				
Farmsteads, roads, etc	13,600	19,000	2,000	34,600
Other onfarm land	10,700	5,850	4,940	21,490
Small bodies of water	39,700	41,150	2,060	82,910
Subtotal other farmland with water	64,000	66,000	9,000	139,000
Subtotal other farmland without water	24,300	24,850	6,940	56,090
Total farmland with small bodies of water	1,608,000	2,690,800	204,000	4,502,800
Total farmland without small bodies of water	1,568,300	2,649,650	201,940	4,419,890
Off-farm agricultural land				
Cropland				
Corn	3,120	1,760	220	5,100
Hay	200	100	--	300
Other	1,200	700	100	2,000
Pasture	12,600	7,200	900	20,700
Woodland	32,880	18,940	2,280	54,100
Other farmland				
Farmsteads, roads, etc	3,100	1,600	200	4,900
Other off-farm land	6,560	3,970	570	11,100
Small bodies of water	240	130	30	400
Subtotal other farmland with water	9,900	5,700	800	16,400
Subtotal other farmland without water	9,660	5,570	770	16,000
Total off-farm land with water	59,900	34,400	4,300	98,600
Total off-farm land without water	59,660	34,270	4,270	98,200
Nonfarm woodland with water	1,509,940	1,876,560	477,000	3,863,500
Small bodies of water	3,810	10,170	4,620	18,600
Nonfarm woodland without water	1,506,130	1,866,390	472,380	3,844,900
Total agricultural land with water	3,177,840	4,601,760	685,300	8,464,900
Small bodies of water	43,750	51,450	6,710	101,910
Total agricultural land without water	3,134,090	4,550,310	678,590	8,362,990
Social, service, other land with water	458,000	188,000	154,380	800,380
Small bodies of water	1,600	1,200	1,000	3,800
Social, service, other land without water	456,400	186,800	153,380	796,580
Total land area with water	3,635,840	4,789,760	839,680	9,265,280
Small bodies of water	45,350	52,650	7,710	105,710
Total land area without water	3,590,490	4,737,110	831,970	9,159,570
Summary of woodland without water				
Farm woodland pastured	324,000	310,000	23,000	657,000
Farm woodland not pastured	264,000	809,800	84,000	1,157,800
Off-farm agricultural woodland	32,880	18,940	2,280	54,100
Nonfarm woodland	1,506,130	1,866,390	472,380	3,844,900
Total woodland	2,127,010	3,005,130	581,660	5,713,800
Control for small water bodies				
Water on farms	39,700	41,150	2,060	82,910
Water on nonagricultural farms	240	130	30	400
Water on nonfarm woodland	3,810	10,170	4,620	18,600
Water on social, service, other land	1,600	1,200	1,000	3,800
Total small bodies of water	45,350	52,650	7,710	105,710
Percent of all small bodies of water on farms	88	78	27	78

TABLE 3.96

Major Uses of Land in the Satilla-St. Marys Basins—1959
(acres)

Item	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
	Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land							
Cropland							
Cotton	--	1,270	14,830	16,100	1,270	14,830	16,100
Cottonseed	--	--	--	--	--	--	--
Tobacco	140	350	14,210	14,560	350	14,350	14,700
Peanuts (picked and threshed)	30	2,100	5,170	7,270	2,100	5,200	7,300
Soybeans	--	200	11,700	11,900	200	11,700	11,900
Corn	3,010	6,220	170,370	176,590	6,220	173,380	179,600
Sweet potatoes	30	40	1,230	1,270	40	1,260	1,300
Small grain	--	90	2,210	2,300	90	2,210	2,300
All hay	810	170	6,120	6,290	170	6,930	7,100
Fruits and nuts	340	240	3,620	3,860	240	3,960	4,200
Commercial truck	130	80	1,590	1,670	80	1,720	1,800
Miscellaneous and other	510	40	550	590	40	1,060	1,100
Subtotal harvested cropland	5,000	10,800	231,600	242,400	10,800	236,600	247,400
Idle, fallow, or failure	4,600	1,100	27,600	28,700	1,100	32,200	33,300
Pasture							
Cropland pastured	8,900	900	42,200	43,100	900	51,100	52,000
Woodland pastured	71,700	7,200	215,000	222,200	7,200	286,700	293,900
Other pasture	9,500	1,500	31,000	32,500	1,500	40,500	42,000
Subtotal all pasture	90,100	9,600	288,200	297,800	9,600	378,300	387,900
Woodland not pastured	23,500	11,400	522,500	533,900	11,400	546,000	557,400
Other farmland							
Farmsteads, roads, etc	600	300	8,400	8,700	300	9,000	9,300
Other onfarm land	820	210	10,170	10,380	210	10,990	11,200
Small bodies of water	780	290	13,530	13,820	290	14,310	14,600
Subtotal other farmland with water	2,200	800	32,100	32,900	800	34,300	35,100
Subtotal other farmland without water	1,420	510	18,570	19,080	510	19,990	20,500
Total farmland with small bodies of water	125,400	33,700	1,102,000	1,135,700	33,700	1,227,400	1,261,100
Total farmland without small bodies of water	124,620	33,410	1,088,470	1,121,880	33,410	1,213,090	1,246,500
Off-farm agricultural land							
Cropland							
Corn	50	10	340	350	10	390	400
Hay	--	--	50	50	--	50	50
Other	30	10	60	70	10	90	100
Pasture	240	60	1,500	1,560	60	1,740	1,800
Woodland	880	110	5,560	5,670	110	6,440	6,550
Other farmland							
Farmsteads, roads, etc	60	10	380	390	10	440	450
Other off-farm land	330	45	2,105	2,150	45	2,435	2,480
Small bodies of water	10	5	155	160	5	165	170
Subtotal other farmland with water	400	60	2,640	2,700	60	3,040	3,100
Subtotal other farmland without water	390	55	2,485	2,540	55	2,875	2,930
Total off-farm land with water	1,600	250	10,150	10,400	250	11,750	12,000
Total off-farm land without water	1,590	245	9,995	10,240	245	11,585	11,830
Nonfarm woodland with water	550,440	10,690	1,304,770	1,315,460	10,690	1,855,210	1,865,900
Small bodies of water	3,370	30	4,900	4,930	30	8,270	8,300
Nonfarm woodland without water	547,070	10,660	1,299,870	1,310,530	10,660	1,846,940	1,857,600
Total agricultural land with water	677,440	44,640	2,416,920	2,461,560	44,640	3,094,360	3,139,000
Small bodies of water	4,160	325	18,585	18,910	325	22,745	23,070
Total agricultural land without water	673,280	44,315	2,398,335	2,442,650	44,315	3,071,615	3,115,930
Social, service, other land with water	33,600	800	298,600	299,400	800	332,200	333,000
Small bodies of water	210	5	835	840	5	1,045	1,050
Social, service, other land without water	33,390	795	297,765	298,560	795	331,155	331,950
Total land area with water	711,040	45,440	2,715,520	2,760,960	45,440	3,426,560	3,472,000
Small bodies of water	4,370	330	19,420	19,750	330	23,790	24,120
Total land area without water	706,670	45,110	2,696,100	2,741,210	45,110	3,402,770	3,447,880
Summary of woodland without water							
Farm woodland pastured	71,700	7,200	215,000	222,200	7,200	286,700	293,900
Farm woodland not pastured	23,500	11,400	522,500	533,900	11,400	546,000	557,400
Off-farm agricultural woodland	880	110	5,560	5,670	110	6,440	6,550
Nonfarm woodland	547,070	10,660	1,299,870	1,310,530	10,660	1,846,940	1,857,600
Total woodland	643,150	29,370	2,042,930	2,072,300	29,370	2,686,080	2,715,450
Control for small water bodies							
Water on farms (Census)	780	290	13,530	13,820	290	14,310	14,600
Water on nonagricultural farms	10	5	155	160	5	165	170
Water on nonfarm woodland	3,370	30	4,900	4,930	30	8,270	8,300
Water on social, service, other land	210	5	835	840	5	1,045	1,050
Total small bodies of water	4,370	330	19,420	19,750	330	23,790	24,120
Percent of all small bodies of water on Census farms	18	88	70	70	88	60	61

TABLE 3.97

Major Uses of Land in the Satilla-St. Marys Basins—1975
(acres)

Item	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
	Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land							
Cropland							
Cotton	--	1,200	14,400	15,600	1,200	14,400	15,600
Cottonseed	--	--	--	--	--	--	--
Tobacco	350	650	26,400	27,050	650	26,750	27,400
Peanuts (picked and threshed)	100	2,900	7,000	9,900	2,900	7,100	10,000
Soybeans	--	200	3,100	3,300	200	3,100	3,300
Corn	1,800	4,000	90,000	94,000	4,000	91,800	95,800
Sweet potatoes	100	100	1,500	1,600	100	1,600	1,700
Small grain	100	100	2,200	2,300	100	2,300	2,400
All hay	1,100	300	8,200	8,500	300	9,300	9,600
Fruits and nuts	350	250	3,600	3,850	250	3,950	4,200
Commercial truck	700	300	4,000	4,300	300	4,700	5,000
Miscellaneous and other	400	300	3,500	3,800	300	3,900	4,200
Subtotal harvested cropland	5,000	10,300	163,900	174,200	10,300	168,900	179,200
Idle, fallow, or failure	360	750	11,890	12,640	750	12,250	13,000
Pasture							
Cropland pastured	22,000	3,500	102,500	106,000	3,500	124,500	128,000
Woodland pastured	46,500	7,300	210,200	217,500	7,300	256,700	264,000
Other pasture	6,800	1,100	31,100	32,200	1,100	37,900	39,000
Subtotal all pasture	75,300	11,900	343,800	355,700	11,900	419,100	431,000
Woodland not pastured	37,240	8,150	494,610	502,760	8,150	531,850	540,000
Other farmland							
Farmsteads, roads, etc	550	350	7,700	8,050	350	8,250	8,600
Other onfarm land	750	80	6,870	6,950	80	7,620	7,700
Small bodies of water	800	470	17,430	17,900	470	18,230	18,700
Subtotal other farmland with water	2,100	900	32,000	32,900	900	34,100	35,000
Subtotal other farmland without water	1,300	430	14,570	15,000	430	15,870	16,300
Total farmland with small bodies of water	120,000	32,000	1,046,200	1,078,200	32,000	1,166,200	1,198,200
Total farmland without small bodies of water	119,200	31,530	1,028,770	1,060,300	31,530	1,147,970	1,179,500
Off-farm agricultural land							
Cropland							
Corn	60	20	420	440	20	480	500
Hay	20	0	80	80	0	100	100
Other	30	10	60	70	10	90	100
Pasture	280	100	1,720	1,820	100	2,000	2,100
Woodland	1,110	110	6,180	6,290	110	7,290	7,400
Other farmland							
Farmsteads, roads, etc	70	20	510	530	20	580	600
Other off-farm land	220	35	1,565	1,600	35	1,785	1,820
Small bodies of water	10	5	165	170	5	175	180
Subtotal other farmland with water	300	60	2,240	2,300	60	2,540	2,600
Subtotal other farmland without water	290	55	2,075	2,130	55	2,365	2,420
Total off-farm land with water	1,800	300	10,700	11,000	300	12,500	12,800
Total off-farm land without water	1,790	295	10,535	10,830	295	12,325	12,620
Nonfarm woodland with water	553,940	12,240	1,344,720	1,356,960	12,240	1,898,660	1,910,900
Small bodies of water	3,380	40	5,980	6,020	40	9,360	9,400
Nonfarm woodland without water	550,560	12,200	1,338,740	1,350,940	12,200	1,889,300	1,901,500
Total agricultural land with water	675,740	44,540	2,401,620	2,446,160	44,540	3,077,360	3,121,900
Small bodies of water	4,190	515	23,575	24,090	515	27,765	28,280
Total agricultural land without water	671,550	44,025	2,378,045	2,422,070	44,025	3,049,595	3,093,620
Social, service, other land with water	35,300	900	313,900	314,800	900	349,200	350,100
Small bodies of water	210	5	885	890	5	1,095	1,100
Social, service, other land without water	35,090	895	313,015	313,910	895	348,105	349,000
Total land area with water	711,040	45,440	2,715,520	2,760,960	45,440	3,426,560	3,472,000
Small bodies of water	4,400	520	24,460	24,980	520	28,860	29,380
Total land area without water	706,640	44,920	2,691,060	2,735,980	44,920	3,397,700	3,442,620
Summary of woodland without water							
Farm woodland pastured	46,500	7,300	210,200	217,500	7,300	256,700	264,000
Farm woodland not pastured	37,240	8,150	494,610	502,760	8,150	531,850	540,000
Off-farm agricultural woodland	1,110	110	6,180	6,290	110	7,290	7,400
Nonfarm woodland	550,560	12,200	1,338,740	1,350,940	12,200	1,889,300	1,901,500
Total woodland	635,410	27,760	2,049,730	2,077,490	27,760	2,685,140	2,712,900
Control for small water bodies							
Water on farms	800	470	17,430	17,900	470	18,230	18,700
Water on nonagricultural farms	10	5	165	170	5	175	180
Water on nonfarm woodland	3,380	40	5,980	6,020	40	9,360	9,400
Water on social, service, other land	210	5	885	890	5	1,095	1,100
Total small bodies of water	4,400	520	24,460	24,980	520	28,860	29,380
Percent of all small bodies of water on farms	18	90	71	72	90	63	64

TABLE 3.98

Major Uses of Land in the Satilla-St. Marys Basins—2000
(acres)

Item	Florida	Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 4
	Lower Coastal Plain	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land							
Cropland							
Cotton	--	900	9,800	10,700	900	9,800	10,700
Cottonseed	--	--	--	--	--	--	--
Tobacco	520	880	35,200	36,080	880	35,720	36,600
Peanuts (picked and threshed)	150	4,200	9,750	13,950	4,200	9,900	14,100
Soybeans	--	200	3,800	4,000	200	3,800	4,000
Corn	2,000	4,600	101,600	106,200	4,600	103,600	108,200
Sweet potatoes	200	200	1,700	1,900	200	1,900	2,100
Small grain	200	200	2,600	2,800	200	2,800	3,000
All hay	1,500	400	10,800	11,200	400	12,300	12,700
Fruits and nuts	450	300	4,550	4,850	300	5,000	5,300
Commercial truck	700	300	4,000	4,300	300	4,700	5,000
Miscellaneous and other	280	320	5,600	5,920	320	5,880	6,200
Subtotal harvested cropland	6,000	12,500	189,400	201,900	12,500	195,400	207,900
Idle, fallow, or failure	300	600	9,700	10,300	600	10,000	10,600
Pasture							
Cropland pastured	35,600	5,200	167,200	172,400	5,200	202,800	208,000
Woodland pastured	39,400	5,800	184,800	190,600	5,800	224,200	230,000
Other pasture	6,100	900	28,000	28,900	900	34,100	35,000
Subtotal all pasture	81,100	11,900	380,000	391,900	11,900	461,100	473,000
Woodland not pastured	24,900	3,800	342,300	346,100	3,800	367,200	371,000
Other farmland							
Farmsteads, roads, etc.	600	400	7,400	7,800	400	8,000	8,400
Other onfarm land	1,260	130	5,310	5,440	130	6,570	6,700
Small bodies of water	840	670	23,390	24,060	670	24,230	24,900
Subtotal other farmland with water	2,700	1,200	36,100	37,300	1,200	38,800	40,000
Subtotal other farmland without water	1,860	530	12,710	13,240	530	14,570	15,100
Total farmland with small bodies of water	115,000	30,000	957,500	987,500	30,000	1,072,500	1,102,500
Total farmland without small bodies of water	114,160	29,330	934,110	963,440	29,330	1,048,270	1,077,600
Off-farm agricultural land							
Cropland							
Corn	100	50	550	600	50	650	700
Hay	50	--	150	150	--	200	200
Other	30	10	60	70	10	90	100
Pasture	360	100	2,240	2,340	100	2,600	2,700
Woodland	960	130	6,010	6,140	130	6,970	7,100
Other farmland							
Farmsteads, roads, etc.	80	20	500	520	20	580	600
Other off-farm land	205	30	1,155	1,185	30	1,360	1,390
Small bodies of water	15	10	185	195	10	200	210
Subtotal other farmland with water	300	60	1,840	1,900	60	2,140	2,200
Subtotal other farmland without water	285	50	1,655	1,705	50	1,940	1,990
Total off-farm land with water	1,800	350	10,850	11,200	350	12,650	13,000
Total off-farm land without water	1,785	340	10,665	11,005	340	12,450	12,790
Nonfarm woodland with water	553,640	14,040	1,384,020	1,398,060	14,040	1,937,660	1,951,700
Small bodies of water	3,395	50	6,155	6,205	50	9,550	9,600
Nonfarm woodland without water	550,245	13,990	1,377,865	1,391,855	13,990	1,928,110	1,942,100
Total agricultural land with water	670,440	44,390	2,352,370	2,396,760	44,390	3,022,810	3,067,200
Small bodies of water	4,250	730	29,730	30,460	730	33,980	34,710
Total agricultural land without water	666,190	43,660	2,322,640	2,366,300	43,660	2,988,830	3,032,490
Social, service, other land with water	40,600	1,050	363,150	364,200	1,050	403,750	404,800
Small bodies of water	220	10	1,170	1,180	10	1,390	1,400
Social, service, other land without water	40,380	1,040	361,980	363,020	1,040	402,360	403,400
Total land area with water	711,040	45,440	2,715,520	2,760,960	45,440	3,426,560	3,472,000
Small bodies of water	4,470	740	30,900	31,640	740	35,370	36,110
Total land area without water	706,570	44,700	2,684,620	2,729,320	44,700	3,391,190	3,435,890
Summary of woodland without water							
Farm woodland pastured	39,400	5,800	184,800	190,600	5,800	224,200	230,000
Farm woodland not pastured	24,900	3,800	342,300	346,100	3,800	367,200	371,000
Off-farm agricultural woodland	960	130	6,010	6,140	130	6,970	7,100
Nonfarm woodland	550,245	13,990	1,377,865	1,391,855	13,990	1,928,110	1,942,100
Total woodland	615,505	23,720	1,910,975	1,934,695	23,720	2,526,480	2,550,200
Control for small water bodies							
Water on farms	840	670	23,390	24,060	670	24,230	24,900
Water on nonagricultural farms	15	10	185	195	10	200	210
Water on nonfarm woodland	3,395	50	6,155	6,205	50	9,550	9,600
Water on social, service, other land	220	10	1,170	1,180	10	1,390	1,400
Total small bodies of water	4,470	740	30,900	31,640	740	35,370	36,110
Percent of all small bodies of water on farms	19	91	76	76	91	69	69

TABLE 3.99
Major Uses of Land in the Suwannee Basin—1959
(acres)

Item	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	2,140	920	3,060	56,780	3,860	60,640	58,920	4,780	63,700
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	7,620	3,130	10,750	17,840	5,710	23,550	25,460	8,840	34,300
Peanuts (picked and threshed)	2,650	1,100	3,750	72,920	1,930	74,850	75,570	3,030	78,600
Soybeans	290	110	400	7,620	1,080	8,700	7,910	1,190	9,100
Corn	132,660	52,760	185,420	288,530	59,150	347,680	421,190	111,910	533,100
Sweet potatoes	300	250	550	2,470	480	2,950	2,770	730	3,500
Small grain	2,800	1,100	3,900	12,800	1,300	14,100	15,600	2,400	18,000
All hay	3,440	2,730	6,170	15,830	2,200	18,030	19,270	4,930	24,200
Fruits and nuts	4,160	3,760	7,920	12,090	1,990	14,080	16,250	5,750	22,000
Commercial truck	12,130	6,830	18,960	16,880	560	17,440	29,010	7,390	36,400
Miscellaneous and other	37,310	16,610	53,920	19,540	3,040	22,580	56,850	19,650	76,500
Subtotal harvested cropland	205,500	89,300	294,800	523,300	81,300	604,600	728,800	170,600	899,400
Idle, fallow, or failure	108,400	56,000	164,400	59,100	13,400	72,500	167,500	69,400	236,900
Pasture									
Cropland pastured	81,900	43,400	125,300	71,800	14,200	86,000	153,700	57,600	211,300
Woodland pastured	215,500	225,700	441,200	261,900	101,600	363,500	477,400	327,300	804,700
Other pasture	88,300	48,700	137,000	52,500	12,500	65,000	140,800	61,200	202,000
Subtotal all pasture	385,700	317,800	703,500	386,200	128,300	514,500	771,900	446,100	1,218,000
Woodland not pastured	165,900	82,300	248,200	481,400	211,600	693,000	647,300	293,900	941,200
Other farmland									
Farmsteads, roads, etc	4,800	3,000	7,800	11,700	3,000	14,700	16,500	6,000	22,500
Other onfarm land	27,970	34,460	62,430	19,900	9,200	29,100	47,870	43,660	91,530
Small bodies of water	5,830	3,540	9,370	14,100	3,100	17,200	19,930	6,640	26,570
Subtotal other farmland with water	38,600	41,000	79,600	45,700	15,300	61,000	84,300	56,300	140,600
Subtotal other farmland without water	32,770	37,460	70,230	31,600	12,200	43,800	64,370	49,660	114,030
Total farmland with small bodies of water	904,100	586,400	1,490,500	1,495,700	449,900	1,945,600	2,399,800	1,036,300	3,436,100
Total farmland without small bodies of water	898,270	582,860	1,481,130	1,481,600	446,800	1,928,400	2,379,870	1,029,660	3,409,530
Off-farm agricultural land									
Cropland									
Corn	300	100	300	400	200	600	600	300	900
Hay	20	--	20	60	20	80	80	20	100
Other	80	20	100	150	50	200	230	70	300
Pasture	1,200	600	1,800	1,800	600	2,400	3,000	1,200	4,200
Woodland	4,500	2,280	6,780	3,490	1,130	4,620	7,990	3,410	11,400
Other farmland									
Farmsteads, roads, etc	300	150	450	450	150	600	750	300	1,050
Other off-farm land	1,650	830	2,480	2,450	800	3,250	4,100	1,630	5,730
Small bodies of water	50	20	70	200	50	250	250	70	320
Subtotal other farmland with water	2,000	1,000	3,000	3,100	1,000	4,100	5,100	2,000	7,100
Subtotal other farmland without water	1,950	980	2,930	2,900	950	3,850	4,850	1,930	6,780
Total off-farm land with water	8,000	4,000	12,000	9,000	3,000	12,000	17,000	7,000	24,000
Total off-farm land without water	7,950	3,980	11,930	8,800	2,950	11,750	16,750	6,930	23,680
Nonfarm woodland with water	873,880	798,800	1,672,380	416,380	1,205,700	1,622,080	1,289,960	2,004,500	3,294,460
Small bodies of water	5,540	4,710	10,250	1,540	4,040	5,580	7,080	8,750	15,830
Nonfarm woodland without water	868,040	794,090	1,662,130	414,840	1,201,660	1,616,500	1,282,880	1,995,750	3,278,630
Total agricultural land with water	1,785,680	1,389,200	3,174,880	1,921,080	1,658,600	3,579,680	3,706,760	3,047,800	6,754,560
Small bodies of water	11,420	8,270	19,690	15,840	7,190	23,030	27,260	15,460	42,720
Total agricultural land without water	1,774,260	1,380,930	3,155,190	1,905,240	1,651,410	3,556,650	3,679,500	3,032,340	6,711,840
Social, service, other land with water	36,400	63,600	100,000	48,200	91,800	140,000	84,600	155,400	240,000
Small bodies of water	240	380	620	240	1,140	1,380	480	1,520	2,000
Social, service, other land without water	36,160	63,220	99,380	47,960	90,660	138,620	84,120	153,880	238,000
Total land area with water	1,822,080	1,452,800	3,274,880	1,969,280	1,750,400	3,719,680	3,791,360	3,203,200	6,994,560
Small bodies of water	11,660	8,650	20,310	16,080	8,330	24,410	27,740	16,980	44,720
Total land area without water	1,810,420	1,444,150	3,254,570	1,953,200	1,742,070	3,695,270	3,763,620	3,186,220	6,949,840
Summary of woodland without water									
Farm woodland pastured	215,500	225,700	441,200	261,900	101,600	363,500	477,400	327,300	804,700
Farm woodland not pastured	165,900	82,300	248,200	481,400	211,600	693,000	647,300	293,900	941,200
Off-farm agricultural woodland	4,500	2,280	6,780	3,490	1,130	4,620	7,990	3,410	11,400
Nonfarm woodland	868,040	794,090	1,662,130	414,840	1,201,660	1,616,500	1,282,880	1,995,750	3,278,630
Total woodland	1,253,940	1,104,370	2,358,310	1,161,630	1,515,990	2,677,620	2,415,570	2,620,360	5,035,930
Control for small water bodies									
Water on farms (Census)	5,830	3,540	9,370	14,100	3,100	17,200	19,930	6,640	26,570
Water on nonagricultural farms	50	20	70	200	50	250	250	70	320
Water on nonfarm woodland	5,540	4,710	10,250	1,540	4,040	5,580	7,080	8,750	15,830
Water on social, service, other land	240	380	620	240	1,140	1,380	480	1,520	2,000
Total small bodies of water	11,660	8,650	20,310	16,080	8,330	24,410	27,740	16,980	44,720
Percent of all small bodies of water on Census farms	50	41	46	88	37	70	72	39	59

TABLE 3.100
Major Uses of Land in the Suwannee Basin—1975
(acres)

Item	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	2,200	1,000	3,200	74,800	5,200	80,000	77,000	6,200	83,200
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	15,000	6,200	21,200	35,100	11,200	46,300	50,100	17,400	67,500
Peanuts (picked and threshed)	3,800	1,600	5,400	99,800	2,500	102,300	103,600	4,100	107,700
Soybeans	200	100	300	1,800	500	2,300	2,000	600	2,600
Corn	73,000	29,000	102,000	160,000	32,700	192,700	233,000	61,700	294,700
Sweet potatoes	400	300	700	3,200	600	3,800	3,600	900	4,500
Small grain	3,100	1,200	4,300	13,100	1,400	14,500	16,200	2,600	18,800
All hay	5,400	4,100	9,500	20,300	3,000	23,300	25,700	7,100	32,800
Fruits and nuts	4,100	3,700	7,800	12,100	1,900	14,000	16,200	5,600	21,800
Commercial truck	30,000	17,000	47,000	41,500	1,500	43,000	71,500	18,500	90,000
Miscellaneous and other	4,000	2,000	6,000	10,200	1,600	11,800	14,200	3,600	17,800
Subtotal harvested cropland	141,200	66,200	207,400	471,900	62,100	534,000	613,100	128,300	741,400
Idle, fallow, or failure	39,000	20,000	59,000	20,800	5,000	25,800	59,800	25,000	84,800
Pasture									
Cropland pastured	104,000	73,000	177,000	170,000	37,000	207,000	274,000	110,000	384,000
Woodland pastured	196,000	138,000	334,000	320,000	69,000	389,000	516,000	207,000	723,000
Other pasture	51,000	36,000	87,000	84,000	18,000	102,000	135,000	54,000	189,000
Subtotal all pasture	351,000	247,000	598,000	574,000	124,000	698,000	925,000	371,000	1,296,000
Woodland not pastured	277,600	184,400	462,000	242,600	206,400	449,000	520,200	390,800	911,000
Other farmland									
Farmsteads, roads, etc	4,800	2,900	7,700	11,550	2,750	14,300	16,350	5,650	22,000
Other onfarm land	20,170	10,960	31,130	40,810	9,390	50,200	60,980	20,350	81,330
Small bodies of water	6,230	3,740	9,970	18,340	4,360	22,700	24,570	8,100	32,670
Subtotal other farmland with water	31,200	17,600	48,800	70,700	16,500	87,200	101,900	34,100	136,000
Subtotal other farmland without water	24,970	13,860	38,830	52,360	12,140	64,500	77,330	26,000	103,330
Total farmland with small bodies of water	840,000	535,200	1,375,200	1,380,000	414,000	1,794,000	2,220,000	949,200	3,169,200
Total farmland without small bodies of water	833,770	531,460	1,365,230	1,361,660	409,640	1,771,300	2,195,430	941,100	3,136,530
Off-farm agricultural land									
Cropland									
Corn	300	200	500	450	250	700	750	450	1,200
Hay	20	--	20	60	20	80	80	20	100
Other	100	50	150	160	90	250	260	140	400
Pasture	1,400	700	2,100	2,100	700	2,800	3,500	1,400	4,900
Woodland	4,980	2,500	7,480	4,280	1,240	5,520	9,260	3,740	13,000
Other farmland									
Farmsteads, roads, etc	400	170	570	550	180	730	950	350	1,300
Other off-farm land	1,250	660	1,910	1,790	650	2,440	3,040	1,310	4,350
Small bodies of water	50	20	70	210	70	280	260	90	350
Subtotal other farmland with water	1,700	850	2,550	2,550	900	3,450	4,250	1,750	6,000
Subtotal other farmland without water	1,650	830	2,480	2,340	830	3,170	3,990	1,660	5,650
Total off-farm land with water	8,500	4,300	12,800	9,600	3,200	12,800	18,100	7,500	25,600
Total off-farm land without water	8,450	4,280	12,730	9,390	3,130	12,520	17,840	7,410	25,250
Nonfarm woodland with water	930,380	847,700	1,778,080	524,680	1,237,200	1,761,880	1,455,060	2,084,900	3,539,960
Small bodies of water	5,600	4,680	10,280	3,270	4,450	7,720	8,870	9,130	18,000
Nonfarm woodland without water	924,780	843,020	1,767,800	521,410	1,232,750	1,754,160	1,446,190	2,075,770	3,521,960
Total agricultural land with water	1,778,880	1,387,200	3,166,080	1,914,280	1,654,400	3,568,680	3,693,160	3,041,600	6,734,760
Small bodies of water	11,880	8,440	20,320	21,820	8,880	30,700	33,700	17,320	51,020
Total agricultural land without water	1,767,000	1,378,760	3,145,760	1,892,460	1,645,520	3,537,980	3,659,460	3,024,280	6,683,740
Social, service, other land with water	43,200	65,600	108,800	55,000	96,000	151,000	98,200	161,600	259,800
Small bodies of water	270	410	680	370	1,150	1,520	640	1,560	2,200
Social, service, other land without water	42,930	65,190	108,120	54,630	94,850	149,480	97,560	160,040	257,600
Total land area with water	1,822,080	1,452,800	3,274,880	1,969,280	1,750,400	3,719,680	3,791,360	3,203,200	6,994,560
Small bodies of water	12,150	8,850	21,000	22,190	10,030	32,220	34,340	18,880	53,220
Total land area without water	1,809,930	1,443,950	3,253,880	1,947,090	1,740,370	3,687,460	3,757,020	3,184,320	6,941,340
Summary of woodland without water									
Farm woodland pastured	196,000	138,000	334,000	320,000	69,000	389,000	516,000	207,000	723,000
Farm woodland not pastured	277,600	184,400	462,000	242,600	206,400	449,000	520,200	390,800	911,000
Off-farm agricultural woodland	4,980	2,500	7,480	4,280	1,240	5,520	9,260	3,740	13,000
Nonfarm woodland	924,780	843,020	1,767,800	521,410	1,232,750	1,754,160	1,446,190	2,075,770	3,521,960
Total woodland	1,403,360	1,167,920	2,571,280	1,088,290	1,509,390	2,597,680	2,491,650	2,677,310	5,168,960
Control for small water bodies									
Water on farms	6,230	3,740	9,970	18,340	4,360	22,700	24,570	8,100	32,670
Water on nonagricultural farms	50	20	70	210	70	280	260	90	350
Water on nonfarm woodland	5,600	4,680	10,280	3,270	4,450	7,720	8,870	9,130	18,000
Water on social, service, other land	270	410	680	370	1,150	1,520	640	1,560	2,200
Total small bodies of water	12,150	8,850	21,000	22,190	10,030	32,220	34,340	18,880	53,220
Percent of all small bodies of water on farms	51	42	47	83	43	70	72	43	61

TABLE 3.101
Major Uses of Land in the Suwannee Basin—2000
(acres)

Item	Florida			Georgia			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 5
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	1,500	800	2,300	68,200	4,500	72,700	69,700	5,300	75,000
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	22,800	9,400	32,200	53,400	17,100	70,500	76,200	26,500	102,700
Peanuts (picked and threshed)	5,000	2,000	7,000	118,000	3,000	121,000	123,000	5,000	128,000
Soybeans	200	100	300	2,200	600	2,800	2,400	700	3,100
Corn	82,500	32,300	114,800	181,000	37,000	218,000	263,500	69,300	332,800
Sweet potatoes	500	400	900	3,900	700	4,600	4,400	1,100	5,500
Small grain	4,000	1,500	5,500	16,200	1,600	17,800	20,200	3,100	23,300
All hay	7,600	5,900	13,500	26,000	4,000	30,000	33,600	9,900	43,500
Fruits and nuts	5,100	4,600	9,700	15,300	2,400	17,700	20,400	7,000	27,400
Commercial truck	34,000	19,000	53,000	46,300	1,700	48,000	80,300	20,700	101,000
Miscellaneous and other	5,300	2,500	7,800	15,600	2,300	17,900	20,900	4,800	25,700
Subtotal harvested cropland	168,500	78,500	247,000	546,100	74,900	621,000	714,600	153,400	868,000
Idle, fallow, or failure	32,000	16,000	48,000	16,900	4,000	20,900	48,900	20,000	68,900
Pasture									
Cropland pastured	181,000	131,000	312,000	254,000	58,000	312,000	435,000	189,000	624,000
Woodland pastured	183,000	132,000	315,000	257,000	59,000	316,000	440,000	191,000	631,000
Other pasture	49,000	36,000	85,000	68,000	16,000	84,000	117,000	52,000	169,000
Subtotal all pasture	413,000	299,000	712,000	579,000	133,000	712,000	992,000	432,000	1,424,000
Woodland not pastured	182,100	112,700	294,800	151,500	178,700	330,200	333,600	291,400	625,000
Other farmland									
Farmsteads, roads, etc	4,400	2,800	7,200	10,800	2,400	13,200	15,200	5,200	20,400
Other onfarm land	17,390	9,960	27,350	33,980	6,300	40,280	51,370	16,260	67,630
Small bodies of water	6,810	4,040	10,850	25,420	5,700	31,120	32,230	9,740	41,970
Subtotal other farmland with water	28,600	16,800	45,400	70,200	14,400	84,600	98,800	31,200	130,000
Subtotal other farmland without water	21,790	12,760	34,550	44,780	8,700	53,480	66,570	21,460	88,030
Total farmland with small bodies of water	824,200	523,000	1,347,200	1,363,700	405,000	1,768,700	2,187,900	928,000	3,115,900
Total farmland without small bodies of water	817,390	518,960	1,336,350	1,338,280	399,300	1,737,580	2,155,670	918,260	3,073,930
Off-farm agricultural land									
Cropland									
Corn	400	300	700	550	350	900	950	650	1,600
Hay	20	--	20	60	20	80	80	20	100
Other	130	60	190	200	110	310	330	170	500
Pasture	1,800	900	2,700	2,700	900	3,600	4,500	1,800	6,300
Woodland	5,750	2,840	8,590	4,990	1,520	6,510	10,740	4,360	15,100
Other farmland									
Farmsteads, roads, etc	460	230	690	680	230	910	1,140	460	1,600
Other off-farm land	880	450	1,330	1,300	360	1,660	2,180	810	2,990
Small bodies of water	60	20	80	220	110	330	280	130	410
Subtotal other farmland with water	1,400	700	2,100	2,200	700	2,900	3,600	1,400	5,000
Subtotal other farmland without water	1,340	680	2,020	1,980	590	2,570	3,320	1,270	4,590
Total off-farm land with water	9,500	4,800	14,300	10,700	3,600	14,300	20,200	8,400	28,600
Total off-farm land without water	9,440	4,780	14,220	10,480	3,490	13,970	19,920	8,270	28,190
Nonfarm woodland with water	934,380	856,100	1,790,480	526,880	1,237,800	1,764,680	1,461,260	2,093,900	3,555,160
Small bodies of water	5,480	4,490	9,970	3,990	4,540	8,530	9,470	9,030	18,500
Nonfarm woodland without water	928,900	851,610	1,780,510	522,890	1,233,260	1,756,150	1,451,790	2,084,870	3,536,660
Total agricultural land with water	1,768,080	1,383,900	3,151,980	1,901,280	1,646,400	3,547,680	3,669,360	3,030,300	6,699,660
Small bodies of water	12,350	8,550	20,900	29,630	10,350	39,980	41,980	18,900	60,880
Total agricultural land without water	1,755,730	1,375,350	3,131,080	1,871,650	1,636,050	3,507,700	3,627,380	3,011,400	6,638,780
Social, service, other land with water	54,000	68,900	122,900	68,000	104,000	172,000	122,000	172,900	294,900
Small bodies of water	400	610	1,010	560	1,330	1,890	960	1,940	2,900
Social, service, other land without water	53,600	68,290	121,890	67,440	102,670	170,110	121,040	170,960	292,000
Total land area with water	1,822,080	1,452,800	3,274,880	1,969,280	1,750,400	3,719,680	3,791,360	3,203,200	6,994,560
Small bodies of water	12,750	9,160	21,910	30,190	11,680	41,870	42,940	20,840	63,780
Total land area without water	1,809,330	1,443,640	3,252,970	1,939,090	1,738,720	3,677,810	3,748,420	3,182,360	6,930,780
Summary of woodland without water									
Farm woodland pastured	183,000	132,000	315,000	257,000	59,000	316,000	440,000	191,000	631,000
Farm woodland not pastured	182,100	112,700	294,800	151,500	178,700	330,200	333,600	291,400	625,000
Off-farm agricultural woodland	5,750	2,840	8,590	4,990	1,520	6,510	10,740	4,360	15,100
Nonfarm woodland	928,900	851,610	1,780,510	522,890	1,233,260	1,756,150	1,451,790	2,084,870	3,536,660
Total woodland	1,299,750	1,099,150	2,398,900	936,380	1,472,480	2,408,860	2,236,130	2,571,630	4,807,760
Control for small water bodies									
Water on farms	6,810	4,040	10,850	25,420	5,700	31,120	32,230	9,740	41,970
Water on nonagricultural farms	60	20	80	220	110	330	280	130	410
Water on nonfarm woodland	5,480	4,490	9,970	3,990	4,540	8,530	9,470	9,030	18,500
Water on social, service, other land	400	610	1,010	560	1,330	1,890	960	1,940	2,900
Total small bodies of water	12,750	9,160	21,910	30,190	11,680	41,870	42,940	20,840	63,780
Percent of all small bodies of water on farms	53	44	50	84	49	74	75	47	66

TABLE 3.102

Major Uses of Land in the Ochlockonee Basin—1959
(acres)

Item	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Onfarm land							
Cropland							
Cotton	1,160	680	1,840	20,760	21,920	680	22,600
Cottonseed	--	--	--	--	--	--	--
Tobacco	3,680	1,060	4,740	5,960	9,640	1,060	10,700
Peanuts (picked and threshed)	1,430	600	2,030	25,170	26,600	600	27,200
Soybeans	300	130	430	2,570	2,870	130	3,000
Corn	50,340	22,320	72,660	157,140	207,480	22,320	229,800
Sweet potatoes	220	80	300	800	1,020	80	1,100
Small grain	1,230	650	1,880	4,620	5,850	650	6,500
All hay	8,370	1,570	9,940	8,460	16,830	1,570	18,400
Fruits and nuts	11,590	3,860	15,450	10,850	22,440	3,860	26,300
Commercial truck	2,180	1,290	3,470	10,930	13,110	1,290	14,400
Miscellaneous and other	7,200	4,260	11,460	3,240	10,440	4,260	14,700
Subtotal harvested cropland	87,700	36,500	124,200	250,500	338,200	36,500	374,700
Idle, fallow, or failure	34,200	24,900	59,100	34,200	68,400	24,900	93,300
Pasture							
Cropland pastured	30,000	16,100	46,100	34,000	64,000	16,100	80,100
Woodland pastured	158,600	349,500	508,100	123,200	281,800	349,500	631,300
Other pasture	47,200	34,100	81,300	28,100	75,300	34,100	109,400
Subtotal all pasture	235,800	399,700	635,500	185,300	421,100	399,700	820,800
Woodland not pastured	178,600	61,300	239,900	267,200	445,800	61,300	507,100
Other farmland							
Farmsteads, roads, etc	2,450	1,500	3,950	5,450	7,900	1,500	9,400
Other onfarm land	16,450	14,310	30,760	7,780	24,230	14,310	38,540
Small bodies of water	3,800	4,590	8,390	6,070	9,870	4,590	14,460
Subtotal other farmland with water	22,700	20,400	43,100	19,300	42,000	20,400	62,400
Subtotal other farmland without water	18,900	15,810	34,710	13,230	32,130	15,810	47,940
Total farmland with small bodies of water	559,000	542,800	1,101,800	756,500	1,315,500	542,800	1,858,300
Total farmland without small bodies of water	555,200	538,210	1,093,410	750,430	1,305,630	538,210	1,843,840
Off-farm agricultural land							
Cropland							
Corn	400	150	550	250	650	150	800
Hay	30	--	30	20	50	--	50
Other	150	50	200	100	250	50	300
Pasture	1,800	600	2,400	1,200	3,000	600	3,600
Woodland	5,470	2,150	7,620	1,530	7,000	2,150	9,150
Other farmland							
Farmsteads, roads, etc	450	150	600	300	750	150	900
Other off-farm land	2,650	810	3,460	1,540	4,190	810	5,000
Small bodies of water	50	90	140	60	110	90	200
Subtotal other farmland with water	3,150	1,050	4,200	1,900	5,050	1,050	6,100
Subtotal other farmland without water	3,100	960	4,060	1,840	4,940	960	5,900
Total off-farm land with water	11,000	4,000	15,000	5,000	16,000	4,000	20,000
Total off-farm land without water	10,950	3,910	14,860	4,940	15,890	3,910	19,800
Nonfarm woodland with water	689,920	1,103,880	1,793,800	124,820	814,740	1,103,880	1,918,620
Small bodies of water	2,960	6,500	9,460	380	3,340	6,500	9,840
Nonfarm woodland without water	686,960	1,097,380	1,784,340	124,440	811,400	1,097,380	1,908,780
Total agricultural land with water	1,259,920	1,650,680	2,910,600	886,320	2,146,240	1,650,680	3,796,920
Small bodies of water	6,810	11,180	17,990	6,510	13,320	11,180	24,500
Total agricultural land without water	1,253,110	1,639,500	2,892,610	879,810	2,132,920	1,639,500	3,772,420
Social, service, other land with water	38,000	85,000	123,000	50,000	88,000	85,000	173,000
Small bodies of water	170	910	1,080	160	330	910	1,240
Social, service, other land without water	37,830	84,090	121,920	49,840	87,670	84,090	171,760
Total land area with water	1,297,920	1,735,680	3,033,600	936,320	2,234,240	1,735,680	3,969,920
Small bodies of water	6,980	12,090	19,070	6,670	13,650	12,090	25,740
Total land area without water	1,290,940	1,723,590	3,014,530	929,650	2,220,590	1,723,590	3,944,180
Summary of woodland without water							
Farm woodland pastured	158,600	349,500	508,100	123,200	281,800	349,500	631,300
Farm woodland not pastured	178,600	61,300	239,900	267,200	445,800	61,300	507,100
Off-farm agricultural woodland	5,470	2,150	7,620	1,530	7,000	2,150	9,150
Nonfarm woodland	686,960	1,097,380	1,784,340	124,440	811,400	1,097,380	1,908,780
Total woodland	1,029,630	1,510,330	2,539,960	516,370	1,546,000	1,510,330	3,056,330
Control for small water bodies							
Water on farms (Census)	3,800	4,590	8,390	6,070	9,870	4,590	14,460
Water on nonagricultural farms	50	90	140	60	110	90	200
Water on nonfarm woodland	2,960	6,500	9,460	380	3,340	6,500	9,840
Water on social, service, other land	170	910	1,080	160	330	910	1,240
Total small bodies of water	6,980	12,090	19,070	6,670	13,650	12,090	25,740
Percent of all small bodies of water on Census farms	54	38	44	91	72	38	56

TABLE 3.103

Major Uses of Land in the Ochlockonee Basin—1975
(acres)

Item	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Onfarm land							
Cropland							
Cotton	600	400	1,000	30,200	30,800	400	31,200
Cottonseed	--	--	--	--	--	--	--
Tobacco	5,500	1,800	7,300	10,200	15,700	1,800	17,500
Peanuts (picked and threshed)	1,500	650	2,150	35,150	36,650	650	37,300
Soybeans	300	150	450	450	750	150	900
Corn	34,000	16,000	50,000	104,600	138,600	16,000	154,600
Sweet potatoes	300	100	400	1,000	1,300	100	1,400
Small grain	1,300	700	2,000	4,800	6,100	700	6,800
All hay	11,700	2,300	14,000	11,000	22,700	2,300	25,000
Fruits and nuts	11,500	3,800	15,300	10,800	22,300	3,800	26,100
Commercial truck	4,500	2,700	7,200	21,800	26,300	2,700	29,000
Miscellaneous and other	3,000	2,000	5,000	2,000	5,000	2,000	7,000
Subtotal harvested cropland	74,200	30,600	104,800	232,000	308,200	30,600	336,800
Idle, fallow, or failure	8,000	3,400	11,400	24,500	32,500	3,400	35,900
Pasture							
Cropland pastured	68,000	34,000	102,000	90,000	158,000	34,000	192,000
Woodland pastured	200,000	100,000	300,000	267,000	467,000	100,000	567,000
Other pasture	36,000	18,000	54,000	48,000	84,000	18,000	102,000
Subtotal all pasture	304,000	152,000	456,000	405,000	709,000	152,000	861,000
Woodland not pastured	141,300	296,400	437,700	53,300	194,600	296,400	491,000
Other farmland							
Farmsteads, roads, etc	2,160	1,620	3,780	5,220	7,380	1,620	9,000
Other onfarm land	16,240	13,980	30,220	6,420	22,660	13,980	36,640
Small bodies of water	4,100	4,700	8,800	7,560	11,660	4,700	16,360
Subtotal other farmland with water	22,500	20,300	42,800	19,200	41,700	20,300	62,000
Subtotal other farmland without water	18,400	15,600	34,000	11,640	30,040	15,600	45,640
Total farmland with small bodies of water	550,000	502,700	1,052,700	734,000	1,284,000	502,700	1,786,700
Total farmland without small bodies of water	545,900	498,000	1,043,900	726,440	1,272,340	498,000	1,770,340
Off-farm agricultural land							
Cropland							
Corn	550	210	760	340	890	210	1,100
Hay	60	--	60	40	100	--	100
Other	200	70	270	130	330	70	400
Pasture	2,100	700	2,800	1,400	3,500	700	4,200
Woodland	6,440	2,170	8,610	1,790	8,230	2,170	10,400
Other farmland							
Farmsteads, roads, etc	500	170	670	330	830	170	1,000
Other off-farm land	2,090	590	2,680	1,190	3,280	590	3,870
Small bodies of water	60	90	150	80	140	90	230
Subtotal other farmland with water	2,650	850	3,500	1,600	4,250	850	5,100
Subtotal other farmland without water	2,590	760	3,350	1,520	4,110	760	4,870
Total off-farm land with water	12,000	4,000	16,000	5,300	17,300	4,000	21,300
Total off-farm land without water	11,940	3,910	15,850	5,220	17,160	3,910	21,070
Nonfarm woodland with water	691,920	1,136,580	1,828,500	141,020	832,940	1,136,580	1,969,520
Small bodies of water	3,320	7,200	10,520	680	4,000	7,200	11,200
Nonfarm woodland without water	688,600	1,129,380	1,817,980	140,340	828,940	1,129,380	1,958,320
Total agricultural land with water	1,253,920	1,643,280	2,897,200	880,320	2,134,240	1,643,280	3,777,520
Small bodies of water	7,480	11,990	19,470	8,320	15,800	11,990	27,790
Total agricultural land without water	1,246,440	1,631,290	2,877,730	872,000	2,118,440	1,631,290	3,749,730
Social, service, other land with water	44,000	92,400	136,400	56,000	100,000	92,400	192,400
Small bodies of water	220	940	1,160	240	460	940	1,400
Social, service, other land without water	43,780	91,460	135,240	55,760	99,540	91,460	191,000
Total land area with water	1,297,920	1,735,680	3,033,600	936,320	2,234,240	1,735,680	3,969,920
Small bodies of water	7,700	12,930	20,630	8,560	16,260	12,930	29,190
Total land area without water	1,290,220	1,722,750	3,012,970	927,760	2,217,980	1,722,750	3,940,730
Summary of woodland without water							
Farm woodland pastured	200,000	100,000	300,000	267,000	467,000	100,000	567,000
Farm woodland not pastured	141,300	296,400	437,700	53,300	194,600	296,400	491,000
Off-farm agricultural woodland	6,440	2,170	8,610	1,790	8,230	2,170	10,400
Nonfarm woodland	688,600	1,129,380	1,817,980	140,340	828,940	1,129,380	1,958,320
Total woodland	1,036,340	1,527,950	2,564,290	462,430	1,498,770	1,527,950	3,026,720
Control for small water bodies							
Water on farms	4,100	4,700	8,800	7,560	11,660	4,700	16,360
Water on nonagricultural farms	60	90	150	80	140	90	230
Water on nonfarm woodland	3,320	7,200	10,520	680	4,000	7,200	11,200
Water on social, service, other land	220	940	1,160	240	460	940	1,400
Total small bodies of water	7,700	12,930	20,630	8,560	16,260	12,930	29,190
Percent of all small bodies of water on farms	53	36	43	88	72	36	56

TABLE 3.104

Major Uses of Land in the Ochlockonee Basin—2000
(acres)

Item	Florida			Georgia	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 6
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain			
Onfarm land							
Cropland							
Cotton	350	200	550	20,850	21,200	200	21,400
Cottonseed	--	--	--	--	--	--	--
Tobacco	7,400	2,400	9,800	13,600	21,000	2,400	23,400
Peanuts (picked and threshed)	1,800	800	2,600	42,400	44,200	800	45,000
Soybeans	350	200	550	550	900	200	1,100
Corn	38,000	18,000	56,000	118,600	156,600	18,000	174,600
Sweet potatoes	400	100	500	1,200	1,600	100	1,700
Small grain	1,600	900	2,500	5,900	7,500	900	8,400
All hay	15,500	3,000	18,500	14,500	30,000	3,000	33,000
Fruits and nuts	15,000	5,000	20,000	12,800	27,800	5,000	32,800
Commercial truck	5,000	3,000	8,000	22,000	27,000	3,000	30,000
Miscellaneous and other	3,600	2,400	6,000	3,800	7,400	2,400	9,800
Subtotal harvested cropland	89,000	36,000	125,000	256,200	345,200	36,000	381,200
Idle, fallow, or failure	7,100	2,900	10,000	19,200	26,300	2,900	29,200
Pasture							
Cropland pastured	109,000	54,000	163,000	149,000	258,000	54,000	312,000
Woodland pastured	174,000	86,000	260,000	235,000	409,000	86,000	495,000
Other pasture	32,000	16,000	48,000	43,000	75,000	16,000	91,000
Subtotal all pasture	315,000	156,000	471,000	427,000	742,000	156,000	898,000
Woodland not pastured	99,400	203,200	302,600	34,400	133,800	203,200	337,000
Other farmland							
Farmsteads, roads, etc	1,800	1,600	3,400	4,800	6,600	1,600	8,200
Other onfarm land	15,050	12,840	27,890	2,900	17,950	12,840	30,790
Small bodies of water	4,650	4,860	9,510	10,500	15,150	4,860	20,010
Subtotal other farmland with water	21,500	19,300	40,800	18,200	39,700	19,300	59,000
Subtotal other farmland without water	16,850	14,440	31,290	7,700	24,550	14,440	38,990
Total farmland with small bodies of water	532,000	417,400	949,400	755,000	1,287,000	417,400	1,704,400
Total farmland without small bodies of water	527,350	412,540	939,890	744,500	1,271,850	412,540	1,684,390
Off-farm agricultural land							
Cropland							
Corn	700	270	970	430	1,130	270	1,400
Hay	100	30	130	70	170	30	200
Other	250	90	340	160	410	90	500
Pasture	2,700	900	3,600	1,800	4,500	900	5,400
Woodland	7,850	2,010	9,860	2,240	10,090	2,010	12,100
Other farmland							
Farmsteads, roads, etc	650	250	900	400	1,050	250	1,300
Other off-farm land	1,470	350	1,820	810	2,280	350	2,630
Small bodies of water	80	100	180	90	170	100	270
Subtotal other farmland with water	2,200	700	2,900	1,300	3,500	700	4,200
Subtotal other farmland without water	2,120	600	2,720	1,210	3,330	600	3,930
Total off-farm land with water	13,800	4,000	17,800	6,000	19,800	4,000	23,800
Total off-farm land without water	13,720	3,900	17,620	5,910	19,630	3,900	23,530
Nonfarm woodland with water	695,120	1,206,680	1,901,800	102,320	797,440	1,206,680	2,004,120
Small bodies of water	3,400	7,300	10,700	800	4,200	7,300	11,500
Nonfarm woodland without water	691,720	1,199,380	1,891,100	101,520	793,240	1,199,380	1,992,620
Total agricultural land with water	1,240,920	1,628,080	2,869,000	863,320	2,104,240	1,628,080	3,732,320
Small bodies of water	8,130	12,260	20,390	11,390	19,520	12,260	31,780
Total agricultural land without water	1,232,790	1,615,820	2,848,610	851,930	2,084,720	1,615,820	3,700,540
Social, service, other land with water	57,000	107,600	164,600	73,000	130,000	107,600	237,600
Small bodies of water	400	1,100	1,500	300	700	1,100	1,800
Social, service, other land without water	56,600	106,500	163,100	72,700	129,300	106,500	235,800
Total land area with water	1,297,920	1,735,680	3,033,600	936,320	2,234,240	1,735,680	3,969,920
Small bodies of water	8,530	13,360	21,890	11,690	20,220	13,360	33,580
Total land area without water	1,289,390	1,722,320	3,011,710	924,630	2,214,020	1,722,320	3,936,340
Summary of woodland without water							
Farm woodland pastured	174,000	86,000	260,000	235,000	409,000	86,000	495,000
Farm woodland not pastured	99,400	203,200	302,600	34,400	133,800	203,200	337,000
Off-farm agricultural woodland	7,850	2,010	9,860	2,240	10,090	2,010	12,100
Nonfarm woodland	691,720	1,199,380	1,891,100	101,520	793,240	1,199,380	1,992,620
Total woodland	972,970	1,490,590	2,463,560	373,160	1,346,130	1,490,590	2,836,720
Control for small water bodies							
Water on farms	4,650	4,860	9,510	10,500	15,150	4,860	20,010
Water on nonagricultural farms	80	100	180	90	170	100	270
Water on nonfarm woodland	3,400	7,300	10,700	800	4,200	7,300	11,500
Water on social, service, other land	400	1,100	1,500	300	700	1,100	1,800
Total small bodies of water	8,530	13,360	21,890	11,690	20,220	13,360	33,580
Percent of all small bodies of water on farms	55	36	43	90	75	36	60

TABLE 3.105
Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins by States—1959
(acres)

Item	Alabama			Florida			Georgia			
	Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Onfarm land										
Cropland										
Cotton	6,950	41,870	48,820	5,230	70	5,300	90	30,560	115,830	146,480
Cottonseed	--	--	--	--	--	--	--	--	--	--
Tobacco	--	--	--	1,060	--	1,060	--	--	3,640	3,640
Peanuts (picked and threshed)	50	56,350	56,400	22,300	200	22,500	0	400	269,200	269,600
Soybeans	150	630	780	2,400	350	2,750	100	3,720	9,950	13,770
Corn	11,600	130,840	142,440	71,080	1,200	72,280	2,420	76,190	534,970	613,580
Sweet potatoes	120	610	730	140	10	150	10	710	2,800	3,520
Small grain	1,090	6,110	7,200	2,820	180	3,000	160	21,010	64,930	86,100
All hay	4,980	14,320	19,300	8,430	170	8,600	1,240	49,270	46,090	96,600
Fruits and nuts	630	5,030	5,660	2,370	230	2,600	200	18,990	70,250	89,440
Commercial truck	370	6,080	6,450	3,340	30	3,370	120	7,080	17,380	24,580
Miscellaneous and other	860	260	1,120	3,130	160	3,290	160	6,370	39,760	46,290
Subtotal harvested cropland	26,800	262,100	288,900	122,300	2,600	124,900	4,500	214,300	1,174,800	1,393,600
Idle, fallow, or failure	14,000	53,000	67,000	28,200	1,000	29,200	2,500	123,000	209,700	335,200
Pasture										
Cropland pastured	33,300	52,000	85,300	40,600	1,300	41,900	1,400	168,700	219,700	389,800
Woodland pastured	52,500	202,300	254,800	73,100	27,500	100,600	3,800	285,700	512,000	801,500
Other pasture	23,000	97,200	120,200	38,100	1,900	40,000	5,500	209,500	238,300	453,300
Subtotal all pasture	108,800	351,500	460,300	151,800	30,700	182,500	10,700	663,900	970,000	1,644,600
Woodland not pastured	61,100	269,000	330,100	124,300	9,100	133,400	29,900	556,000	1,141,200	1,727,100
Other farmland										
Farmsteads, roads, etc	1,950	7,800	9,750	3,450	150	3,600	750	17,850	19,550	38,150
Other onfarm land	3,100	19,550	22,650	11,190	640	11,830	1,200	19,100	47,020	67,320
Small bodies of water	750	4,650	5,400	760	110	870	250	17,150	22,130	39,530
Subtotal other farmland with water	5,800	32,000	37,800	15,400	900	16,300	2,200	54,100	88,700	145,000
Subtotal other farmland without water	5,050	27,350	32,400	14,640	790	15,430	1,950	36,950	66,570	105,470
Total farmland with small bodies of water	216,500	967,600	1,184,100	442,000	44,300	486,300	49,800	1,611,300	3,584,400	5,245,500
Total farmland without small bodies of water	215,750	962,950	1,178,700	441,240	44,190	485,430	49,550	1,594,150	3,562,270	5,205,970
Off-farm agricultural land										
Cropland										
Corn	250	500	750	250	130	380	130	2,660	880	3,670
Hay	--	50	50	--	--	--	--	150	100	250
Other	100	350	450	100	50	150	50	750	300	1,100
Pasture	1,200	2,400	3,600	1,200	600	1,800	600	12,600	4,200	17,400
Woodland	1,650	3,100	4,750	1,650	820	2,470	820	17,040	5,620	23,480
Other farmland										
Farmsteads, roads, etc	300	600	900	300	150	450	150	3,150	1,050	4,350
Other off-farm land	1,690	3,380	5,070	1,690	840	2,530	840	18,110	5,970	24,920
Small bodies of water	10	20	30	10	10	20	10	340	80	430
Subtotal other farmland with water	2,000	4,000	6,000	2,000	1,000	3,000	1,000	21,600	7,100	29,700
Subtotal other farmland without water	1,990	3,980	5,970	1,990	990	2,980	990	21,260	7,020	29,270
Total off-farm land with water	5,200	10,400	15,600	5,200	2,600	7,800	2,600	54,800	18,200	75,600
Total off-farm land without water	5,190	10,380	15,570	5,190	2,590	7,780	2,590	54,460	18,120	75,170
Nonfarm woodland with water	140,560	321,180	461,740	528,520	451,860	980,380	88,160	1,865,520	1,419,380	3,373,060
Small bodies of water	290	1,250	1,540	440	890	1,330	80	14,650	6,340	21,070
Nonfarm woodland without water	140,270	319,930	460,200	528,080	450,970	979,050	88,080	1,850,870	1,413,040	3,351,990
Total agricultural land with water	362,260	1,299,180	1,661,440	975,720	498,760	1,474,480	140,560	3,531,620	5,021,980	8,694,160
Small bodies of water	1,050	5,920	6,970	1,210	1,010	2,220	340	32,140	28,550	61,030
Total agricultural land without water	361,210	1,293,260	1,654,470	974,510	497,750	1,472,260	140,220	3,499,480	4,993,430	8,633,130
Social, service, other land with water	24,300	81,300	105,600	40,600	38,200	78,800	9,200	201,500	265,060	475,760
Small bodies of water	30	170	200	30	80	110	10	1,580	1,130	2,720
Social, service, other land without water	24,270	81,130	105,400	40,570	38,120	78,690	9,190	199,920	263,930	473,040
Total land area with water	386,560	1,380,480	1,767,040	1,016,320	536,960	1,553,280	149,760	3,733,120	5,287,040	9,169,920
Small bodies of water	1,080	6,090	7,170	1,240	1,090	2,330	350	33,720	29,680	63,750
Total land area without water	385,480	1,374,390	1,759,870	1,015,080	535,870	1,550,950	149,410	3,699,400	5,257,360	9,106,170
Summary of woodland without water										
Farm woodland pastured	52,500	202,300	254,800	73,100	27,500	100,600	3,800	285,700	512,000	801,500
Farm woodland not pastured	61,100	269,000	330,100	124,300	9,100	133,400	29,900	556,000	1,141,200	1,727,100
Off-farm agricultural woodland	1,650	3,100	4,750	1,650	820	2,470	820	17,040	5,620	23,480
Nonfarm woodland	140,270	319,930	460,200	528,080	450,970	979,050	88,080	1,850,870	1,413,040	3,351,990
Total woodland	255,520	794,330	1,049,850	727,130	488,390	1,215,520	122,600	2,709,610	3,071,860	5,904,070
Control for small water bodies										
Water on farms (Census)	750	4,650	5,400	760	110	870	250	17,150	22,130	39,530
Water on nonagricultural farms	10	20	30	10	10	20	10	340	80	430
Water on nonfarm woodland	290	1,250	1,540	440	890	1,330	80	14,650	6,340	21,070
Water on social, service, other land	30	170	200	30	80	110	10	1,580	1,130	2,720
Total small bodies of water	1,080	6,090	7,170	1,240	1,090	2,330	350	33,720	29,680	63,750
Percent of all small bodies of water on Census farms	69	76	75	61	10	37	71	51	75	62

TABLE 3.106

Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins by Provinces—1959 (acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Onfarm land					
Cropland					
Cotton	90	37,510	162,930	70	200,600
Cottonseed	--	--	--	--	--
Tobacco	--	--	4,700	--	4,700
Peanuts (picked and threshed)	--	450	347,850	200	348,500
Soybeans	100	3,870	12,980	350	17,300
Corn	2,420	87,790	736,890	1,200	828,300
Sweet potatoes	10	830	3,550	10	4,400
Small grain	160	22,100	73,860	180	96,300
All hay	1,240	54,250	68,840	170	124,500
Fruits and nuts	200	19,620	77,650	230	97,700
Commercial truck	120	7,450	26,800	30	34,400
Miscellaneous and other	160	7,230	43,150	160	50,700
Subtotal harvested cropland	4,500	241,100	1,559,200	2,600	1,807,400
Idle, fallow, or failure	2,500	137,000	290,900	1,000	431,400
Pasture					
Cropland pastured	1,400	202,000	312,300	1,300	517,000
Woodland pastured	3,800	338,200	787,400	27,500	1,156,900
Other pasture	5,500	232,500	373,600	1,900	613,500
Subtotal all pasture	10,700	772,700	1,473,300	30,700	2,287,400
Woodland not pastured	29,900	617,100	1,534,500	9,100	2,190,600
Other farmland					
Farmsteads, roads, etc.	750	19,800	30,800	150	51,500
Other onfarm land	1,200	22,200	77,760	640	101,800
Small bodies of water	250	17,900	27,540	110	45,800
Subtotal other farmland with water	2,200	59,900	136,100	900	199,100
Subtotal other farmland without water	1,950	42,000	108,560	790	153,300
Total farmland with small bodies of water	49,800	1,827,800	4,994,000	44,300	6,915,900
Total farmland without small bodies of water	49,550	1,809,900	4,966,460	44,190	6,870,100
Off-farm agricultural land					
Cropland					
Corn	130	2,910	1,630	130	4,800
Hay	--	150	150	--	300
Other	50	850	750	50	1,700
Pasture	600	13,800	7,800	600	22,800
Woodland	820	18,690	10,370	820	30,700
Other farmland					
Farmsteads, roads, etc.	150	3,450	1,950	150	5,700
Other off-farm land	840	19,800	11,040	840	32,520
Small bodies of water	10	350	110	10	480
Subtotal other farmland with water	1,000	23,600	13,100	1,000	38,700
Subtotal other farmland without water	990	23,250	12,990	990	38,220
Total off-farm land with water	2,600	60,000	33,800	2,600	99,000
Total off-farm land without water	2,590	59,650	33,690	2,590	98,520
Nonfarm woodland with water	88,160	2,006,080	2,269,080	451,860	4,815,180
Small bodies of water	80	14,940	8,030	890	23,940
Nonfarm woodland without water	88,080	1,991,140	2,261,050	450,970	4,791,240
Total agricultural land with water	140,560	3,893,880	7,296,880	498,760	11,830,080
Small bodies of water	340	33,190	35,680	1,010	70,220
Total agricultural land without water	140,220	3,860,690	7,261,200	497,750	11,759,860
Social, service, other land with water	9,200	225,800	386,960	38,200	660,160
Small bodies of water	10	1,610	1,330	80	3,030
Social, service, other land without water	9,190	224,190	385,630	38,120	657,130
Total land area with water	149,760	4,119,680	7,683,840	536,960	12,490,240
Small bodies of water	350	34,800	37,010	1,090	73,250
Total land area without water	149,410	4,084,880	7,646,830	535,870	12,416,990
Summary of woodland without water					
Farm woodland pastured	3,800	338,200	787,400	27,500	1,156,900
Farm woodland not pastured	29,900	617,100	1,534,500	9,100	2,190,600
Off-farm agricultural woodland	820	18,690	10,370	820	30,700
Nonfarm woodland	88,080	1,991,140	2,261,050	450,970	4,791,240
Total woodland	122,600	2,965,130	4,593,320	488,390	8,169,440
Control for small water bodies					
Water on farms (Census)	250	17,900	27,540	110	45,800
Water on nonagricultural farms	10	350	110	10	480
Water on nonfarm woodland	80	14,940	8,030	890	23,940
Water on social, service, other land	10	1,610	1,330	80	3,030
Total small bodies of water	350	34,800	37,010	1,090	73,250
Percent of all small bodies of water on Census farms	71	51	74	10	63

TABLE 3.107
Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins—1975
(acres)

Item	Alabama			Florida			Georgia			
	Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Onfarm land										
Cropland										
Cotton	5,000	56,600	61,000	4,000	--	4,000	--	20,000	164,000	184,000
Cottonseed	--	--	--	--	--	--	--	--	--	--
Tobacco	--	--	--	1,600	--	1,600	--	--	5,300	5,300
Peanuts (picked and threshed)	--	81,700	81,700	31,300	--	31,300	--	--	364,500	364,500
Soybeans	--	800	800	2,000	--	2,000	--	--	2,100	2,100
Corn	7,000	92,000	99,000	49,000	1,000	50,000	1,700	57,000	364,100	422,800
Sweet potatoes	160	800	960	200	--	200	--	1,000	3,540	4,540
Small grain	1,200	6,200	7,400	2,900	200	3,100	200	22,300	67,600	90,100
All hay	6,800	19,500	26,300	10,500	200	10,700	1,700	65,200	65,000	131,900
Fruits and nuts	600	5,000	5,600	2,400	200	2,600	200	18,500	70,000	88,700
Commercial truck	400	8,600	9,000	4,700	100	4,800	100	8,400	27,900	36,400
Miscellaneous and other	640	200	840	2,500	200	2,700	200	5,100	32,260	37,560
Subtotal harvested cropland	21,800	271,400	293,200	111,100	1,900	113,000	4,100	197,500	1,166,300	1,367,900
Idle, fallow, or failure	2,200	27,000	29,200	11,000	200	11,200	400	19,800	123,600	143,800
Pasture										
Cropland pastured	38,000	123,000	161,000	70,000	3,000	73,000	5,000	235,000	452,000	692,000
Woodland pastured	43,000	139,000	182,000	79,000	4,000	83,000	6,000	265,000	503,000	774,000
Other pasture	24,000	77,000	101,000	43,000	2,000	45,000	3,000	146,000	280,000	429,000
Subtotal all pasture	105,000	339,000	444,000	192,000	9,000	201,000	14,000	646,000	1,235,000	1,895,000
Woodland not pastured	74,000	290,600	364,600	97,900	31,900	129,800	26,300	637,700	962,600	1,626,600
Other farmland										
Farmsteads, roads, etc	1,800	7,800	9,600	3,300	200	3,500	900	16,200	19,800	36,900
Other onfarm land	3,960	16,070	20,030	8,650	680	9,330	2,670	20,910	29,060	52,640
Small bodies of water	1,240	6,130	7,370	1,050	120	1,170	430	24,890	26,140	51,460
Subtotal other farmland with water	7,000	30,000	37,000	13,000	1,000	14,000	4,000	62,000	75,000	141,000
Subtotal other farmland without water	5,760	23,870	29,630	11,950	880	12,830	3,570	37,110	48,860	89,540
Total farmland with small bodies of water	210,000	958,000	1,168,000	425,000	44,000	469,000	48,800	1,563,000	3,562,500	5,174,300
Total farmland without small bodies of water	208,760	951,870	1,160,630	423,950	43,880	467,830	48,370	1,538,110	3,536,360	5,122,840
Off-farm agricultural land										
Cropland										
Corn	340	680	1,020	340	170	510	170	3,600	1,200	4,970
Hay	--	50	50	--	--	--	--	200	150	350
Other	120	360	480	120	80	200	60	1,160	400	1,620
Pasture	1,400	2,800	4,200	1,400	700	2,100	700	14,700	4,900	20,300
Woodland	2,020	3,770	5,790	2,020	990	3,010	1,010	20,560	6,830	28,400
Other farmland										
Farmsteads, roads, etc	360	720	1,080	360	180	540	180	3,940	1,260	5,380
Other off-farm land	1,350	2,690	4,040	1,350	670	2,020	660	13,680	4,670	19,010
Small bodies of water	10	30	40	10	10	20	20	360	90	470
Subtotal other farmland with water	1,720	3,440	5,160	1,720	860	2,580	860	17,980	6,020	24,860
Subtotal other farmland without water	1,710	3,410	5,120	1,710	850	2,560	840	17,620	5,930	24,390
Total off-farm land with water	5,600	11,100	16,700	5,600	2,800	8,400	2,800	58,200	19,500	80,500
Total off farm land without water	5,590	11,070	16,660	5,590	2,790	8,380	2,780	57,840	19,410	80,030
Nonfarm wood and with water	141,860	305,780	447,640	532,920	440,460	973,380	88,060	1,788,060	1,373,740	3,249,860
Small bodies of water	380	1,500	1,880	570	1,070	1,640	90	16,440	7,250	23,780
Nonfarm woodland without water	141,480	304,280	445,760	532,350	439,390	971,740	87,970	1,771,620	1,366,490	3,226,080
Total agricultural land with water	357,460	1,274,880	1,632,340	963,520	487,260	1,450,780	139,660	3,409,260	4,955,740	8,504,660
Small bodies of water	1,630	7,660	9,290	1,630	1,200	2,830	540	41,690	33,480	75,710
Total agricultural land without water	355,830	1,267,220	1,623,050	961,890	486,060	1,447,950	139,120	3,367,570	4,922,260	8,428,950
Social, service, other land with water	29,100	105,600	134,700	52,800	49,700	102,500	10,100	323,860	331,300	665,260
Small bodies of water	40	200	240	40	100	140	20	2,150	1,550	3,720
Social, service, other land without water	29,060	105,400	134,460	52,760	49,600	102,360	10,080	321,710	329,750	661,540
Total land area with water	386,560	1,380,480	1,767,040	1,016,320	536,960	1,553,280	149,760	3,733,120	5,287,040	9,169,920
Small bodies of water	1,670	7,860	9,530	1,670	1,300	2,970	560	43,840	35,030	79,430
Total land area without water	384,890	1,372,620	1,757,510	1,014,650	535,660	1,550,310	149,200	3,689,280	5,252,010	9,090,490
Summary of woodland without water										
Farm woodland pastured	43,000	139,000	182,000	79,000	4,000	83,000	6,000	265,000	503,000	774,000
Farm woodland not pastured	74,000	290,600	364,600	97,900	31,900	129,800	26,300	637,700	962,600	1,626,600
Off-farm agricultural woodland	2,020	3,770	5,790	2,020	990	3,010	1,010	20,560	6,830	28,400
Nonfarm woodland	141,480	304,280	445,760	532,350	439,390	971,740	87,970	1,771,620	1,366,490	3,226,080
Total woodland	260,500	737,650	998,150	711,270	476,280	1,187,550	121,280	2,694,880	2,838,920	5,655,080
Control for small water bodies										
Water on farms	1,240	6,130	7,370	1,050	120	1,170	430	24,890	26,140	51,460
Water on nonagricultural farms	10	30	40	10	10	20	20	360	90	470
Water on nonfarm woodland	380	1,500	1,880	570	1,070	1,640	90	16,440	7,250	23,780
Water on social, service, other land	40	200	240	40	100	140	20	2,150	1,550	3,720
Total small bodies of water	1,670	7,860	9,530	1,670	1,300	2,970	560	43,840	35,030	79,430
Percent of all small bodies of water on farms	74	78	77	63	9	39	77	57	75	65

TABLE 3.108

Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins by Provinces—1975 (acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Onfarm land					
Cropland					
Cotton	--	25,000	224,600	--	249,600
Cottonseed	--	--	--	--	--
Tobacco	--	--	6,900	--	6,900
Peanuts (picked and threshed)	--	--	477,500	--	477,500
Soybeans	--	--	4,900	--	4,900
Corn	1,700	64,000	505,100	1,000	571,800
Sweet potatoes	--	1,160	4,540	--	5,700
Small grain	200	23,500	76,700	200	100,600
All hay	1,700	72,000	95,000	200	168,900
Fruits and nuts	200	19,100	77,400	200	96,900
Commercial truck	100	8,800	41,200	100	50,200
Miscellaneous and other	200	5,740	34,960	200	41,100
Subtotal harvested cropland	4,100	219,300	1,548,800	1,900	1,774,100
Idle, fallow, or failure	400	22,000	161,600	200	184,200
Pasture					
Cropland pastured	5,000	273,000	645,000	3,000	926,000
Woodland pastured	6,000	308,000	721,000	4,000	1,039,000
Other pasture	3,000	170,000	400,000	2,000	575,000
Subtotal all pasture	14,000	751,000	1,766,000	9,000	2,540,000
Woodland not pastured	26,300	711,700	1,351,100	31,900	2,121,000
Other farmland					
Farmsteads, roads, etc.	900	18,000	30,900	200	50,000
Other onfarm land	2,670	24,870	53,780	680	82,000
Small bodies of water	430	26,130	33,320	120	60,000
Subtotal other farmland with water	4,000	69,000	118,000	1,000	192,000
Subtotal other farmland without water	3,570	42,870	84,680	880	132,000
Total farmland with small bodies of water	48,800	1,773,000	4,945,500	44,000	6,811,300
Total farmland without small bodies of water	48,370	1,746,870	4,912,180	43,880	6,751,300
Off-farm agricultural land					
Cropland					
Corn	170	3,940	2,220	170	6,500
Hay	--	200	200	--	400
Other	60	1,280	880	80	2,300
Pasture	700	16,100	9,100	700	26,600
Woodland	1,010	22,580	12,620	990	37,200
Other farmland					
Farmsteads, roads, etc.	180	4,300	2,340	180	7,000
Other off-farm land	660	15,030	8,710	670	25,070
Small bodies of water	20	370	130	10	530
Subtotal other farmland with water	860	19,700	11,180	860	32,600
Subtotal other farmland without water	840	19,330	11,050	850	32,070
Total off-farm land with water	2,800	63,800	36,200	2,800	105,600
Total off-farm land without water	2,780	63,430	36,070	2,790	105,070
Nonfarm woodland with water	88,060	1 929,920	2,212,440	440,460	4,670,880
Small bodies of water	90	16,820	9,320	1,070	27,300
Nonfarm woodland without water	87,970	1,913,100	2,203,120	439,390	4,643,580
Total agricultural land with water	139,660	3,766,720	7,194,140	487,260	11,587,780
Small bodies of water	540	43,320	42,770	1,200	87,830
Total agricultural land without water	139,120	3,723,400	7,151,370	486,060	11,499,950
Social, service, other land with water	10,100	352,960	489,700	49,700	902,460
Small bodies of water	20	2,190	1,790	100	4,100
Social, service, other land without water	10,080	350,770	487,910	49,600	898,360
Total land area with water	149,760	4,119,680	7,683,840	536,960	12,490,240
Small bodies of water	560	45,510	44,560	1,300	91,930
Total land area without water	149,200	4,074,170	7,639,280	535,660	12,398,310
Summary of woodland without water					
Farm woodland pastured	6,000	308,000	721,000	4,000	1,039,000
Farm woodland not pastured	26,300	711,700	1,351,100	31,900	2,121,000
Off-farm agricultural woodland	1,010	22,580	12,620	990	37,200
Nonfarm woodland	87,970	1,913,100	2,203,120	439,390	4,643,580
Total woodland	121,280	2,955,380	4,287,840	476,280	7,840,780
Control for small water bodies					
Water on farms	430	26,130	33,320	120	60,000
Water on nonagricultural farms	20	370	130	10	530
Water on nonfarm woodland	90	16,820	9,320	1,070	27,300
Water on social, service, other land	20	2,190	1,790	100	4,100
Total small bodies of water	560	45,510	44,560	1,300	91,930
Percent of all small bodies of water on farms	77	57	75	9	65

TABLE 3.109
Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins by States—2000
(acres)

Item	Alabama			Florida			Georgia			
	Piedmont	Upper Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total	Blue Ridge	Piedmont	Upper Coastal Plain	Total
Onfarm land										
Cropland										
Cotton	5,000	73,000	78,000	4,000	--	4,000	--	15,000	208,400	223,400
Cottonseed	--	--	78,000	--	--	--	--	--	--	--
Tobacco	--	--	--	2,000	--	2,000	--	--	7,200	7,200
Peanuts (picked and threshed)	--	106,000	106,000	41,000	--	41,000	--	--	429,400	429,400
Soybeans	--	1,000	1,000	2,000	500	2,500	--	--	2,400	2,400
Corn	8,000	104,000	112,000	55,000	1,500	56,500	2,000	64,000	411,300	477,300
Sweet potatoes	200	800	1,000	400	200	600	--	1,300	4,100	5,400
Small grain	1,600	8,000	9,600	3,600	400	4,000	300	31,700	78,900	110,900
All hay	9,000	26,000	35,000	14,000	1,000	15,000	2,000	90,000	81,000	173,000
Fruits and nuts	1,000	6,000	7,000	3,000	500	3,500	500	23,000	87,600	111,100
Commercial truck	500	9,000	9,500	5,000	500	5,500	500	9,000	29,500	39,000
Miscellaneous and other	500	7,700	8,200	3,000	500	3,500	500	9,400	40,000	49,900
Subtotal harvested cropland	25,800	341,500	367,300	133,000	5,100	138,100	5,800	243,400	1,379,800	1,629,000
Idle, fallow, or failure	1,800	24,000	25,800	9,300	400	9,700	400	17,000	96,800	114,200
Pasture										
Cropland pastured	65,000	194,000	259,000	109,000	6,000	115,000	9,000	412,000	711,000	1,132,000
Woodland pastured	39,000	116,000	155,000	65,000	4,000	69,000	5,000	246,000	431,000	682,000
Other pasture	22,000	66,000	88,000	37,000	2,000	39,000	3,000	139,000	245,000	387,000
Subtotal all pasture	126,000	376,000	502,000	211,000	12,000	223,000	17,000	797,000	1,387,000	2,201,000
Woodland not pastured	56,000	189,000	245,000	64,000	22,000	86,000	18,000	459,000	648,000	1,125,000
Other farmland										
Farmsteads, roads, etc	1,400	7,400	8,800	3,000	200	3,200	800	13,200	20,000	34,000
Other onfarm land	2,590	15,810	18,400	8,040	470	8,510	1,920	9,630	33,640	45,190
Small bodies of water	1,910	7,690	9,600	1,460	130	1,590	580	32,370	29,960	62,910
Subtotal other farmland with water	5,900	30,900	36,800	12,500	800	13,300	3,300	55,200	83,600	142,100
Subtotal other farmland without water	3,990	23,210	27,200	11,040	670	11,710	2,720	22,830	53,640	79,190
Total farmland with small bodies of water	215,500	961,400	1,176,900	429,800	40,300	470,100	44,500	1,571,600	3,595,200	5,211,300
Total farmland without small bodies of water	213,590	953,710	1,167,300	428,340	40,170	468,510	43,920	1,539,230	3,565,240	5,148,390
Off-farm agricultural land										
Cropland										
Corn	440	900	1,340	450	200	650	200	4,740	1,570	6,510
Hay	--	70	70	--	--	--	--	230	200	430
Other	150	430	580	150	100	250	80	1,590	500	2,170
Pasture	1,800	3,600	5,400	1,800	900	2,700	900	18,900	6,300	26,100
Woodland	2,470	4,620	7,090	2,460	1,280	3,740	1,300	25,680	8,390	35,370
Other farmland										
Farmsteads, roads, etc	440	880	1,320	440	220	660	220	4,460	1,540	6,220
Other off-farm land	980	1,970	2,950	980	490	1,470	470	10,100	3,390	13,960
Small bodies of water	20	30	50	20	10	30	30	400	110	540
Subtotal other farmland with water	1,440	2,880	4,320	1,440	720	2,160	720	14,960	5,040	20,720
Subtotal other farmland without water	1,420	2,850	4,270	1,420	710	2,130	690	14,560	4,930	20,180
Total off-farm land with water	6,300	12,500	18,800	6,300	3,200	9,500	3,200	66,100	22,000	91,300
Total off-farm land without water	6,280	12,470	18,750	6,280	3,190	9,470	3,170	65,700	21,890	90,760
Nonfarm woodland with water	124,060	221,780	345,840	490,220	418,460	908,680	87,960	1,293,560	1,106,640	2,488,160
Small bodies of water	400	1,550	1,950	630	1,100	1,730	100	16,820	7,400	24,320
Nonfarm woodland without water	123,660	220,230	343,890	489,590	417,360	906,950	87,860	1,276,740	1,099,240	2,463,840
Total agricultural land with water	345,860	1,195,680	1,541,540	926,320	461,960	1,388,280	135,660	2,931,260	4,723,840	7,790,760
Small bodies of water	2,330	9,270	11,600	2,110	1,240	3,350	710	49,590	37,470	87,770
Total agricultural land without water	343,530	1,186,410	1,529,940	924,210	460,720	1,384,930	134,950	2,881,670	4,686,370	7,702,990
Social, service, other land with water	40,700	184,800	225,500	90,000	75,000	165,000	14,100	801,860	563,200	1,379,160
Small bodies of water	80	300	380	70	200	270	50	5,100	2,000	7,150
Social, service, other land without water	40,620	184,500	225,120	89,930	74,800	164,730	14,050	796,760	561,200	1,372,010
Total land area with water	386,560	1,380,480	1,767,040	1,016,320	536,960	1,553,280	149,760	3,733,120	5,287,040	9,169,920
Small bodies of water	2,410	9,570	11,980	2,180	1,440	3,620	760	54,690	39,470	94,920
Total land area without water	384,150	1,370,910	1,755,060	1,014,140	535,520	1,549,660	149,000	3,678,430	5,247,570	9,075,000
Summary of woodland without water										
Farm woodland pastured	39,000	116,000	155,000	65,000	4,000	69,000	5,000	246,000	431,000	682,000
Farm woodland not pastured	56,000	189,000	245,000	64,000	22,000	86,000	18,000	459,000	648,000	1,125,000
Off-farm agricultural woodland	2,470	4,620	7,090	2,460	1,280	3,740	1,300	25,680	8,390	35,370
Nonfarm woodland	123,660	220,230	343,890	489,590	417,360	906,950	87,860	1,276,740	1,099,240	2,463,840
Total woodland	221,130	529,850	750,980	621,050	444,640	1,065,690	112,160	2,007,420	2,186,630	4,306,210
Control for small water bodies										
Water on farms	1,910	7,690	9,600	1,460	130	1,590	580	32,370	29,960	62,910
Water on nonagricultural farms	20	30	50	20	10	30	30	400	110	540
Water on nonfarm woodland	400	1,550	1,950	630	1,100	1,730	100	16,820	7,400	24,320
Water on social, service, other land	80	300	380	70	200	270	50	5,100	2,000	7,150
Total small bodies of water	2,410	9,570	11,980	2,180	1,440	3,620	760	54,690	39,470	94,920
Percent of all small bodies of water on farms	79	80	80	67	9	44	76	59	76	66

TABLE 3.110

Major Uses of Land in the Apalachicola-Chattahoochee-Flint Basins by Provinces—2000
(acres)

Item	Total Blue Ridge	Total Piedmont	Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 7
Onfarm land					
Cropland					
Cotton	--	20,000	285,400	--	305,400
Cottonseed	--	--	--	--	--
Tobacco	--	--	9,200	--	9,200
Peanuts (picked and threshed)	--	--	576,400	--	576,400
Soybeans	--	--	5,400	500	5,900
Corn	2,000	72,000	570,300	1,500	645,800
Sweet potatoes	--	1,500	5,300	200	7,000
Small grain	300	33,300	90,500	400	124,500
All hay	2,000	99,000	121,000	1,000	223,000
Fruits and nuts	500	24,000	96,600	500	121,600
Commercial truck	500	9,500	43,500	500	54,000
Miscellaneous and other	500	9,900	50,765	500	61,600
Subtotal harvested cropland	5,800	269,200	1,854,300	5,100	2,134,400
Idle, fallow, or failure	400	18,800	130,100	400	149,700
Pasture					
Cropland pastured	9,000	477,000	1,014,000	6,000	1,506,000
Woodland pastured	5,000	285,000	612,000	4,000	906,000
Other pasture	3,000	161,000	348,000	2,000	514,000
Subtotal all pasture	17,000	923,000	1,974,000	12,000	2,926,000
Woodland not pastured	18,000	515,000	901,000	22,000	1,456,000
Other farmland					
Farmsteads, roads, etc	800	14,600	30,400	200	46,000
Other onfarm land	1,920	12,220	57,490	470	72,100
Small bodies of water	580	34,280	39,110	130	74,100
Subtotal other farmland with water	3,300	61,100	127,000	800	192,200
Subtotal other farmland without water	2,720	26,820	87,890	670	118,100
Total farmland with small bodies of water	44,500	1,787,100	4,986,400	40,300	6,858,300
Total farmland without small bodies of water	43,920	1,752,820	4,947,290	40,170	6,784,200
Off-farm agricultural land					
Cropland					
Corn	200	5,180	2,920	200	8,500
Hay	--	230	270	--	500
Other	80	1,740	1,080	100	3,000
Pasture	900	20,700	11,700	900	34,200
Woodland	1,300	28,150	15,470	1,280	46,200
Other farmland					
Farmsteads, roads, etc	220	4,900	2,860	220	8,200
Other off-farm land	470	11,080	6,340	490	18,380
Small bodies of water	30	420	160	10	620
Subtotal other farmland with water	720	16,400	9,360	720	27,200
Subtotal other farmland without water	690	15,980	9,200	710	26,580
Total off-farm land with water	3,200	72,400	40,800	3,200	119,600
Total off-farm land without water	3,170	71,980	40,640	3,190	118,980
Nonfarm woodland with water	87,960	1,417,620	1,818,640	418,460	3,742,680
Small bodies of water	100	17,220	9,580	1,100	28,000
Nonfarm woodland without water	87,860	1,400,400	1,809,060	417,360	3,714,680
Total agricultural land with water	135,660	3,277,120	6,845,840	461,960	10,720,580
Small bodies of water	710	51,920	48,850	1,240	102,720
Total agricultural land without water	134,950	3,225,200	6,796,990	460,720	10,617,860
Social, service, other land with water	14,100	842,560	838,000	75,000	1,769,660
Small bodies of water	50	5,180	2,370	200	7,800
Social, service, other land without water	14,050	837,380	835,630	74,800	1,761,860
Total land area with water	149,760	4,119,680	7,683,840	536,960	12,490,240
Small bodies of water	760	57,100	51,220	1,440	110,520
Total land area without water	149,000	4,062,580	7,632,620	535,520	12,379,720
Summary of woodland without water					
Farm woodland pastured	5,000	285,000	612,000	4,000	906,000
Farm woodland not pastured	18,000	515,000	901,000	22,000	1,456,000
Off-farm agricultural woodland	1,300	28,150	15,470	1,280	46,200
Nonfarm woodland	87,860	1,400,400	1,809,060	417,360	3,714,680
Total woodland	112,160	2,228,550	3,337,530	444,640	6,122,880
Control for small water bodies					
Water on farms	580	34,280	39,110	130	74,100
Water on nonagricultural farms	30	420	160	10	620
Water on nonfarm woodland	100	17,220	9,580	1,100	28,000
Water on social, service, other land	50	5,180	2,370	200	7,800
Total small bodies of water	760	57,100	51,220	1,440	110,520
Percent of all small bodies of water on farms	76	60	76	9	67

TABLE 3.111
Major Uses of Land in the Choctawhatchee-Perdido Basins—1959
(acres)

Item	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	11,960	1,290	13,250	109,200	50	109,250	121,160	1,340	122,500
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	50	--	50	250	--	250	300	--	300
Peanuts (picked and threshed)	12,250	1,050	13,300	125,100	--	125,100	137,350	1,050	138,400
Soybeans	20,360	2,660	23,020	43,990	3,590	47,580	64,350	6,250	70,600
Corn	85,350	8,870	94,220	432,940	1,240	434,180	518,290	10,110	528,400
Sweet potatoes	120	20	140	1,430	30	1,460	1,550	50	1,600
Small grain	9,600	1,130	10,730	16,650	820	17,470	26,250	1,950	28,200
All hay	10,300	1,300	11,600	49,900	200	50,100	60,200	1,500	61,700
Fruits and nuts	9,100	4,780	13,880	18,140	380	18,520	27,240	5,160	32,400
Commercial truck	3,950	200	4,150	12,300	650	12,950	16,250	850	17,100
Miscellaneous and other	2,660	300	2,960	3,700	240	3,940	6,360	540	6,900
Subtotal harvested cropland	165,700	21,600	187,300	813,600	7,200	820,800	979,300	28,800	1,008,100
Idle, fallow, or failure	31,500	3,100	34,600	133,500	400	133,900	165,000	3,500	168,500
Pasture									
Cropland pastured	40,600	5,700	46,300	187,000	1,100	188,100	227,600	6,800	234,400
Woodland pastured	179,500	34,500	214,000	648,300	2,100	650,400	827,800	36,600	864,400
Other pasture	64,400	9,200	73,600	301,100	1,100	302,200	365,500	10,300	375,800
Subtotal all pasture	284,500	49,400	333,900	1,136,400	4,300	1,140,700	1,420,900	53,700	1,474,600
Woodland not pastured	200,600	33,000	233,600	750,400	2,900	753,300	951,000	35,900	986,900
Other farmland									
Farmsteads, roads, etc	6,700	1,050	7,750	25,100	150	25,250	31,800	1,200	33,000
Other onfarm land	23,500	2,350	25,850	40,800	320	41,120	64,300	2,670	66,970
Small bodies of water	4,500	800	5,300	19,300	130	19,430	23,800	930	24,730
Subtotal other farmland with water	34,700	4,200	38,900	85,200	600	85,800	119,900	4,800	124,700
Subtotal other farmland without water	30,200	3,400	33,600	65,900	470	66,370	96,100	3,870	99,970
Total farmland with small bodies of water	717,000	111,300	828,300	2,919,100	15,400	2,934,500	3,636,100	126,700	3,762,800
Total farmland without small bodies of water	712,500	110,500	823,000	2,899,800	15,270	2,915,070	3,612,300	125,770	3,738,070
Off-farm agricultural land									
Cropland									
Corn	1,000	120	1,120	2,080	--	2,080	3,080	120	3,200
Hay	70	--	70	130	--	130	200	--	200
Other	400	50	450	750	--	750	1,150	50	1,200
Pasture	4,800	600	5,400	9,600	--	9,600	14,400	600	15,000
Woodland	6,530	830	7,360	12,940	--	12,940	19,470	830	20,300
Other farmland									
Farmsteads, roads, etc	1,200	150	1,350	2,400	--	2,400	3,600	150	3,750
Other off-farm land	6,730	840	7,570	13,790	--	13,790	20,520	840	21,360
Small bodies of water	70	10	80	210	--	210	280	10	290
Subtotal other farmland with water	8,000	1,000	9,000	16,400	--	16,400	24,400	1,000	25,400
Subtotal other farmland without water	7,930	990	8,920	16,190	--	16,190	24,120	990	25,110
Total off-farm land with water	20,800	2,600	23,400	41,900	--	41,900	62,700	2,600	65,300
Total off-farm land without water	20,730	2,590	23,320	41,690	--	41,690	62,420	2,590	65,010
Nonfarm woodland with water	2,011,760	649,980	2,661,740	2,103,880	5,880	2,109,760	4,115,640	655,860	4,771,500
Small bodies of water	7,280	3,060	10,340	4,160	40	4,200	11,440	3,100	14,540
Nonfarm woodland without water	2,004,480	646,920	2,651,400	2,099,720	5,840	2,105,560	4,104,200	652,760	4,756,960
Total agricultural land with water	2,749,560	763,880	3,513,440	5,064,880	21,280	5,086,160	7,814,440	785,160	8,599,600
Small bodies of water	11,850	3,870	15,720	23,670	170	23,840	35,520	4,040	39,560
Total agricultural land without water	2,737,710	760,010	3,497,720	5,041,210	21,110	5,062,320	7,778,920	781,120	8,560,040
Social, service, other land with water	85,000	143,000	228,000	240,720	28,000	268,720	325,720	171,000	496,720
Small bodies of water	300	670	970	690	180	870	990	850	1,840
Social, service, other land without water	84,700	142,330	227,030	240,030	27,820	267,850	324,730	170,150	494,880
Total land area with water	2,834,560	906,880	3,741,440	5,305,600	49,280	5,354,880	8,140,160	956,160	9,096,320
Small bodies of water	12,150	4,540	16,690	24,360	350	24,710	36,510	4,890	41,400
Total land area without water	2,822,410	902,340	3,724,750	5,281,240	48,930	5,330,170	8,103,650	951,270	9,054,920
Summary of woodland without water									
Farm woodland pastured	179,500	34,500	214,000	648,300	2,100	650,400	827,800	36,600	864,400
Farm woodland not pastured	200,600	33,000	233,600	750,400	2,900	753,300	951,000	35,900	986,900
Off-farm agricultural woodland	6,530	830	7,360	12,940	--	12,940	19,470	830	20,300
Nonfarm woodland	2,004,480	646,920	2,651,400	2,099,720	5,840	2,105,560	4,104,200	652,760	4,756,960
Total woodland	2,391,110	715,250	3,106,360	3,511,360	10,840	3,522,200	5,902,470	726,090	6,628,560
Control for small water bodies									
Water on farms (Census)	4,500	800	5,300	19,300	130	19,430	23,800	930	24,730
Water on nonagricultural farms	70	10	80	210	--	210	280	10	290
Water on nonfarm woodland	7,280	3,060	10,340	4,160	40	4,200	11,440	3,100	14,540
Water on social, service, other land	300	670	970	690	180	870	990	850	1,840
Total small bodies of water	12,150	4,540	16,690	24,360	350	24,710	36,510	4,890	41,400
Percent of all small bodies of water on Census farms	37	18	32	79	37	79	65	19	60

TABLE 3.112
Major Uses of Land in the Choctawhatchee-Perdido Basins—1975
(acres)

Item	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	10,700	1,150	11,850	133,750	--	133,750	144,450	1,150	145,600
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	--	--	--	700	--	700	700	--	700
Peanuts (picked and threshed)	19,000	1,800	20,800	168,800	--	168,800	187,800	1,800	189,600
Soybeans	6,000	200	6,200	13,300	300	13,600	19,300	500	19,800
Corn	53,000	5,500	58,500	269,600	800	270,400	322,600	6,300	328,900
Sweet potatoes	120	20	140	1,960	--	1,960	2,080	20	2,100
Small grain	10,000	1,100	11,100	17,650	750	18,400	27,650	1,850	29,500
All hay	24,000	4,500	28,500	54,400	800	55,200	78,400	5,300	83,700
Fruits and nuts	9,000	4,700	13,700	18,000	400	18,400	27,000	5,100	32,100
Commercial truck	4,100	200	4,300	13,000	700	13,700	17,100	900	18,000
Miscellaneous and other	4,080	830	4,910	16,140	250	16,390	20,220	1,080	21,300
Subtotal harvested cropland	140,000	20,000	160,000	707,300	4,000	711,300	847,300	24,000	871,300
Idle, fallow, or failure	12,600	1,800	14,400	63,400	400	63,800	76,000	2,200	78,200
Pasture									
Cropland pastured	96,000	15,000	111,000	334,600	2,400	337,000	430,600	17,400	448,000
Woodland pastured	166,000	25,000	191,000	582,800	3,200	586,000	748,800	28,200	777,000
Other pasture	75,000	12,000	87,000	263,000	2,000	265,000	338,000	14,000	352,000
Subtotal all pasture	337,000	52,000	389,000	1,180,400	7,600	1,188,000	1,517,400	59,600	1,577,000
Woodland not pastured	178,400	28,400	206,800	748,800	1,400	750,200	927,200	29,800	957,000
Other farmland									
Farmsteads, roads, etc.	6,500	1,100	7,600	24,200	200	24,400	30,700	1,300	32,000
Other onfarm land	7,500	2,450	9,950	42,660	1,060	43,720	50,160	3,510	53,670
Small bodies of water	7,000	1,250	8,250	74,540	140	24,680	31,540	1,390	32,930
Subtotal other farmland with water	21,000	4,800	25,800	91,400	1,400	92,800	112,400	6,200	118,600
Subtotal other farmland without water	14,000	3,550	17,550	66,860	1,260	68,120	80,860	4,810	85,670
Total farmland with small bodies of water	689,000	107,000	796,000	2,791,300	14,800	2,806,100	3,480,300	121,800	3,602,100
Total farmland without small bodies of water	682,000	105,750	787,750	2,766,760	14,660	2,781,420	3,448,760	120,410	3,569,170
Off-farm agricultural land									
Cropland									
Corn	1,400	170	1,570	2,730	--	2,730	4,130	170	4,300
Hay	100	--	100	200	--	200	300	--	300
Other	500	100	600	1,000	--	1,000	1,500	100	1,600
Pasture	5,600	700	6,300	11,200	--	11,200	16,800	700	17,500
Woodland	8,000	930	8,930	15,470	--	15,470	23,470	930	24,400
Other farmland									
Farmsteads, roads, etc.	1,420	180	1,600	3,000	--	3,000	4,420	180	4,600
Other off-farm land	4,900	710	5,610	10,880	--	10,880	15,780	710	16,490
Small bodies of water	80	10	90	220	--	220	300	10	310
Subtotal other farmland with water	6,400	900	7,300	14,100	--	14,100	20,500	900	21,400
Subtotal other farmland without water	6,320	890	7,210	13,880	--	13,880	20,200	890	21,090
Total off-farm land with water	22,000	2,800	24,800	44,700	--	44,700	66,700	2,800	69,500
Total off-farm land without water	21,920	2,790	24,710	44,480	--	44,480	66,400	2,790	69,190
Nonfarm woodland with water	2,024,060	623,760	2,647,820	2,188,000	5,480	2,193,480	4,212,060	629,240	4,841,300
Small bodies of water	7,880	3,500	11,380	5,180	40	5,220	13,060	3,540	16,600
Nonfarm woodland without water	2,016,180	620,260	2,636,440	2,182,820	5,440	2,188,260	4,199,000	625,700	4,824,700
Total agricultural land with water	2,735,060	733,560	3,468,620	5,024,000	20,280	5,044,280	7,759,060	753,840	8,512,900
Small bodies of water	14,960	4,760	19,720	29,940	180	30,120	44,900	4,940	49,840
Total agricultural land without water	2,720,100	728,800	3,448,900	4,994,060	20,100	5,014,160	7,714,160	748,900	8,463,060
Social, service, other land with water	99,500	173,320	272,820	281,600	29,000	310,600	381,100	202,320	583,420
Small bodies of water	350	770	1,120	890	190	1,080	1,240	960	2,200
Social, service, other land without water	99,150	172,550	271,700	280,710	28,810	309,520	379,860	201,360	581,220
Total land area with water	2,834,560	906,880	3,741,440	5,305,600	49,280	5,354,880	8,140,160	956,160	9,096,320
Small bodies of water	15,310	5,530	20,840	30,830	370	31,200	46,140	5,900	52,040
Total land area without water	2,819,250	901,350	3,720,600	5,274,770	48,910	5,323,680	8,094,020	950,260	9,044,280
Summary of woodland without water									
Farm woodland pastured	166,000	25,000	191,000	582,800	3,200	586,000	748,800	28,200	777,000
Farm woodland not pastured	178,400	28,400	206,800	748,800	1,400	750,200	927,200	29,800	957,000
Off-farm agricultural woodland	8,000	930	8,930	15,470	--	15,470	23,470	930	24,400
Nonfarm woodland	2,016,180	620,260	2,636,440	2,182,820	5,440	2,188,260	4,199,000	625,700	4,824,700
Total woodland	2,368,580	674,590	3,043,170	3,529,890	10,040	3,539,930	5,898,470	684,630	6,583,100
Control for small water bodies									
Water on farms	7,000	1,250	8,250	24,540	140	24,680	31,540	1,390	32,930
Water on nonagricultural farms	80	10	90	220	--	220	300	10	310
Water on nonfarm woodland	7,880	3,500	11,380	5,180	40	5,220	13,060	3,540	16,600
Water on social, service, other land	350	770	1,120	890	190	1,080	1,240	960	2,200
Total small bodies of water	15,310	5,530	20,840	30,830	370	31,200	46,140	5,900	52,040
Percent of all small bodies of water on farms	46	23	40	80	38	79	68	24	63

TABLE 3.113
Major Uses of Land in the Choctawhatchee-Perdido Basins—2000
(acres)

Item	Florida			Alabama			Total Upper Coastal Plain	Total Lower Coastal Plain	Total Basin 8
	Upper Coastal Plain	Lower Coastal Plain	Total	Upper Coastal Plain	Lower Coastal Plain	Total			
Onfarm land									
Cropland									
Cotton	9,000	700	9,700	151,000	--	151,000	160,000	700	160,700
Cottonseed	--	--	--	--	--	--	--	--	--
Tobacco	--	--	--	1,000	--	1,000	1,000	--	1,000
Peanuts (picked and threshed)	23,000	2,200	25,200	203,700	--	203,700	226,700	2,200	228,900
Soybeans	7,200	250	7,450	16,000	350	16,350	23,200	600	23,800
Corn	60,000	6,200	66,200	304,400	900	305,300	364,400	7,100	371,500
Sweet potatoes	200	100	300	2,300	--	2,300	2,500	100	2,600
Small grain	12,400	1,400	13,800	21,900	800	22,700	34,300	2,200	36,500
All hay	32,000	6,000	38,000	71,600	900	72,500	103,600	6,900	110,500
Fruits and nuts	11,400	6,000	17,400	22,500	400	22,900	33,900	6,400	40,300
Commercial truck	4,500	400	4,900	13,400	700	14,100	17,900	1,100	19,000
Miscellaneous and other	6,300	1,750	8,050	22,100	250	22,350	28,400	2,000	30,400
Subtotal harvested cropland	166,000	25,000	191,000	829,900	4,300	834,200	995,900	29,300	1,025,200
Idle, fallow, or failure	10,200	1,500	11,700	51,700	200	51,900	61,900	1,700	63,600
Pasture									
Cropland pastured	174,000	25,000	199,000	527,400	3,600	531,000	701,400	28,600	730,000
Woodland pastured	160,000	23,000	183,000	491,000	3,000	494,000	651,000	26,000	677,000
Other pasture	76,000	11,000	87,000	227,400	1,600	229,000	303,400	12,600	316,000
Subtotal all pasture	410,000	59,000	469,000	1,245,800	8,200	1,254,000	1,655,800	67,200	1,723,000
Woodland not pastured	79,300	16,500	95,800	560,800	400	561,200	640,100	16,900	657,000
Other farmland									
Farmsteads, roads, etc	5,600	1,200	6,800	22,400	200	22,600	28,000	1,400	29,400
Other onfarm land	4,900	1,740	6,640	38,300	1,030	39,330	43,200	2,770	45,970
Small bodies of water	12,000	2,060	14,060	32,400	170	32,570	44,400	2,230	46,630
Subtotal other farmland with water	22,500	5,000	27,500	93,100	1,400	94,500	115,600	6,400	122,000
Subtotal other farmland without water	10,500	2,940	13,440	60,700	1,230	61,930	71,200	4,170	75,370
Total farmland with small bodies of water	688,000	107,000	795,000	2,781,300	14,500	2,795,800	3,469,300	121,500	3,590,800
Total farmland without small bodies of water	676,000	104,940	780,940	2,748,900	14,330	2,763,230	3,424,900	119,270	3,544,170
Off-farm agricultural land									
Cropland									
Corn	1,840	230	2,070	3,630	--	3,630	5,470	230	5,700
Hay	150	--	150	250	--	250	400	--	400
Other	700	100	800	1,300	--	1,300	2,000	100	2,100
Pasture	7,200	900	8,100	14,400	--	14,400	21,600	900	22,500
Woodland	9,110	970	10,080	19,220	--	19,220	28,330	970	29,300
Other farmland									
Farmsteads, roads, etc	1,600	200	1,800	3,400	--	3,400	5,000	200	5,200
Other off-farm land	3,900	580	4,480	7,750	--	7,750	11,650	580	12,230
Small bodies of water	100	20	120	250	--	250	350	20	370
Subtotal other farmland with water	5,600	800	6,400	11,400	--	11,400	17,000	800	17,800
Subtotal other farmland without water	5,500	780	6,280	11,150	--	11,150	16,650	780	17,430
Total off-farm land with water	24,600	3,000	27,600	50,200	--	50,200	74,800	3,000	77,800
Total off-farm land without water	24,500	2,980	27,480	49,950	--	49,950	74,450	2,980	77,430
Nonfarm woodland with water	1,970,760	517,460	2,488,220	2,046,100	4,780	2,050,880	4,016,860	522,240	4,539,100
Small bodies of water	8,000	3,550	11,550	5,400	50	5,450	13,400	3,600	17,000
Nonfarm woodland without water	1,962,760	513,910	2,476,670	2,040,700	4,730	2,045,430	4,003,460	518,640	4,522,100
Total agricultural land with water	2,683,360	627,460	3,310,820	4,877,600	19,280	4,896,880	7,560,960	646,740	8,207,700
Small bodies of water	20,100	5,630	25,730	38,050	220	38,270	58,150	5,850	64,000
Total agricultural land without water	2,663,260	621,830	3,285,090	4,839,550	19,060	4,858,610	7,502,810	640,890	8,143,700
Social, service, other land with water	151,200	279,420	430,620	428,000	30,000	458,000	579,200	309,420	888,620
Small bodies of water	500	1,100	1,600	1,500	200	1,700	2,000	1,300	3,300
Social, service, other land without water	150,700	278,320	429,020	426,500	29,800	456,300	577,200	308,120	885,320
Total land area with water	2,834,560	906,880	3,741,440	5,305,600	49,280	5,354,880	8,140,160	956,160	9,096,320
Small bodies of water	20,600	6,730	27,330	39,550	420	39,970	60,150	7,150	67,300
Total land area without water	2,813,960	900,150	3,714,110	5,266,050	48,860	5,314,910	8,080,010	949,010	9,029,020
Summary of woodland without water									
Farm woodland pastured	160,000	23,000	183,000	491,000	3,000	494,000	651,000	26,000	677,000
Farm woodland not pastured	79,300	16,500	95,800	560,800	400	561,200	640,100	16,900	657,000
Off-farm agricultural woodland	9,110	970	10,080	19,220	--	19,220	28,330	970	29,300
Nonfarm woodland	1,962,760	513,910	2,476,670	2,040,700	4,730	2,045,430	4,003,460	518,640	4,522,100
Total woodland	2,211,170	554,380	2,765,550	3,111,720	8,130	3,119,850	5,322,890	562,510	5,885,400
Control for small water bodies									
Water on farms	12,000	2,060	14,060	32,400	170	32,570	44,400	2,230	46,630
Water on nonagricultural farms	100	20	120	250	--	250	350	20	370
Water on nonfarm woodland	8,000	3,550	11,550	5,400	50	5,450	13,400	3,600	17,000
Water on social, service, other land	500	1,100	1,600	1,500	200	1,700	2,000	1,300	3,300
Total small bodies of water	20,600	6,730	27,330	39,550	420	39,970	60,150	7,150	67,300
Percent of all small bodies of water on farms	58	31	51	82	40	81	74	31	69

TABLE 3.114

Timber Production in the Southeast River Basins
(millions of cubic feet)

Basin	1959			1975			2000		
	Pulpwood	Other wood products	Total	Pulpwood	Other wood products	Total	Pulpwood	Other wood products	Total
Savannah									
North Carolina	1	3	4	4	3	7	6	4	10
South Carolina	15	29	44	32	31	63	57	42	99
Georgia	20	39	59	44	47	91	79	64	143
Subtotal	36	71	107	80	81	161	142	110	252
Ogeechee									
Georgia	26	30	56	49	39	88	88	53	141
Altamaha									
Georgia	80	86	166	143	105	248	246	140	386
Satilla-St. Marys									
Georgia	50	9	59	66	26	92	111	33	144
Florida	15	2	17	17	6	23	27	9	36
Subtotal	65	11	76	83	32	115	138	42	180
Suwannee									
Georgia	34	31	65	64	38	102	110	49	159
Florida	34	31	65	56	37	93	97	49	146
Subtotal	68	62	130	120	75	195	207	98	305
Ochlockonee									
Georgia	5	10	15	16	13	29	29	18	47
Florida	17	42	59	41	44	85	73	61	134
Subtotal	22	52	74	57	57	114	102	79	181
Apalachicola-Chattahoochee-Flint									
Georgia	54	91	145	103	92	195	168	115	283
Florida	8	25	33	22	23	45	36	29	65
Alabama	5	16	21	15	17	32	24	22	46
Subtotal	67	132	199	140	132	272	228	166	394
Choctawhatchee-Perdido									
Florida	36	44	80	68	33	121	121	72	193
Alabama	28	38	66	60	46	106	105	63	168
Subtotal	64	82	146	128	99	227	226	135	361
Total	428	526	954	800	620	1,420	1,377	823	2,200

TABLE 3.115

Cash Farm Income and Production Expenses by Basins—1959
(thousands of dollars)

Item	Basin								Total SERB area
	1	2	3	4	5	6	7	8	
Crops									
Cotton	18,064.9	10,959.5	24,286.8	1,998.7	8,257.6	2,791.7	25,449.9	13,412.7	105,221.8
Cottonseed	1,818.6	1,103.3	2,444.9	201.2	831.3	281.0	2,562.0	1,350.2	10,592.5
Tobacco	178.5	7,414.9	9,374.1	13,065.1	28,380.8	8,882.5	3,808.2	175.9	71,280.0
Peanuts	438.8	1,960.5	4,403.6	730.4	8,028.2	2,288.3	28,986.9	8,988.3	55,825.0
Commercial truck	2,920.0	1,380.0	3,900.0	360.0	7,280.0	2,880.0	6,880.0	3,420.0	29,020.0
Soybeans	1,285.6	474.7	733.4	6.1	95.3	56.4	366.7	3,011.4	6,029.6
Fruits and nuts	736.0	720.0	4,512.0	336.0	1,760.0	2,104.0	7,816.0	2,592.0	20,576.0
Horticultural specialty	771.2	275.7	516.7	732.0	2,485.2	1,013.0	1,434.9	956.5	8,185.2
Other crops	5,046.8	3,510.9	5,882.1	1,242.7	6,008.0	3,347.2	11,449.2	3,206.4	39,693.3
Total all crops	31,260.4	27,799.5	56,053.6	18,672.2	63,126.4	23,644.1	88,753.8	37,113.4	346,423.4
Livestock									
Beef and veal	8,939.5	4,122.8	14,286.8	3,347.2	8,980.3	4,245.2	22,137.8	12,858.1	78,917.7
Lamb and mutton	21.2	5.9	25.0	2.6	11.0	3.9	37.9	11.0	118.5
Pork	4,283.9	5,456.9	11,270.7	4,360.4	10,378.3	4,079.9	14,789.1	12,214.2	66,833.4
Dairy	11,960.2	4,138.3	20,242.0	2,988.8	5,287.9	2,758.9	16,558.3	11,035.6	74,970.0
Poultry	30,861.2	506.1	36,537.1	4,661.1	2,403.9	620.6	48,898.1	2,024.5	126,512.6
Eggs	10,398.1	3,116.1	14,978.4	3,881.5	4,700.7	2,350.8	19,680.7	5,630.9	64,737.2
Other	586.8	10.5	429.4	80.5	25.8	25.7	661.7	38.1	1,858.5
Total livestock	67,050.9	17,356.6	97,769.4	19,322.1	31,787.9	14,085.0	122,763.6	43,812.4	413,947.9
Farm forestry	1,998.3	1,299.2	3,629.9	1,475.8	2,475.9	546.1	657.9	1,553.1	13,636.2
Total cash income	100,309.6	46,455.3	157,452.9	39,470.1	97,390.2	38,275.2	212,175.3	82,478.9	774,007.5
Production expenses									
Feed	26,882.6	4,986.9	30,352.1	8,475.8	9,693.3	4,102.9	47,873.5	10,809.5	143,176.6
Livestock purchased	8,282.7	2,236.8	9,545.2	2,601.1	4,402.3	2,693.7	20,078.2	5,298.8	55,138.8
Seed	1,057.6	956.1	2,541.8	528.5	2,350.8	1,001.0	5,362.7	2,192.9	15,991.4
Fertilizer and lime	7,877.2	5,446.7	13,080.3	3,298.9	9,928.1	4,769.8	20,238.4	10,033.1	74,672.5
Repairs and maintenance	8,602.4	5,498.8	14,085.8	3,558.0	11,513.6	4,397.5	20,285.5	9,072.2	77,013.8
Hired labor	7,924.9	4,554.5	13,924.7	3,287.9	10,460.3	7,919.2	20,739.1	7,255.5	76,066.1
Depreciation	8,946.5	5,718.8	14,649.2	3,700.3	11,974.1	4,573.4	21,096.9	9,435.1	80,094.3
Miscellaneous	5,517.0	2,555.0	8,659.9	2,170.8	5,356.5	2,105.1	11,610.7	4,536.3	42,511.3
Taxes	1,530.8	870.3	2,344.8	592.7	1,614.9	873.4	3,342.9	1,768.5	12,938.3
Interest on mortgage	1,989.0	738.0	2,322.0	558.0	1,350.0	560.0	3,124.3	1,989.0	12,630.3
Net rent to landlord	3,350.3	1,551.6	5,258.9	1,318.3	3,252.8	1,278.4	7,111.5	2,754.8	25,876.6
Total production expenses	81,961.0	35,113.5	116,764.7	30,090.3	71,896.7	34,274.4	180,863.7	65,145.7	616,110.0
Net income	18,348.6	11,341.8	40,688.2	9,379.8	25,493.5	4,000.8	31,311.6	17,333.2	157,897.5

TABLE 3.116

Cash Farm Income and Production Expenses by States and Provinces—1959
(thousands of dollars)

Item	North Carolina	South Carolina	Georgia	Florida	Alabama	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total SERB area
Crops										
Cotton	---	7,491.8	77,990.4	2,241.2	17,498.4	420.9	24,779.7	75,191.5	4,829.7	105,221.8
Cottonseed	---	754.2	7,851.2	225.6	1,761.5	42.4	2,494.5	7,569.4	486.2	10,592.5
Tobacco	21.4	35.6	58,114.6	12,958.7	149.7	21.4	28.5	46,752.6	24,477.5	71,280.0
Peanuts	---	55.8	40,651.8	3,137.4	11,980.0	0.6	33.5	54,283.6	1,507.3	55,825.0
Commercial truck	20.3	1,657.1	17,455.5	6,007.1	3,880.0	133.5	3,238.6	22,690.8	2,957.1	29,020.0
Soybeans	0.2	987.8	1,920.6	1,113.4	2,007.6	3.6	171.2	5,107.1	747.7	6,029.6
Fruits and nuts	7.2	308.0	15,111.2	3,215.2	1,934.4	101.6	3,128.0	15,631.2	1,715.2	20,576.0
Horticultural specialty	5.4	208.1	5,190.1	1,948.7	832.9	68.3	1,157.1	5,057.1	1,902.7	8,185.2
Other crops	21.4	2,438.2	30,387.9	3,386.6	3,459.2	280.2	6,227.5	28,990.2	4,195.4	39,693.3
Total all crops	75.9	13,936.6	254,673.3	34,233.9	43,503.7	1,072.5	41,258.6	261,273.5	42,818.8	346,423.4
Livestock										
Beef and veal	86.8	3,511.9	49,852.3	11,774.5	13,692.2	852.3	20,163.5	48,613.3	9,288.6	78,917.7
Lamb and mutton	0.7	8.8	86.7	9.0	13.3	6.2	49.6	55.1	7.6	118.5
Pork	33.4	1,490.4	43,916.2	8,327.5	13,065.9	387.6	5,266.5	50,719.9	10,459.4	66,833.4
Dairy	179.9	4,618.2	49,682.6	10,533.3	9,956.0	1,514.4	31,884.7	34,261.3	7,309.6	74,970.0
Poultry	38.0	1,783.8	119,314.0	2,138.1	3,238.7	10,462.6	92,670.5	17,167.7	6,211.8	126,512.6
Eggs	200.7	3,405.2	47,737.2	7,587.2	5,806.9	2,589.5	28,846.9	25,791.3	7,509.5	64,737.2
Other	0.1	126.2	1,525.8	86.7	119.7	22.3	1,079.2	617.2	139.8	1,858.5
Total livestock	539.6	14,944.5	312,114.8	40,456.3	45,892.7	15,834.9	179,960.9	177,225.8	40,926.3	413,947.9
Farm forestry	11.5	770.5	10,084.0	730.0	2,040.2	151.9	2,567.9	7,859.2	3,057.2	13,636.2
Total cash income	627.0	29,651.6	576,872.1	75,420.2	91,436.6	17,059.3	223,787.4	446,358.5	86,802.3	774,007.5
Production expenses										
Feed	191.6	5,050.1	112,523.4	14,330.2	11,081.3	7,315.3	70,333.3	50,333.1	15,194.9	143,176.6
Livestock purchased	75.5	1,891.0	42,203.8	6,257.1	4,711.4	2,357.4	21,152.9	26,321.8	5,306.7	55,138.8
Seed	6.3	408.1	11,398.3	1,788.3	2,390.4	62.0	1,902.0	12,577.4	1,450.0	15,991.4
Fertilizer and lime	34.6	3,443.0	53,144.9	7,570.8	10,479.2	419.1	11,196.4	55,095.3	7,961.7	74,672.5
Repairs and maintenance	49.7	3,753.0	55,421.4	8,161.3	9,628.4	557.0	13,165.8	53,781.1	9,509.9	77,013.8
Hired labor	36.3	3,557.3	52,604.5	11,918.6	7,949.4	634.7	14,968.0	52,246.8	8,216.6	76,066.1
Depreciation	51.7	3,903.1	57,638.2	8,487.8	10,013.5	579.3	13,692.4	55,932.3	9,890.3	80,094.3
Miscellaneous	4.3	170.1	33,172.0	681.4	8,483.5	418.0	13,978.7	22,506.3	5,608.3	42,511.3
Taxes	7.5	298.7	9,951.9	485.7	2,194.5	194.5	3,513.5	7,472.6	1,757.7	12,938.3
Interest on mortgage	7.1	275.8	9,508.5	425.0	2,413.9	168.5	3,689.1	7,085.3	1,687.4	12,630.3
Net rent to landlord	5.6	229.8	21,230.3	607.1	3,803.8	259.3	8,081.0	13,809.9	3,726.4	25,876.6
Total production expenses	470.2	22,980.0	458,797.2	60,713.3	73,149.3	12,965.1	175,673.1	357,161.9	70,309.9	616,110.0
Net income	156.8	6,671.6	118,074.9	14,706.9	18,287.3	4,094.2	48,114.3	89,196.6	16,492.4	157,897.5

TABLE 3.117

Cash Farm Income and Production Expenses by Basins—1975
(thousands of dollars)

Item	Basin								Total SERB area
	1	2	3	4	5	6	7	8	
Crops									
Cotton	25,636.0	13,572.0	35,438.0	2,262.0	12,064.0	4,524.0	36,192.0	21,112.0	150,800.0
Cottonseed	5,421.4	2,870.1	7,494.2	478.4	2,551.2	956.7	7,653.7	4,464.6	31,890.3
Tobacco	350.0	11,620 0	17,430.0	19,180.0	47,350.0	12,250.0	4,830.0	490.0	113,500.0
Peanuts	1,263.8	4,053.7	9,168.6	1,192.3	12,840.8	4,447.2	56,928.0	22,605.6	112,500.0
Commercial truck	3,285.2	1,892.0	5,848.0	860.0	15,480.0	4,988.0	8,634.4	3,096.0	44,083.6
Soybeans	866.1	464.0	723.9	204.2	160.9	55.7	303.1	1,224.8	4,002.7
Fruits and nuts	873.6	854.4	5,366.4	403.2	2,092.8	2,505.6	9,302.4	3,081.6	24,480.0
Horticultural specialty	1,210.5	433.1	810.9	1,148.8	3,901.5	1,590.9	2,252.8	1,502.3	12,850.8
Other crops	835.8	581.9	974.5	205.8	995.5	554.3	1,896.4	531.3	6,575.5
Total all crops	39,742.4	36,341.2	83,254.5	25,934.7	97,436.7	31,872.4	127,992.8	58,108.2	500,682.9
Livestock									
Beef and veal	17,095.6	7,883.4	26,972.0	6,466.2	17,449.8	8,503.5	42,960.5	24,669.0	152,000.0
Lamb and mutton	16.7	4.6	19.8	2.3	9.1	3.0	30.4	9.1	95.0
Pork	10,898.3	13,879.2	28,690.5	11,084.9	26,408.6	10,386.1	37,633.0	31,019.4	170,000.0
Dairy	21,094.0	6,780.6	35,407.6	5,273.8	9,040.9	5,273.9	31,266.4	19,962.8	134,100.0
Poultry	56,105.0	920.4	66,424.2	8,474.6	4,370.4	1,128.9	88,895.9	3,680.6	230,000.0
Eggs	21,249.0	5,196.0	30,600.0	7,533.0	9,222.0	4,026.0	43,290.0	11,364.0	132,480.0
Other	789.5	14.1	577.5	108.2	34.8	34.5	890.3	51.2	2,500.1
Total livestock	127,248.1	34,678.3	188,691.6	38,943.0	66,535.6	29,355.9	244,966.5	90,756.1	821,175.1
Farm forestry	2,600.1	1,543.9	4,128.3	1,361.9	2,766.4	1,791.1	5,348.6	2,932.7	22,473.0
Total cash income	169,590.6	72,563.4	276,074.4	66,239.6	166,738.7	63,019.4	378,307.9	151,797.0	1,344,331.0
Production expenses									
Feed	47,435.1	5,746.9	63,168.3	9,986.3	10,316.1	4,687.0	78,477.6	15,709.6	235,526.9
Livestock purchased	13,052.1	1,442.6	15,799.9	2,198.2	2,747.8	2,198.3	26,447.7	4,808.7	68,695.3
Seed	3,099.9	1,859.4	4,543.3	756.8	3,136.3	1,425.1	7,502.8	3,682.5	26,006.1
Fertilizer and lime	14,968.2	7,334.9	21,296.4	3,671.0	14,299.8	6,813.7	35,425.0	17,879.9	121,688.9
Repairs and maintenance	15,700.5	7,693.7	22,338.3	3,850.6	14,999.4	7,147.0	37,093.0	18,754.6	127,577.1
Hired labor	21,329.7	5,575.7	29,141.0	4,773.5	10,612.3	4,997.1	41,028.7	14,044.5	131,502.5
Depreciation	15,857.5	7,695.0	22,561.7	3,889.1	15,149.4	7,150.0	37,335.6	18,920.1	128,558.4
Miscellaneous	8,598.2	3,678.9	13,996.9	3,358.4	8,453.7	3,195.1	19,227.3	7,696.1	68,204.6
Taxes	2,509.1	1,368.7	3,762.6	970.5	2,567.1	1,447.2	5,556.4	2,917.7	21,099.3
Interest on mortgage	2,851.2	1,085.4	3,316.6	788.9	1,944.0	810.0	4,491.7	2,867.4	18,155.2
Net rent to landlord	4,341.5	1,857.6	7,067.5	1,695.7	4,268.5	1,613.3	9,684.7	3,818.9	34,347.7
Total production expenses	149,743.0	45,338.8	206,992.5	35,939.0	88,494.4	41,483.8	302,270.5	111,100.0	981,362.0
Net income	19,847.6	27,224.6	69,081.9	30,300.6	78,244.3	21,535.6	76,037.4	40,697.0	362,969.0

TABLE 3.118

Cash Farm Income and Production Expenses by States and Provinces—1975
(thousands of dollars)

Item	North Carolina	South Carolina	Georgia	Florida	Alabama	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total SERB area
Crops										
Cotton	----	8,852.0	110,717.4	2,910.4	28,320.2	286.5	24,429.6	120,202.7	5,881.2	150,800.0
Cottonseed	----	1,872.0	23,413.8	615.5	5,989.0	60.6	5,166.2	25,419.8	1,243.7	31,890.3
Tobacco	----	90.8	91,605.9	21,315.3	488.0	----	68.1	76,430.9	37,001.0	113,500.0
Peanuts	----	191.3	75,318.8	7,121.2	29,868.7	----	56.3	109,665.0	2,778.7	112,500.0
Commercial truck	18.9	1,874.8	27,277.5	11,008.0	3,904.4	119.0	3,747.1	34,685.0	5,532.5	44,083.6
Soybeans	----	498.3	2,059.8	554.0	890.6	6.0	198.1	3,111.7	686.9	4,002.7
Fruits and nuts	8.6	364.8	17,986.6	3,816.0	2,304.0	119.0	3,662.4	18,673.0	2,025.6	24,480.0
Horticultural specialty	8.5	326.7	8,148.5	3,059.5	1,307.6	107.2	1,816.7	7,939.7	2,987.2	12,850.8
Other crops	3.5	403.9	5,034.0	561.0	573.1	46.4	1,031.6	4,802.5	695.0	6,575.5
Total all crops	39.5	14,474.6	361,562.3	50,960.9	73,645.6	744.7	40,176.1	400,930.3	58,831.8	500,682.9
Livestock										
Beef and veal	182.4	6,870.4	95,927.2	22,450.4	26,569.6	1,641.6	36,768.8	96,337.6	17,252.0	152,000.0
Lamb and mutton	0.4	6.8	70.5	8.6	8.7	4.6	39.9	44.5	6.0	95.0
Pork	68.0	3,808.0	111,146.0	22,185.0	32,793.0	833.0	12,053.0	131,784.0	25,330.0	170,000.0
Dairy	295.0	8,327.6	88,117.1	21,161.0	16,199.3	2,454.0	57,408.2	61,605.6	12,632.2	134,100.0
Poultry	69.0	3,289.0	216,890.0	3,887.0	5,865.0	19,159.0	168,291.0	31,303.0	11,247.0	230,000.0
Eggs	39.7	1,894.5	124,928.6	2,238.9	3,378.3	5,590.6	60,278.4	51,932.2	14,678.8	132,480.0
Other	0.1	169.8	2,052.6	116.6	161.0	30.0	1,451.7	830.3	188.1	2,500.1
Total livestock	654.6	24,366.1	639,132.0	72,047.5	84,974.9	29,712.8	336,291.0	373,837.2	81,334.1	821,175.1
Farm forestry	20.2	1,004.5	14,490.6	3,771.0	3,186.7	276.4	4,762.0	13,378.2	4,056.4	22,473.0
Total cash income	714.3	39,845.2	1,015,184.9	126,779.4	161,807.2	30,733.9	381,229.1	788,145.7	144,222.3	1,344,331.0
Production expenses										
Feed	202.9	6,311.5	186,199.2	20,443.2	22,370.1	12,070.2	116,050.0	83,094.9	24,311.8	235,526.9
Livestock purchased	81.2	2,323.8	48,200.4	8,082.2	10,007.7	2,946.8	27,498.8	31,881.7	6,368.0	68,695.3
Seed	6.1	459.0	19,396.3	2,377.1	3,767.6	110.7	2,954.9	20,684.2	2,256.3	26,006.1
Fertilizer and lime	37.0	3,872.9	89,650.1	11,410.2	16,718.7	791.0	18,468.0	90,309.3	12,120.6	121,688.9
Repairs and maintenance	53.3	4,446.7	94,984.6	12,551.2	15,541.3	949.2	22,161.6	92,345.7	12,120.6	127,577.1
Hired labor	36.0	4,016.4	97,859.2	16,639.8	12,951.1	870.1	20,314.8	97,264.7	13,052.9	131,502.5
Depreciation	50.7	4,590.2	94,358.0	13,311.8	16,247.7	940.1	24,008.4	90,659.9	12,950.0	128,558.4
Miscellaneous	5.6	573.7	56,200.7	2,947.5	8,477.1	1,582.6	23,376.2	27,778.0	15,467.8	68,204.6
Taxes	9.6	573.8	14,891.9	2,091.9	3,532.1	439.5	5,804.2	12,367.8	2,487.8	21,099.3
Interest on mortgage	9.1	573.8	12,020.7	1,901.7	3,649.9	395.5	5,251.4	10,128.6	2,379.7	18,155.2
Net rent to landlord	15.7	946.7	25,583.3	3,328.0	4,474.0	879.0	10,502.9	18,314.6	4,651.2	34,347.7
Total production expenses	507.2	28,688.5	739,344.4	95,084.6	117,737.3	21,974.7	276,391.2	574,829.4	108,166.7	981,362.0
Net income	207.1	11,156.7	275,840.5	31,694.8	44,069.9	8,759.2	104,838.0	213,316.3	36,055.6	362,969.0

TABLE 3.119

Cash Farm Income and Production Expenses by Basins—2000
(thousands of dollars)

Item	Basin								Total SERB area
	1	2	3	4	5	6	7	8	
Crops									
Cotton	34,800.0	18,487.5	47,850.0	2,175.0	15,225.0	4,350.0	61,987.5	32,625.0	217,500.0
Cottonseed	6,493.5	3,449.7	8,567.8	405.8	2,840.9	811.7	10,845.0	6,087.7	39,502.1
Tobacco	394.0	15,277.5	20,632.5	28,822.5	80,913.5	18,427.5	7,245.0	787.5	172,500.0
Peanuts	2,096.6	6,715.8	15,200.6	2,309.6	20,966.4	7,371.0	94,416.2	37,493.8	186,570.0
Commercial truck	3,405.6	1,892.0	6,364.0	860.0	17,372.0	5,160.0	9,288.0	3,268.0	47,609.6
Soybeans	1,355.8	726.3	1,137.9	322.8	250.2	88.8	476.1	1,920.6	6,278.5
Fruits and nuts	1,104.0	1,056.0	6,729.6	508.8	2,630.4	3,148.8	11,673.6	3,868.8	30,720.0
Horticultural specialty	3,250.0	1,007.5	1,982.5	2,925.0	9,717.5	4,160.0	5,850.0	3,607.5	32,500.0
Other crops	2,626.0	1,767.5	3,030.0	626.2	3,131.0	1,666.5	5,736.8	1,616.0	20,200.0
Total all crops	55,525.5	50,379.8	111,494.9	38,955.7	153,046.9	45,184.3	207,518.2	91,274.9	753,380.2
Livestock									
Beef and veal	25,668.0	11,846.8	40,476.6	9,683.4	26,231.5	12,738.8	64,405.1	36,949.8	228,000.0
Lamb and mutton	21.6	5.5	25.7	3.2	11.9	3.9	40.9	12.1	124.8
Pork	16,640.2	21,204.5	43,853.6	16,928.6	40,386.6	15,888.4	57,546.4	47,551.7	260,000.0
Dairy	36,484.2	9,355.7	53,322.6	8,420.2	12,629.8	7,952.5	60,338.5	36,016.5	224,520.0
Poultry	90,256.4	1,480.2	106,856.6	13,632.3	7,030.2	1,815.6	143,008.0	5,920.7	370,000.0
Eggs	32,954.4	6,366.0	47,187.6	8,983.2	11,230.8	4,863.0	76,402.2	26,212.8	214,200.0
Other	1,040.0	700.0	1,200.0	248.0	1,240.0	660.0	2,272.0	640.0	8,000.0
Total livestock	203,064.8	50,958.7	292,922.7	57,898.9	98,760.8	43,922.2	404,013.1	153,303.6	1,304,844.8
Farm forestry	2,064.6	1,211.5	3,301.7	1,093.3	2,284.8	1,513.5	4,296.7	2,424.9	18,191.0
Total cash income	260,654.9	102,550.0	407,719.3	97,947.9	254,092.5	90,620.0	615,828.0	247,003.4	2,076,416.0
Production expenses									
Feed	72,599.7	7,151.6	93,476.6	13,833.7	13,219.6	6,140.3	126,272.9	28,498.1	361,192.5
Livestock purchased	19,607.6	2,064.0	22,703.5	3,095.9	4,024.7	3,199.1	40,247.2	8,255.8	103,197.8
Seed	4,718.7	2,759.5	6,807.4	1,149.7	4,800.0	2,108.0	11,792.2	5,669.4	39,804.9
Fertilizer and lime	23,094.5	10,329.6	33,137.0	5,538.0	22,488.7	9,760.8	56,603.6	27,752.4	188,704.6
Repairs and maintenance	24,871.0	11,190.4	35,686.0	5,999.5	24,218.6	10,574.2	56,597.5	29,887.2	199,024.4
Hired labor	32,795.7	7,995.5	44,046.3	7,100.3	15,746.8	7,385.1	65,489.7	22,887.8	203,447.2
Depreciation	24,318.9	10,941.9	34,893.7	5,866.3	23,680.9	10,339.5	55,336.8	29,223.7	194,601.7
Miscellaneous	10,556.5	4,153.3	16,512.6	3,966.9	10,290.7	3,670.0	24,879.0	10,003.6	84,032.6
Taxes	3,852.5	2,021.6	5,718.6	1,400.2	3,957.2	2,164.6	8,758.6	4,560.3	32,433.6
Interest on mortgage	3,704.4	1,391.5	4,359.6	1,058.4	2,570.4	1,033.2	5,766.2	3,704.4	23,588.1
Net rent to landlord	5,551.9	2,184.3	8,684.4	2,086.3	5,412.2	1,930.2	12,117.1	5,261.2	44,227.6
Total production expenses	225,671.4	62,183.2	306,025.7	51,095.2	130,409.8	58,305.0	464,860.8	175,703.9	1,474,255.0
Net income	34,983.5	40,366.8	101,693.6	46,852.7	123,682.7	32,315.0	150,967.2	71,299.5	602,161.0

TABLE 3.120

Cash Farm Income and Production Expenses by States and Provinces—2000
(thousands of dollars)

Item	North Carolina	South Carolina	Georgia	Florida	Alabama	Blue Ridge	Piedmont	Upper Coastal Plain	Lower Coastal Plain	Total SERB area
Crops										
Cotton	----	12,180.0	155,469.0	3,371.3	46,479.7	195.7	29,906.3	180,525.0	6,873.0	217,500.0
Cottonseed	----	2,212.1	28,236.1	612.3	8,441.6	35.6	5,431.6	32,786.7	1,248.2	39,502.1
Tobacco	----	103.5	136,551.0	35,052.0	793.5	----	86.3	114,678.0	57,735.7	172,500.0
Peanuts	----	317.2	123,080.2	12,444.2	50,728.4	----	37.3	181,532.6	5,000.1	186,570.0
Commercial truck	25.8	1,978.0	29,145.4	12,401.2	4,059.2	204.7	3,794.5	37,440.2	6,170.2	47,609.6
Soybeans	----	847.6	3,159.3	871.5	1,400.1	16.3	327.1	4,797.4	1,137.7	6,278.5
Fruits and nuts	11.5	480.0	22,457.3	4,900.8	2,870.4	174.7	4,444.8	23,450.9	2,649.6	30,720.0
Horticultural specialty	21.5	826.3	20,607.7	7,737.6	3,306.9	271.1	4,594.5	20,079.8	7,554.6	32,500.0
Other crops	10.8	1,240.8	15,464.4	1,723.4	1,760.6	142.5	3,169.1	14,753.3	2,135.1	20,200.0
Total all crops	69.6	20,185.5	534,170.4	79,114.3	119,840.4	1,040.6	51,791.5	610,043.9	90,504.2	753,380.2
Livestock										
Beef and veal	296.4	10,898.4	142,750.8	34,998.0	39,056.4	2,530.8	55,107.6	144,027.6	26,334.0	228,000.0
Lamb and mutton	0.4	8.8	89.6	11.1	14.9	6.0	50.0	60.9	7.9	124.8
Pork	104.0	5,902.0	166,582.0	39,234.0	48,178.0	1,222.0	16,744.0	202,670.0	39,364.0	260,000.0
Dairy	426.6	14,481.5	144,007.1	39,897.2	25,707.6	3,502.5	101,123.8	100,944.2	18,949.5	224,520.0
Poultry	111.0	4,884.0	349,539.0	6,253.0	9,213.0	32,338.0	270,359.0	49,173.0	18,130.0	370,000.0
Eggs	664.0	10,731.4	154,288.3	25,232.8	23,283.5	8,975.0	100,374.1	86,022.7	18,828.2	214,200.0
Other	0.3	543.4	6,568.0	373.1	515.2	96.0	4,645.4	2,656.8	601.8	8,000.0
Total livestock	1,602.7	47,449.5	963,824.8	145,999.2	145,968.6	48,670.3	548,403.9	585,555.2	122,215.4	1,304,844.8
Farm forestry	12.7	669.4	11,822.4	3,039.7	2,646.8	220.1	3,820.1	10,703.6	3,447.2	18,191.0
Total cash income	1,685.0	68,304.4	1,509,817.6	228,153.2	268,455.8	49,931.0	604,015.5	1,206,302.7	216,166.8	2,076,416.0
Production expenses										
Feed	475.2	10,126.8	280,496.4	33,675.4	36,418.7	18,654.0	182,866.6	122,444.4	37,227.5	361,192.5
Livestock purchased	190.1	3,616.7	71,736.5	12,320.3	15,334.2	4,479.1	40,190.5	48,976.1	9,552.1	103,197.8
Seed	14.3	819.8	28,045.8	4,599.6	6,325.4	338.8	7,480.8	27,405.1	4,580.2	39,804.9
Fertilizer and lime	86.7	6,269.0	134,843.3	19,712.4	27,793.2	1,571.5	34,910.5	133,547.0	18,675.6	188,704.6
Repairs and maintenance	124.7	7,474.5	143,728.2	22,012.2	25,684.8	1,459.3	32,416.9	145,227.6	19,920.6	199,024.4
Hired labor	83.2	6,751.2	145,685.5	27,926.0	23,001.3	1,347.0	34,915.0	146,019.5	21,165.7	203,447.2
Depreciation	118.8	7,233.4	138,950.3	22,997.8	25,301.4	1,410.0	37,404.2	135,863.0	19,924.5	194,601.7
Miscellaneous	11.8	2,507.7	57,855.8	7,556.4	16,100.9	3,488.8	26,668.1	40,799.2	13,076.5	84,032.6
Taxes	23.8	1,060.9	21,765.7	4,599.6	4,983.6	705.0	8,980.5	19,168.4	3,579.7	32,433.6
Interest on mortgage	23.8	868.0	14,728.6	3,942.5	4,025.2	528.8	7,269.9	12,832.2	2,957.2	23,588.1
Net rent to landlord	35.6	1,494.9	31,060.3	4,928.1	6,708.7	1,269.0	14,539.9	23,438.2	4,980.5	44,227.9
Total production expenses	1,188.0	48,222.9	1,068,896.4	164,270.3	191,677.4	35,251.3	427,642.9	855,720.7	155,640.1	1,474,255.0
Net income	497.0	20,081.5	440,921.2	63,882.9	76,778.4	14,679.7	176,372.6	350,582.0	60,526.7	602,161.0

SECTION VI – PLANNING OBJECTIVES

Purpose

The purpose of this Section is to present the result of studies on the separate river basin areas for the development of resources to serve the projected economy. This includes current, 1960, information and projected data, 1975 and 2000. Estimates of resources requirements served as guides to planning for the development of projects and programs in the formulation of the comprehensive plan.

Scope

Section I contains the estimates of principal requirements for resource development for the total Southeast River Basins area. These include basic land and water uses for activities which are primarily oriented to population, employment, and personal income, such as recreation and fishery resources. This Section develops the estimates of requirement for resource development by river basins in conformity with the aggregate data for the total Southeast River Basins area. The subdivision of the total study area is shown on Figure 1.1.

Land Resources

Physiographic Provinces

The study area lies within three major physiographic provinces; i.e., Blue Ridge, Piedmont, and Coastal Plain. The Fall Line is the line of demarcation between the Piedmont and Coastal Plain provinces. The mountainous area with maximum elevation of 5,500 feet above sea level is located in the Blue Ridge province. The Piedmont area is one of moderate relief with rolling hills and valleys. For convenience of study, the large area within the Coastal Plain has been subdivided into the upper and lower portions. The Upper Coastal Plain is rolling, while the Lower Coastal Plain is flat with only minor variations in elevation which slope gently to the seacoasts to merge into marshlands and swamps. The boundary line of the physiographic provinces is shown on Figure 1.1. The 1959 distribution of the total land area by physiographic provinces and by river basins is shown in Table 3.121.

Drainage Areas

The total drainage area of the Southeast River Basins amounts to 88,085 square miles (56,374,400 acres). This includes the water surface area of impoundments and the land area of islands lying off the coastal shores. The division into river basins conforms to natural drainage divides except near the coast where the dividing lines have been drawn to include the intervening area between the principal rivers which are directly tributary to the coast. The land area is the net land area with inclusion of small bodies of water that would be classed as land by Bureau of Census definition; i.e., ponds less than 40 acres and streams less than 1/8 mile in width. The cur-

TABLE 3.121

Distribution of Land Area
(percent)

Basin	Physiographic province				Total
	Blue Ridge	Piedmont	Coastal Plain		
			Upper	Lower	
1	1.2	6.6	2.9	1.2	11.9
2	--	0.3	3.6	2.4	6.3
3	--	6.6	8.6	1.5	16.7
4	--	--	0.1	6.2	6.3
5	--	--	6.8	5.8	12.6
6	--	--	4.0	3.2	7.2
7	0.3	7.4	13.9	1.0	22.6
8	--	--	14.7	1.7	16.4
Total	1.5	20.9	54.6	23.0	100.0

rent, 1959, large water area is taken as the difference between the land area and the total drainage area. An inventory of farm ponds, limited generally to those less than 40 acres in area, is available to estimate the portion of the total land area that is in small water impoundments. A breakdown of the total surface area into land and water areas by river basins is shown in the following table.

TABLE 3.122

Land and Water Areas in Southeast River Basins—1959 (square miles)

Basin	Land area	Small bodies of water*	Large water area	Total area
1	10,299	54	278	10,577
2	5,436	43	99	5,535
3	14,477	95	87	14,564
4	5,425	38	95	5,520
5	10,929	70	91	11,020
6	6,203	40	126	6,329
7	19,516	114	282	19,798
8	14,213	65	529	14,742
Total	86,498	519	1,587	88,085
Acres	55,358,700	332,200	1,015,700	56,374,400

* Included in land area.

Land Use

Agriculture, including forestry, is the predominant user of land resources in the Southeast River Basins area. A detailed study of land uses as concerns agriculture, for both current and projected conditions by river basins, is presented in Section V. This study also included an estimate of land requirements for nonagricultural uses. The primary conclusion is that, with the expected increase in unit yield of agricultural crops, land will not become a limiting factor in the development and growth of the Southeast River Basins area between now and the year 2000. The projected demand for agricultural products is well within the potential productive capacity of the land under proper management techniques and technology.

Mineral Resources

Section I contains a general summary of the availability of mineral resources in the Southeast River Basins area. Known reserves of metal, with the exception of iron, are sparse in the study area. Some of the heavy minerals, thorium, titanium, and zirconium, are known to exist along the Atlantic and Gulf coasts, but little is known of the reserves. Brown iron ore, limonite, occurs in numerous locations, but the reserves are unknown. The locations of mineral resources are shown on Figures 3.1 to 3.4, inclusive. These maps were prepared by the Washington, D. C., office of the U. S. Geological Survey, with the assistance of the U. S. Bureau of Mines.

Water Resources

Rainfall

The long-term average annual rainfall is about 50 inches for the study area, ranging from a minimum of 44 inches in eastern Georgia to more than 80 inches in parts of the mountain area. The Atlantic coastal area receives 52 inches and the Gulf coastal area averages about 62 inches. The distribution of average annual rainfall throughout the Southeast River Basins is shown on Figure 3.5. The annual rainfall at various stations has ranged from a minimum of about 23 inches in 1931 to a maximum of over 127 inches in 1879.

Runoff

The average annual surface runoff in the study area amounts to 15 inches depth, or equivalent to 70,300,000 acre-feet. The distribution of average annual runoff is shown on Figure 3.6. The average annual depth of runoff varies from 9.8 inches (3,300,000 acre-feet) in the Ochlockonee basin to 25.0 inches (19,600,000 acre-feet) in the Choctawhatchee-Perdido basins. The minimum annual runoff occurred during the 1954 low-flow period and amounted to about 7.5 inches depth (35,500,000 acre-feet) for the study area, or approximately 50 percent of the average annual runoff. This period of low flow was more severe in certain river basins, ranging from 14 percent of average annual flows in the Satilla-St. Marys basins, and 24 percent in the Ochlockonee basin, to 73 percent in the Savannah basin. The runoff during an unusually wet year is represented by data for 1948, amounting to 28.9 inches depth, or 135,600,000 acre-feet for the study area. It is likely that other wet years, such as 1929 or 1879, may have had a greater volume of runoff, but detailed records for these years

TABLE 3.123

Annual Runoff by Basins

Basin	Drainage area (sq. mile)	Average year (inch)	Average year (million acre-ft.)	Dry year (1954) (inch)	Dry year (1954) (million acre-ft.)	Wet year (1948) (inch)	Wet year (1948) (million acre-ft.)
1	10,577	17.0	9.6	12.4	7.0	26.4	14.9
2	5,535	10.2	3.0	5.8	1.7	26.1	7.7
3	14,564	13.6	10.5	6.5	5.0	24.6	19.1
4	5,520	10.0	2.9	1.4	0.4	23.0	6.8
5	11,020	9.9	5.8	4.3	2.5	29.8	17.5
6	6,329	9.8	3.3	2.4	0.8	33.5	11.3
7	19,798	14.8	15.6	7.7	8.1	29.3	30.9
8	14,742	25.0	19.6	12.7	10.0	35.0	27.4
Total	88,085	*15.0	70.3	*7.5	35.5	*28.9	135.6

* Average.

are not available. A summary of the average annual runoff, the minimum annual runoff during the 1954 drought, and that for the flood year of 1948 are shown in Table 3.123. It is to be noted that the range of runoff is from about 50 to 200 percent of the annual average.

Ground Water

Almost one-fourth of the Southeast River Basins area lies in the Blue Ridge and Piedmont provinces, or above the Fall Line. In this area, the underlying rock structures are relatively impervious and only limited quantities of ground water are available. The estimates of the availability of ground water are limited to the Coastal Plain area below the Fall Line. The Coastal Plain has five principal aquifer systems which include one or more interconnected waterbearing beds. The vertical and lateral extent of the aquifer system is not completely known although sufficient data are available to approximate their limits and hence to estimate how much water can be taken on a sustained basis.

The U. S. Geological Survey made a special study for the U. S. Study Commission to determine the safe yield of the sedimentary aquifers of the Coastal Plain. In this study, safe yield was defined as the rate at which water can be withdrawn from the aquifers without depleting the storage supply to such an extent that withdrawal at this rate is no longer feasible and without changing the quality so that the water is no longer usable. Two of the most important and limiting variables for determination of the safe yield are the average annual recharge to the aquifers from precipitation and the permeability of the rock for movement of water within the aquifer. The estimates of safe yield are not precise determinations since it was necessary to make a number of broad assumptions. The results, it is believed, are reasonable and generally indicative of the quantities of water that could be withdrawn on a sustained basis. It is expected that there will be some mining of water, but eventually the withdrawal and recharge rate should be in reasonable balance. The estimates of maximum sustained ground water yield by river basins are as follows:

TABLE 3.124

Ground Water Yield by Basins

Basin	Drainage area (sq. mile)	Annual safe yield (inch)	Annual safe yield (million acre-ft.)
1	10,577	3.6	2
2	5,535	6.8	2
3	14,564	3.9	3
4	5,520	3.4	1
5	11,020	3.4	2
6	6,329	3.0	1
7	19,798	4.7	5
8	14,742	14.0	11
Total	88,085	*5.7	27

* Average.

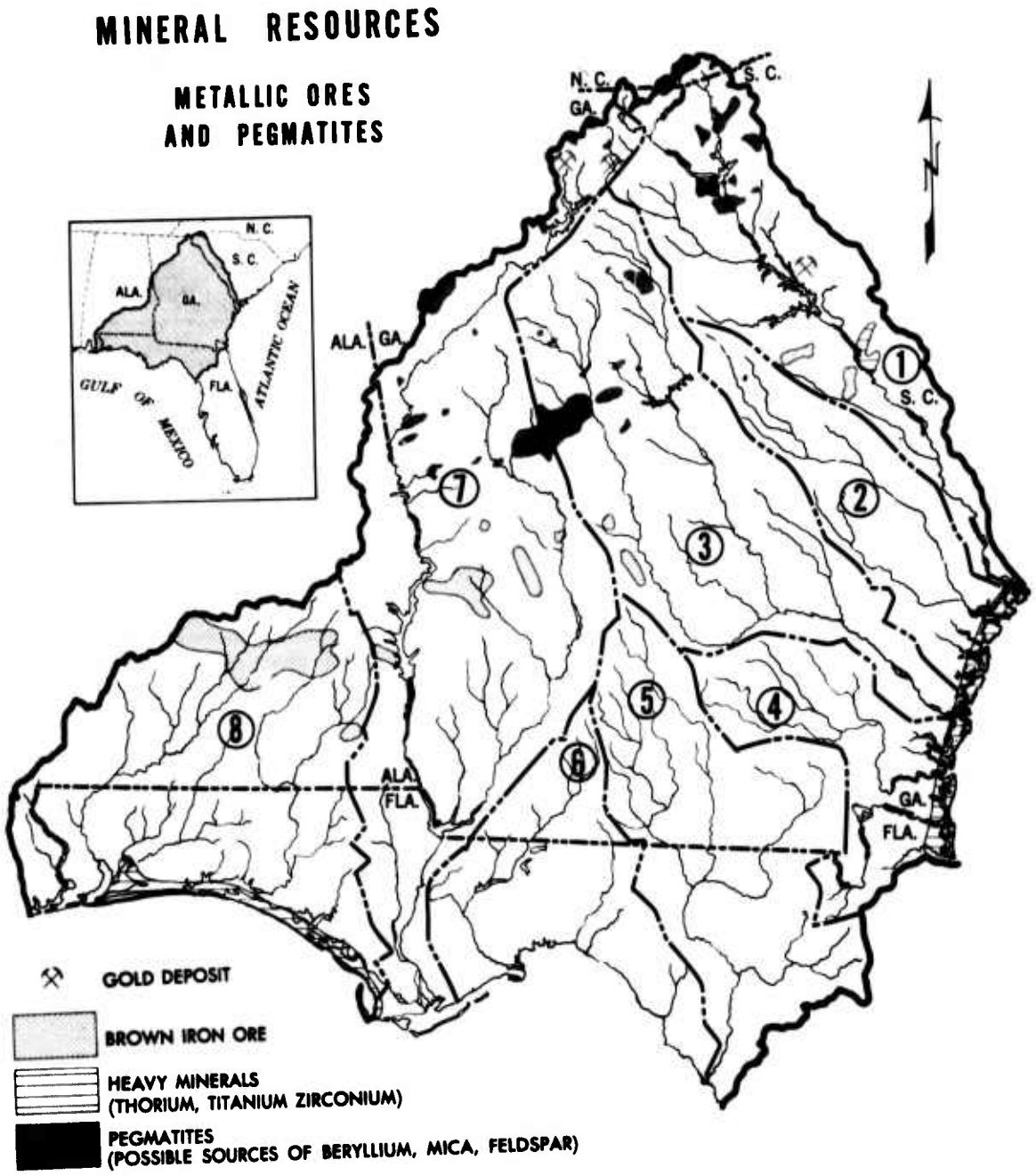

MINERAL RESOURCES
METALLIC ORES
AND PEGMATITES
N. C.
S. C.
GA.
ALA.
GA.
FLA.
ATLANTIC OCEAN
GULF OF MEXICO
ALA.
GA.
N. C.
S. C.
ALA.
FLA.
GA.
FLA.
1
2
3
4
5
6
7
8
GOLD DEPOSIT
BROWN IRON ORE
HEAVY MINERALS
(THORIUM, TITANIUM ZIRCONIUM)
PEGMATITES
(POSSIBLE SOURCES OF BERYLLIUM, MICA, FELDSPAR)

Figure 3.1

MINERAL RESOURCES

CLAY, PHOSPHATE AND NONMETALLIC ORES

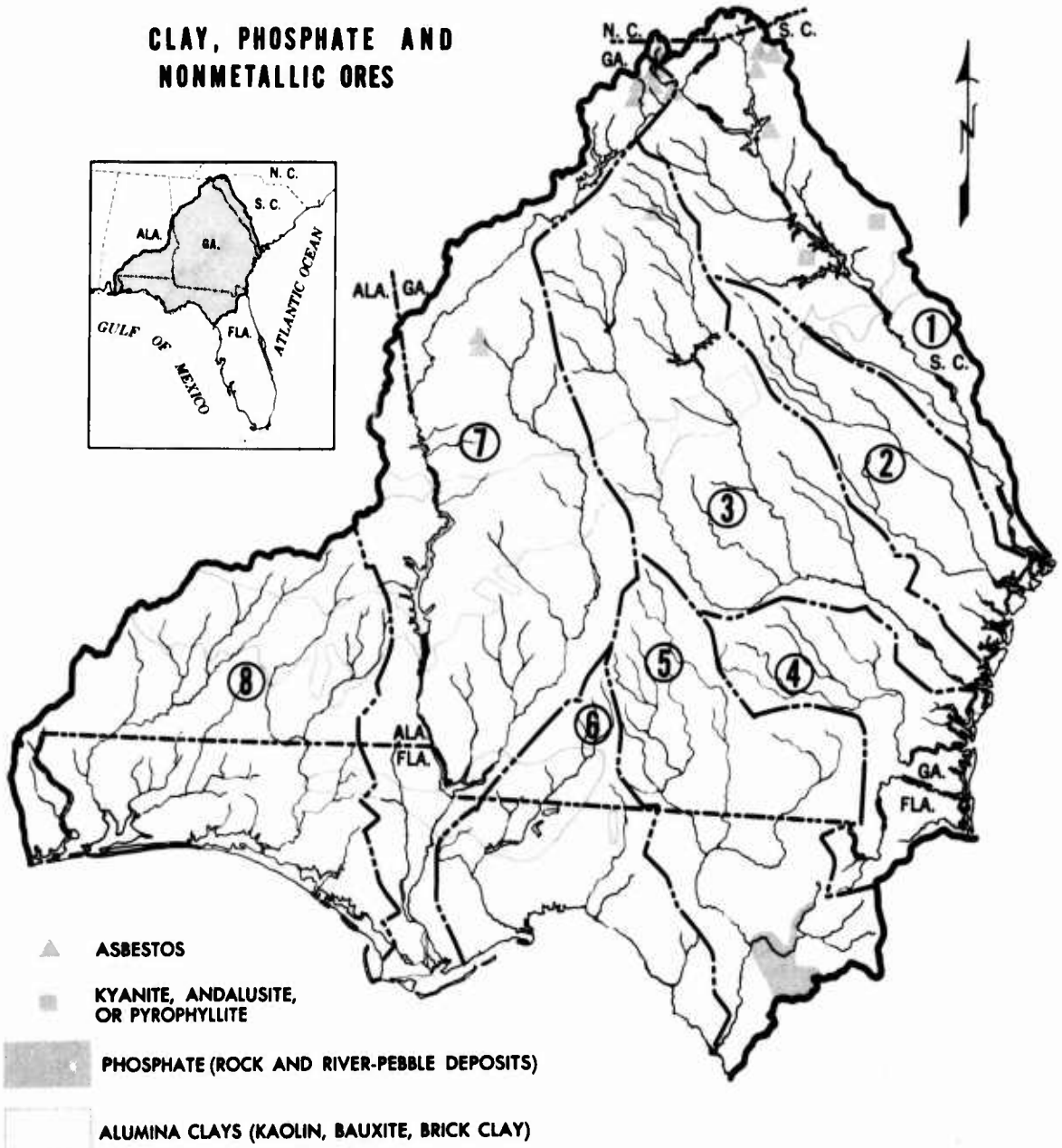


Figure 3.2

MINERAL RESOURCES

GRANITE AND LIMESTONE

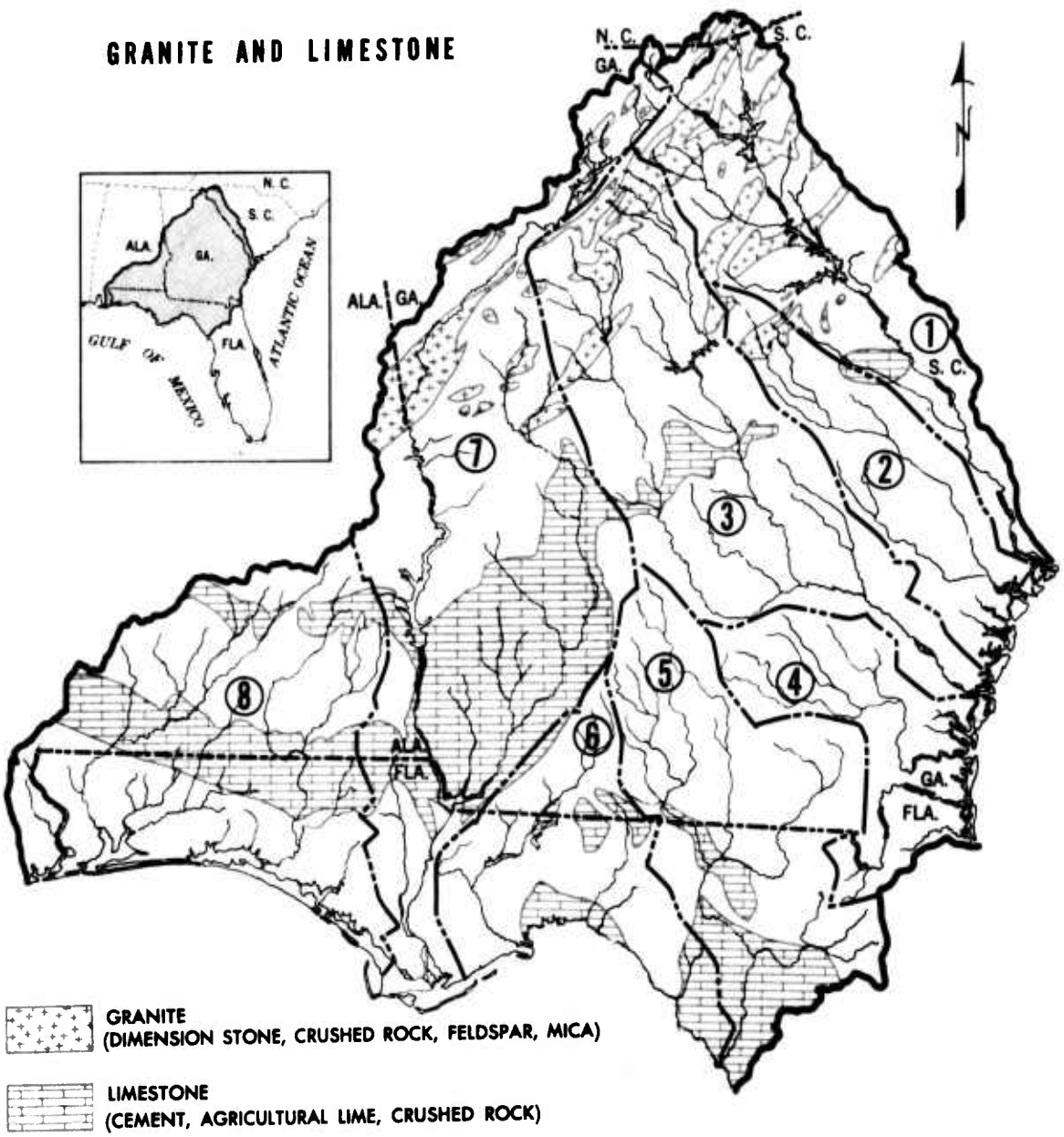


Figure 3.3

MINERAL RESOURCES

PEAT, LIGNITE AND OIL

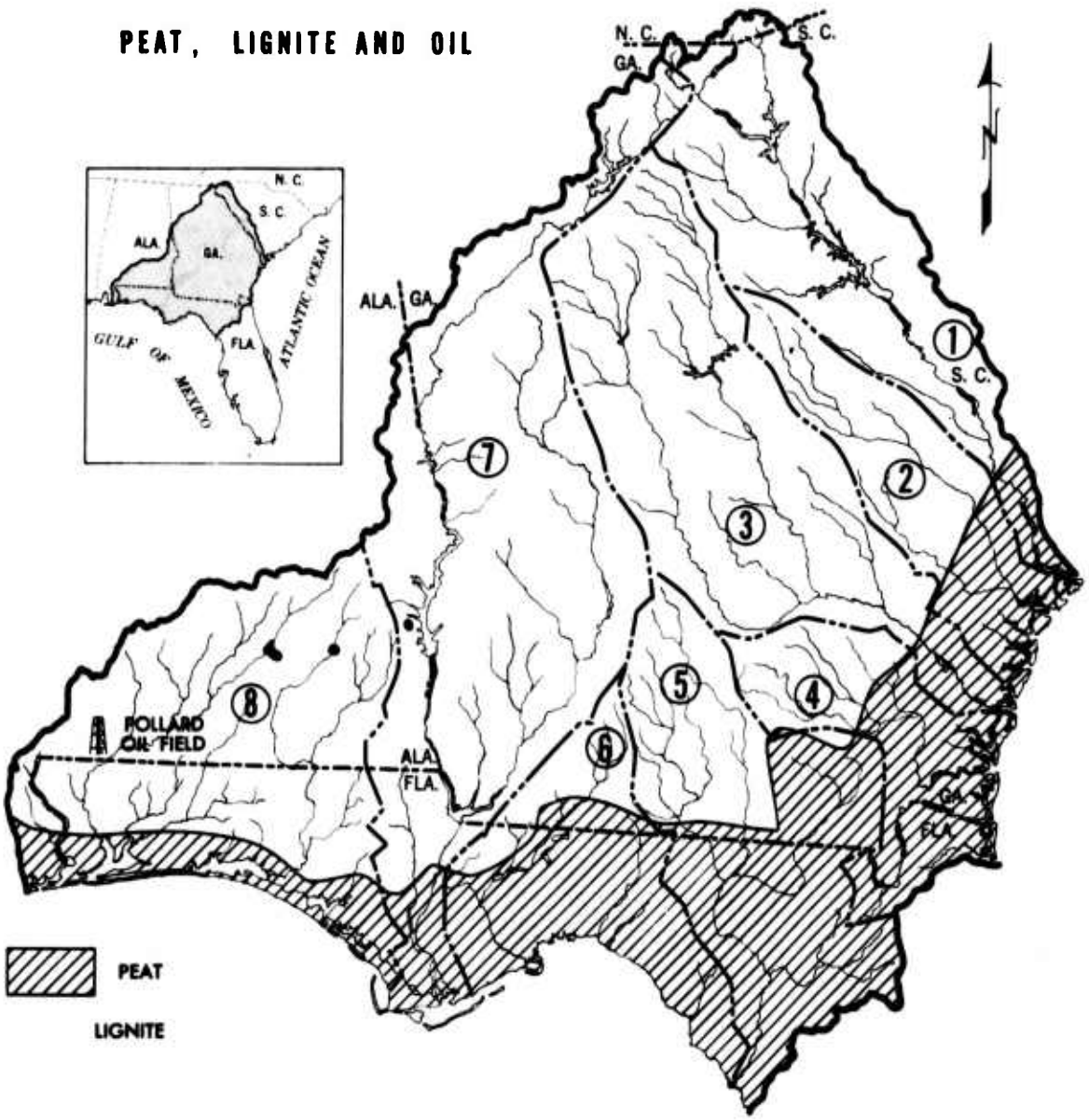


Figure 3.4

AVERAGE ANNUAL RAINFALL IN INCHES

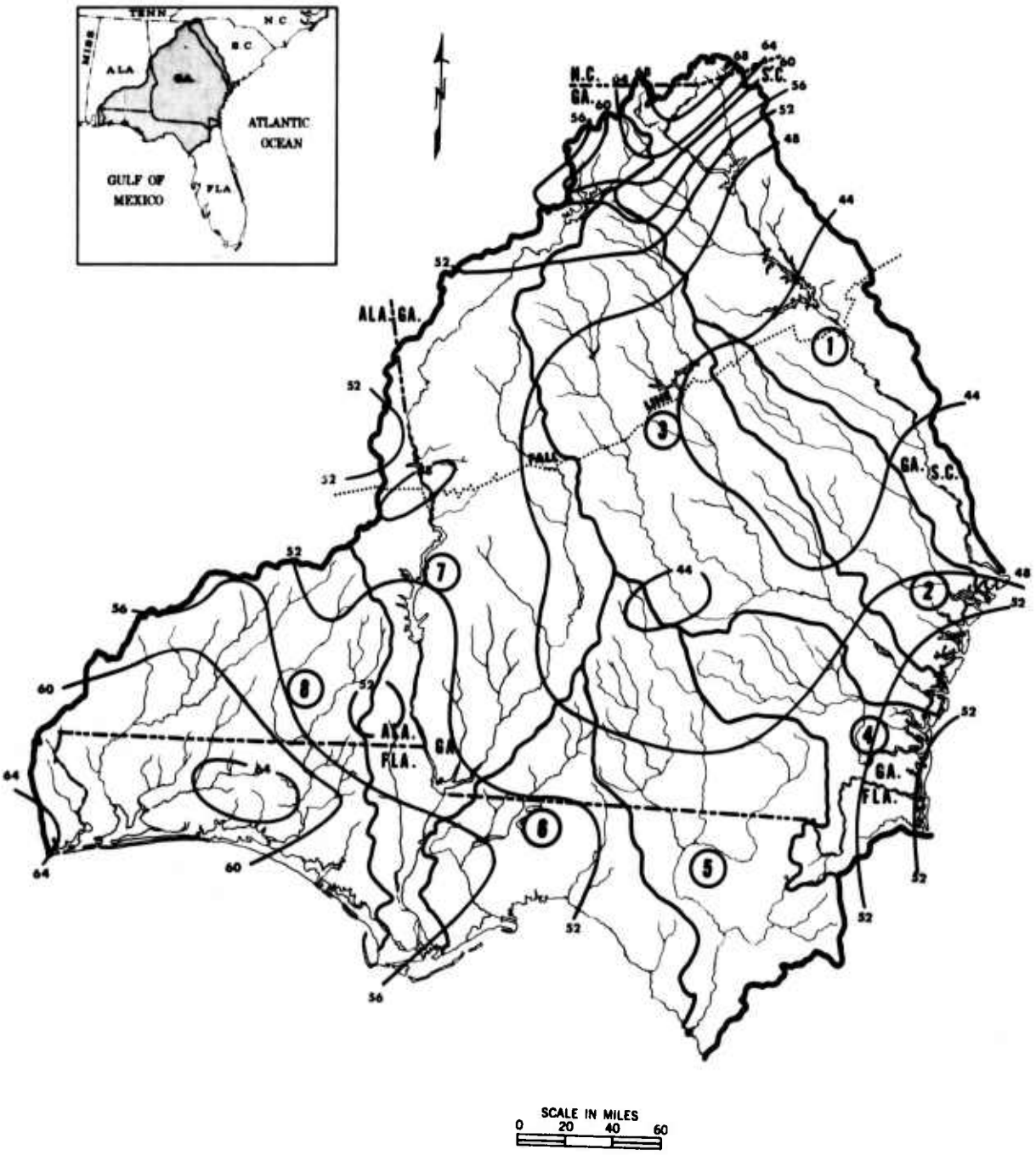


Figure 3.5

AVERAGE ANNUAL RUNOFF IN INCHES

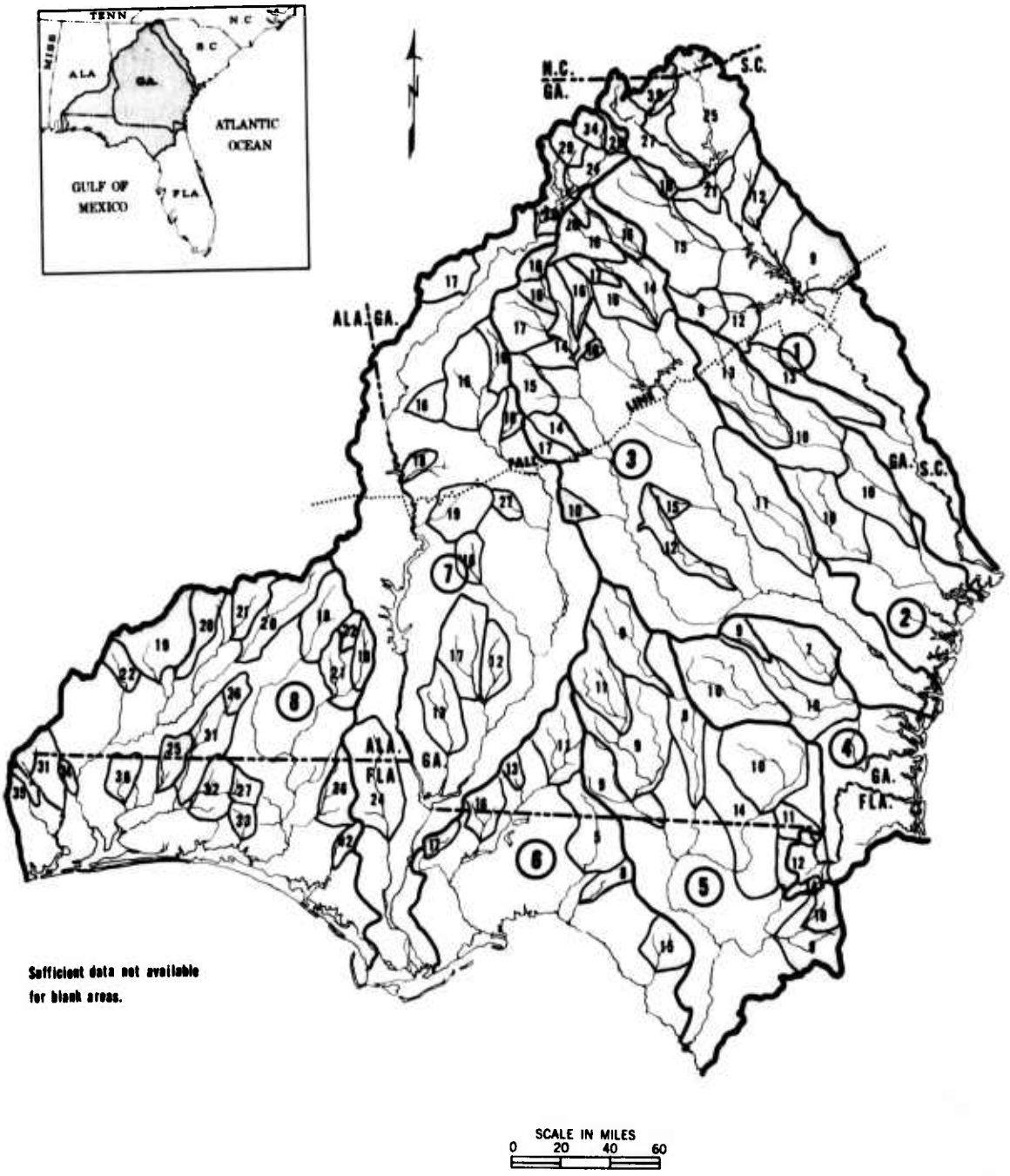


Figure 3.6

Water Available

The quantity of water that would be available for beneficial use is dependent on the particular runoff condition assumed and the source of the supply; i.e., surface and/or ground water. The total water available for use in the Coastal Plain is made up of a combination of supplies from both ground and surface sources, and it is not possible to evaluate one without a consideration of the effect on the other. The volume of ground water in storage under the Coastal Plain is estimated to be about 21 billion acre-feet, which would cover the entire Southeast River Basins area to a depth of 370 feet. To achieve the safe yield of 27 million acre-feet per year, it would be necessary to steepen the gradients of the ground water flow to wells. This process would deplete a portion of the ground water storage in areas near wells. However, the supply is so great that the safe yield could be exceeded for many years before it would have to be accepted as a limit. If the average annual draft on ground water should be increased from the present rate of 800,000 acre-feet per year to the safe yield of 27 million acre-feet, there would be a substantial reduction in the surface water supplies under average runoff conditions. The reduction in surface runoff water under severe drought conditions, with such a greatly increased draft of ground water, might be as much as 75 percent without allowance for return flows. Because of the importance of the condition of runoff assumed for combination with draft of ground water, separate estimates are set forth in subsequent paragraphs.

Average conditions — The estimates of average annual runoff by river basins are summarized in a preceding paragraph. It is necessary to associate the surface water supplies under average runoff conditions to some magnitude of ground water withdrawal in order to determine the total supplies that are available for use. It was assumed that the average surface flow, plus the 1960 rate of ground water withdrawal, represented the total availability of water, which had a common source but which took different routes to its points of availability; one route being through the ground from recharge areas to wells, and the other route being in stream channels. It is recognized that much of the ground water and surface water is returned to the streams after use, but this return flow, as well as reuse and some little return of water to the ground water aquifers, is neglected in order to show by conservative methods the availability of water for consumption and other uses. To balance the storage equation, it would have been possible to estimate a large amount of ground water lost directly to the ocean and withdrawn from this component, but the amount of water lost to the ocean is not known, and this loss is related to maintenance of a head against saline intrusion. Similarly, it could have been assumed that increased ground water withdrawals could have come from reducing the evapotranspiration losses instead of the surface flow. However, a reduction in evapotranspiration would be inconsistent with the transpiration required to maintain the projected forest and crop production. The estimates of total water available under conditions of average surface runoff are given in the following table.

TABLE 3.125

Water Available Annually Under Average Conditions (millions of acre-feet)

Basin	Average surface runoff	1960 ground water withdrawal	Total
1	9.6	0.11	9.71
2	3.0	0.02	3.02
3	10.5	0.09	10.59
4	2.9	0.23	3.13
5	5.8	0.08	5.88
6	3.3	0.07	3.37
7	15.6	0.05	15.65
8	19.6	0.15	19.75
Total	70.3	0.80	71.10

Dry-period conditions — The lowest annual surface flow of record was about 35.5 million acre-feet for the entire study area. With proper storage and distribution this amount of water could be made available for use. In addition, ground water could be withdrawn from its vast storage at temporary rates greatly exceeding the average maximum sustained yield of 27 million acre-feet per year, with recharge and recovery of the ground water aquifer during nondrought periods. Because of the fact that the water available exceeds by many times the projected water

needs, no investigation has been made of the economics of ultimate surface water development or of ultimate ground water development — either independently or in optimum combination.

Summary — In preceding paragraphs it is estimated that surface runoff on major streams varies from about 50 percent of average annual flows during drought periods to about 200 percent during flood periods. The safe yield from ground water is estimated to be 27 million acre-feet annually. The current (1960) estimate of ground water withdrawal is 800,000 acre-feet annually. Accordingly, the total water available for a specified surface runoff condition would be equal to the volume of surface water plus the available ground water. This would amount to 71.1 million acre-feet per year (70.3 + 0.8) for average runoff conditions, assuming that the 1960 rate of ground water withdrawal is representative of average runoff conditions. Should the annual ground water withdrawal be increased to the safe yield level (27 million acre-feet), then there would be a substantial reduction in the surface supplies, possibly by direct subtraction.

Water Use Definitions

The uses of water may be classified in several different ways. In this Appendix, uses are classified as withdrawal and nonwithdrawal as well as consumptive and nonconsumptive. Withdrawal uses apply when water is removed or diverted from its source such as a stream, lake, or well. An example is cooling water where it is diverted from its natural course through condensers. Nonwithdrawal uses are those in which water is used in its normal courses. Open-river navigation, recreation, and use by fish and wildlife are examples. Consumptive use denotes the portion of water used, such as in plant growth, in industrial processes, etc. The evaporation of water to the atmosphere is a consumptive use. Where the quantity of water is not diminished during its use, such as passing through a hydroelectric plant, this is a nonconsumptive use.

Water Uses in 1960

The estimates of current water uses (1960) have been based on studies by the U. S. Geological Survey published in Circular 449. The results by river basins are shown in Table 3.126. These estimates do not make allowance for reuse or recirculation of supplies. The withdrawal use in 1960 was about 3.5 million acre-feet or at a rate of about 3,100 million gallons per day, exclusive of water used by the Atomic Energy Commission and for the development of waterpower. The largest user of water was industry amounting to 85 percent of the total, with domestic uses, both urban and rural, amounting to 12 percent. The remaining 3 percent was used for livestock watering and irrigation. The percent of the total withdrawal that was consumed in the different river basins is also shown in Table 3.126. The consumptive use of water for the total area ranged from about 3 percent for industrial purposes to 10 percent for municipal purposes and an assumed 90 percent for agricultural purposes. The total water consumed

TABLE 3.126

Water Use—1960[1]

(thousands of acre feet)

Basin	Municipal withdrawal				Industrial withdrawal (Self-supplied)[2]				Agricultural withdrawal					Total withdrawal		Waste dilution (nonwithdrawal)		Total use	
	Domestic	Industrial and commercial	Total	Percent consumed	Public utilities	Industrial	Total	Percent consumed	Domestic	Livestock	Irrigation	Total	Percent consumed	Use	Percent consumed	Use	Percent consumed	Use	Percent consumed
1	53.7	46.0	99.7	4.9	370.0	113.0	483.0	1.1	15.6	4.6	9.4	29.6	90	612.3	6.0	3,940.0	..	4,552.3	0.8
2	2.1	0.8	2.9	11.5	..	1.0	1.0	..	2.2	2.5	4.4	9.1	90	13.0	65.4	318.0	..	331.0	2.6
3	67.2	21.8	89.0	6.7	258.0	72.0	330.0	0.4	12.1	7.3	7.5	26.9	90	445.9	6.8	2,950.0	..	3,395.9	0.9
4	14.6	2.6	17.2	10.0	..	213.0	213.0	11.0	4.0	2.4	3.1	9.5	90	239.7	14.1	1,020.0	..	1,259.7	2.7
5	17.9	2.6	20.5	10.0	93.0	44.8	137.8	1.7	8.1	5.6	11.0	24.7	90	183.0	14.5	676.0	..	859.0	3.1
6	9.8	2.7	12.5	13.6	..	43.7	43.7	12.1	7.1	1.8	2.2	11.1	90	67.3	25.3	506.0	..	573.3	3.0
7	140.0	20.8	160.8	11.7	1,435.0	26.4	1,461.4	0.2	24.0	13.2	8.3	45.5	90	1,667.7	3.8	4,330.0	..	5,997.7	1.0
8	26.9	20.5	47.4	20.4	1.0	156.8	157.8	10.0	4.1	5.6	1.5	11.2	90	216.4	16.5	3,060.0	..	3,276.4	1.1
Total	332.2	117.8	450.0	10.3	2,157.0	670.7	2,827.7	3.3	77.2	43.0	47.4	167.6	90	3,445.3	8.4	16,800.0	..	20,245.3	1.5

NOTES: [1] Water used for hydroelectric power development, navigation, recreation, and fish and wildlife not included.
[2] Exclusive of water used by U. S. Atomic Energy Commission.

for the withdrawal for the entire study area was 8.4 percent, or 290,000 acre-feet, which was less than 1.0 percent of the surface supply available under drought conditions. The total withdrawal of 3.5 million acre-feet was 10 percent of the surface supply available in a drought year comparable to 1954.

Municipal – The municipal withdrawal of water corresponds approximately to the amount supplied by public water supply systems. These systems serve domestic users as well as certain industrial and commercial enterprises which are located in urban areas. The distribution of total municipal use is estimated to be about 75 percent for domestic purposes and the remainder for industrial-commercial purposes. With an urban population of 2,685,000, the total municipal use was at a rate of about 150 gallons per capita per day. The per capita domestic use for the urban population was about 110 gallons per day. An estimated 10 percent of the total municipal withdrawal was consumed.

Industrial – The estimates of self-supplied industrial withdrawal do not include water used for the generation of hydroelectric power or the water used by the U. S. Atomic Energy Commission. The uses include fuel-electric power (public utilities) as well as the industrial uses of processing, cooling, boiler feed, conveyance of materials, and sanitation. The major portion of the self-supplied industrial water use was for cooling purposes by public utilities, amounting to 76 percent of the total. About 3 percent of the total withdrawn was consumed.

Agriculture – The estimated withdrawal of water for agriculture has been broken down into domestic uses in farm homes and the water required for livestock and irrigation. The per capita use for domestic purposes, assuming a rural population of 2,263,000 for the total study area (Section II), amounts to 30 gallons per day. The estimates of water withdrawn for livestock was based on a unit use for the type of animal involved times the number of animals. The water being withdrawn for irrigation in 1960 was used to irrigate 124,000 acres. About 38 percent of the irrigation water came from wells and springs with the remainder from surface sources. It has been assumed that 90 percent of the water withdrawn for agriculture was consumed.

Waste dilution – The current use of nonwithdrawal dilution water is not now allocated to this specific purpose although the surface supplies are available, and it is being used during the interim period pending the provision of adequate waste-treatment facilities. The volume of water now used (1960) for waste-dilution purposes is estimated to be 16.8 million acre-feet with an overall waste-treatment program of under 50 percent. This is about five times the total withdrawal in the study area as shown in Table 3.126.

Projected Water Requirements

The availability of an adequate supply of good quality water is an important factor for encouraging industrial development and economic growth. The Southeast River Basins area has ample supplies of water from both surface and ground water sources, and the quality is above the average. The projected water uses to 2000 indicate that only a small percent of the total water supply will be used although there may be localized areas where the supply is short or the quality impaired. It is expected that the demand for water will about double within the projected period. Accordingly, additional waste-treatment facilities will be required to prevent a deterioration in the quality of the supply. The basic approach to the estimate of future water requirements was to relate water use to the primary economic indicators of population and employment as developed in preceding supplements. The projected water requirements by river basins in 1975 and 2000 are shown in Table 3.127. The basis of the estimates is given in subsequent paragraphs.

Municipal – The projected estimates of water required for municipal purposes are based on urban population (Section II) and an assumed per capita use rate. Municipal water use in 1960 (Table 3.126) averaged 150 gallons per capita for the urban population of the study area. This included domestic and residential uses as well as commercial and industrial developments supplied by public water supply systems. The per capita use of water has been increasing in recent years and further increases are expected in the future. Accordingly, per capita daily rates of 170 gallons in 1975 and 200 gallons in 2000 are considered applicable for determination of water

requirements. These use rates were applied to the projected urban population in each river basin to determine the water requirements. The total water required is estimated to be 750,000 acre-feet in 1975 and 1,630,000 acre-feet in 2000 as shown in Table 3.127.

Industrial – The projected water requirements for industrial purposes conform to the designation for the 1960 uses; namely, the water that is self-supplied by industry and exclusive of that used for generation of hydropower and used by the Atomic Energy Commission. The water required for industry in 1975 and 2000 was determined by applying an average use rate per manufacturing employee for 1960 to the projected employment in 1975 and 2000. A sample computation was made for a river basin using the breakdown of manufacturing employment by two-digit categories of industry times an average water use rate per employee for the type of industry involved. In this computation the total volume of water required for the basin differed about 5 percent in 1975 and 10 percent in 2000 from the amount determined from applying average use rates for total manufacturing employment in the basin. Accordingly, it was concluded that using the average rate per manufacturing employee in the basin provided a satisfactory estimate. The total water required for self-supplied industrial purposes is estimated to be 3,970,000 acre-feet in 1975 and 6,860,000 acre-feet in 2000 as shown in Table 3.127.

Agricultural – The projected water requirements for agricultural purposes were determined from separate estimates for three components: Domestic uses, livestock watering, and irrigation.

(1) Domestic – The estimated requirements for domestic uses were determined from the average daily per capita use rate for the total study area based on the rural population. The estimated use rate in 1960 was about 30 gallons per capita. Since some increase is expected in rural uses of water, the same as in municipal uses, it was assumed that unit rates would be 40 gallons in 1975 and 50 gallons in 2000. These rates were applied to the projected rural population for each river basin to estimate the water requirements by basins.

(2) Livestock – In order to estimate projected water required for livestock, a computation was made to determine an average use factor. This was based on the amount of water used in the total study area by livestock in 1960 (Table 3.126) divided by the number of cattle. The average daily rate of use was 17 gallons per head. The total water requirements for each basin were estimated by applying the unit rate of 17 gallons per head to the total number of cattle projected for 1975 and 2000, as given in Section V. This assumes that the future livestock mix with respect to cattle for the projected periods will remain approximately the same as the current mix.

(3) Irrigation – Estimates of the quantity of

TABLE 3.127

Projected Water Use*—1975 and 2000
(thousands of acre-feet)

Basin	1975					2000				
	Withdrawal			Non-withdrawal	Total	Withdrawal			Non-withdrawal	Total
	Municipal	Industrial	Agricultural	Waste dilution		Municipal	Industrial	Agricultural	Waste dilution	
1	105	635	40	3,160	3,940	225	1,000	55	3,720	5,000
2	20	5	15	110	150	40	10	20	140	210
3	150	455	55	2,580	3,240	280	755	75	3,140	4,250
4	25	325	25	1,490	1,865	60	515	45	1,740	2,360
5	30	190	40	940	1,200	50	280	55	1,010	1,395
6	30	60	20	390	500	60	90	25	450	625
7	295	2,080	75	10,100	12,550	710	3,860	100	13,900	18,570
8	95	220	40	1,350	1,705	205	350	55	1,680	2,290
Total	750	3,970	310	20,120	25,150	1,630	6,860	430	25,780	34,700

* Water used for hydroelectric power development, navigation, recreation, and fish and wildlife not included.

water required for irrigation purposes at some future period involve consideration of a number of variable factors. One of the major factors is the acreage to be irrigated, both with respect to the type of crop or pasture and the total of all enterprises within a particular river basin area. Other factors concern the type of soil to be irrigated and the amount of water required for the different types of crops or pasture. In addition, there are climatic factors which govern the length of growing season, the maturity of the crop, and the distribution of rainfall which, in turn, governs the magnitude and duration of soil moisture deficiency conditions. Because of the many indeterminate factors involved, the projected water requirements for 1975 and 2000 have been based on several assumptions. Primarily, this consists of an irrigated acreage in the study area, derived largely from a consensus of professional judgment, amounting to 180,000 acres in 1975 and 270,000 acres in 2000 with application of 8 inches of water. The proportioning of total acreage among the eight basins has been generally in accordance with that which existed in 1960. The rate of application of water for the projected periods is considered to be for average conditions; more water will be required in dry years, and less in wet years. In addition, the rate is considered to be representative of an average mix of agricultural enterprises and for average soil types.

(4) Summary – The water required for agricultural purposes in each of the river basins is shown in Table 3.127. The projected requirements amount to 310,000 acre-feet in 1975 and 430,000 acre-feet in 2000. The distribution of water uses within agriculture is about the same in 1975 as in 2000.

Waste dilution – The estimate of water required for waste dilution in 1975 and 2000 has been developed from special studies and the utilization of data contained in prints of the Senate Select Committee on National Water Resources. The estimates are based on the volume of waste to be treated, as determined from municipal and industrial water use, the strength of the waste to be treated, and the maintenance of a minimum dissolved oxygen concentration of 4 parts per million in the receiving stream. It also is assumed that the degree of waste treatment provided by the year 1975 will afford a biochemical oxygen demand (hereafter referred to as BOD) reduction of 70 percent for municipal wastes and 60 percent for industrial wastes. A higher degree of treatment is assumed by 2000 giving a BOD reduction of 80 percent for municipal wastes and 70 percent for industrial wastes. The volumes of water required are estimated to be 20,120,000 acre-feet in 1975 and 25,780,000 acre-feet in 2000, without allowance for reuse of the water or for BOD recovery in streamflow.

Summary

The total water requirements for 1975 and 2000, as shown in Table 3.127, amount to 25,150,000 and 34,700,000 acre-feet, respectively. This is the total estimated withdrawal and nonwithdrawal without allowances for reuse of the water. The estimated withdrawal amounts to 5,030,000 acre-feet in 1975 and 8,920,000 acre-feet in 2000, which also is without an allowance for reuse. The available supply of surface water in a drought year comparable to 1954 was estimated as shown earlier to be 35,500,000 acre-feet. Accordingly, the withdrawal in 2000 would be about 25 percent of the available surface supply also without allowance for reuse. With a reuse factor of 2, this would reduce the percent of withdrawal by one-half, or to approximately 12 percent of the available surface supply. A primary consideration in water resources development is the consumptive use of water with respect to the total supply. In Table 3.126 it is shown that 1.5 percent of the total water use in 1960 was consumed. Applying this factor to the total withdrawal in 2000 (8,920,000 acre-feet) would indicate that only 134,000 acre-feet out of a dependable surface supply of 35,500,000 acre-feet would be consumed. This is less than one-half of 1 percent. Accordingly, it is concluded that the quantities of water in the study area will not be a limiting factor for future economic growth, providing that judgment is used in locating large water use industries and adequate provision is made for overcoming seasonal deficiencies and the distribution of water to the users.

Recreational Activity

General

Recreation studies in the Southeast River Basins by the Study Commission have been conceived and applied on the basis of a use concept. Use is expressed in terms of user-days. Recreation in the Commission studies is concerned with public outdoor recreation activities primarily dependent on land and water resources but exclusive of golf-course and playground type of recreation. Hunting and fishing are recognized as a form of recreation and are identified separately. A total of some 270 million user-days is estimated to be the magnitude of recreation and hunting and fishing by the year 2000. User-day estimates of recreation including hunting and fishing for the benchmark dates and for the basins covered by the Study Commission are summarized in Table 3.128.

TABLE 3.128

Recreational Activity
(thousands of user-days)

Basin	1960	1975	2000
Recreation*			
Savannah	7,240	14,000	35,000
Ogeechee	260	4,340	10,000
Altamaha	3,690	15,290	36,000
Satilla-St. Marys	2,505	9,460	20,000
Suwannee	1,076	6,200	15,000
Ochlockonee	1,050	4,000	10,000
Apalachicola-Chattahoochee-Flint	13,135	25,800	58,000
Choctawhatchee-Perdido	6,050	15,910	46,000
Subtotal	35,000	95,000	230,000
Hunting and fishing			
Savannah	2,786	3,981	6,124
Ogeechee	840	1,060	1,162
Altamaha	2,711	3,830	4,830
Satilla-St. Marys	848	1,596	2,070
Suwannee	2,148	2,392	2,773
Ochlockonee	1,068	1,379	1,838
Apalachicola-Chattahoochee-Flint	4,078	6,689	10,714
Choctawhatchee-Perdido	3,789	5,969	10,873
Subtotal	18,268	26,896	40,384
Total	53,268	121,896	270,384

* Exclusive of hunting and fishing.

Guidelines

Participation in outdoor recreational activities must recognize: (a) A desire to participate; (b) available time to recreate; (c) funds available; and (d) availability of a place to recreate. On the whole the American populace, particularly the Southerner, has a strong natural inclination for outdoor recreation. By 2000, there will be numerically twice as many people in the Southeast River Basins area as in 1960 who will want to recreate in the outdoors. Also, because of more vacation and other leisure time by 2000, there will be at least a doubling of the time available per person over the time spent outdoors in 1960. Furthermore, an increase in the average per capita income will allow more persons who have the desire to participate in outdoor recreation to attain their desires where finances have been the limiting considerations in 1960. An increase over the 1960 recreation of some five or six times seems well within the realm of reason – the estimate of some 53 million user-days of public outdoor recreation in 1960 is estimated to increase to 270 million user-days in 2000. Likely recreation days include weekends, holidays, and paid vacations. These days aggregate some 115 days in 1960 and 129 in 2000. The number of persons from outside the study area who recreate while passing through the area must be recognized in all estimates of recreation use.

Major Factors

To make an estimate of user-days, a review was made of available data primarily to define the significant and controlling factors that influence outdoor recreation. While many factors are known to have an influence, it was decided that the following were the most significant: (a) Population, (b) mobility, (c) income, and (d) leisure time. Other factors noted, but not singled out for detailed study, included age, sex, occupation, place of residence, paid vacation, race, and education. These factors were continually borne in mind as tempering influences.

Population

Estimates of population in Section II were used in recreation as in the other studies. The total population by 2000 is expected to more than double the 1960 level. Urbanites will increase nearly threefold (2.7 times); and rural residents will stay about the same as the 1960 levels in numbers but will decrease significantly in percentage of total persons. Considering people from a viewpoint of recreation, it was ac-

knowledged that basin boundaries and also State and study area boundaries were not confining – people flow between such areas without restrictions. The one main exception to this is hunting and fresh-water fishing where State licenses have some bearing. Residents of the study area who leave the area specifically to recreate are regarded as recreation exports and residents of areas outside the Southeast River Basins who visit the area specifically to recreate are regarded as recreation imports. Export and import of people for recreation including hunting and fishing in the study area was reasoned to be a standoff. This was later verified in general by the recreation travel studies. On a yearly basis the survey in 1960-61 showed a net export (about 1 percent) – an import balance in summer and fall and an export balance in winter and spring. In addition to the export of basin residents for recreation and import of outside residents into the study area for recreation, there is a special group – passers-through who must receive some consideration because they do partake of some forms of recreation during the period they are in the study area. These passers-through were estimated to be around 10 million in 1959-60 and would probably increase around four times by 2000.

Mobility

The more mobile a populace becomes the greater the range in which they can seek recreation. This relates to mode of transportation and its flexibility as to time (i.e, train and plane schedules) and direction (trains limited to established track networks versus autos with widespread road network). Automobile travel is by far the greatest influence on outdoor recreation since about 95 percent of recreation travelers use the automobile. Some 10 percent of all vehicular traffic is estimated to be with a purpose of recreation. Passenger transportation by automobiles is expected to increase about 1.5 times the 1958 totals by 1975 and 3 times the present by 2000.

Income

The residents of the Southeast River Basins area are expected to increase their average per capita income of $1,582 in 1960 to about $2,202 in 1975 and $3,922 by 2000. Thus, by 2000 there will be more than double the per capita personal income. Although a change in income cannot be proved to be a direct and proportionate influence of recreation activity, there is ample evidence to indicate that an increase in income will permit a greater amount to be spent to realize recreational satisfaction. It is recognized that the essentials of food, clothing, and shelter have the first call on income. While the per capita income in 1960 is low, it is reasonable that a major portion of the income is devoted to food, clothing, and shelter needs. Certainly, a part of any increase in income will be used for the essentials, but a significant part of the increase will be available for leisure-time activities and uses other than the so-called essentials.

Leisure Time

Leisure time available to the people in the study area as in the United States as a whole is increasing. Length of the work week is decreasing. The average paid vacation is increasing and the average number of holidays is increasing. The number of hours worked each week is expected to decrease by 20 percent by the year 2000 to an average of about 30 hours a week. The estimates of work week in hours in 1960 show some variation between categories of industry and occupation; but, for all industries and occupations, the average paid week is 40.6 hours and the average number of hours worked is 38.3. By the year 1975, the work week in hours paid and worked is estimated to be 38.3 and 35.3 hours, respectively. By the year 2000, the work week paid and worked is estimated at 34.5 and 30.6 hours, respectively. Vacation time will more than double between 1960 and 2000 and the number of holidays will increase about 75 percent during the same period. In 1960, for all industries and occupations, the average paid vacation in weeks is 1.5. The vacation time by 1975 is estimated at 2.3 weeks and by the year 2000 at 3.2 weeks. The average number of holidays in 1960 is 4.9 days. By 1975 it is estimated at 6.8 and by the year 2000, 8.6 days.

Hunting and Fishing

Hunting and fishing are also influenced by population, leisure time, mobility, and personal income although the effects of these factors are obscured by fish and wildlife abundance and

their availability to the general public. The per capita demand for hunting and fishing decreases as the degree of urbanization increases. This was readily apparent in comparative studies of hunting and fishing licenses sales in urbanized and rural counties in the Southeast River Basins area. The total demand for a specific type of hunting may decrease as supplies become less plentiful. For example, the total number of duck hunters has decreased with a reduction in the number and availability of waterfowl as evidenced by a drop in the number of duck stamps sold in recent years. On the other hand, the demand for hunting and fishing opportunity on publicly owned and administered fish and wildlife areas has soared, as reflected by the number of special use permits issued by the conservation agencies in the basin States. Notwithstanding, it is expected that, with projected population expansion, the user-days of hunting and fishing will increase from about 18 million in 1960 to about 40 million in 2000 or approximately two times. These estimates are based on a special study of data applicable to the study area collected for the 1955 National Fishing and Hunting Survey.

Commercial Fisheries

Current Catch

The average annual catch of commercial fishes landed at coastal ports in the Southeast River Basins during the period 1955-59 was 91.5 million pounds as shown in Table 3.129. Fish caught directly for food constituted about 53 percent of the total weight. Shrimp, crabs, and oysters were the principal shellfishes composing the catch; mullet, red snappers, groupers, Spanish mackerel, spotted trout, king whiting, and American shad were the principal finfishes. In addition to this harvest from coastal waters, there was a relatively small yield of catfish and carp from the inland waters of the basin. While a portion of the total catch was consumed locally, the bulk was processed and marketed throughout the eastern United States. The catch for purposes other than food, averaged 42.6 million pounds during the period 1955-59, was composed chiefly of menhaden.

Projected Catch

The demand for food fish landed at ports in the basins is expected to increase to 63.9 million pounds by 1975 and to 103.2 million pounds by 2000 as shown in Table 3.129. This increase in demand for fish reflects the projected increase in the population of the United States and a constant rate of per capita consumption equivalent to the national average of about 11.0 pounds annually (edible weight). The demand for fish for other than food is also expected to increase 2.1 times by 2000 or in direct proportion to the projected increase in national population.

Assumptions

In making these projections, it was recognized that the total catch in the United States has not kept pace with the rapid population increase. As a matter of fact, domestic production has declined since 1950 while food fish imports have steadily increased. Moreover, the catch per unit

TABLE 3.129

Current and Projected Catch of Commercial Fish
(million pounds—rough weight)

Basin	Average 1955-59			1975			2000		
	Food	Other	Total	Food	Other	Total	Food	Other	Total
1	3.1	0	3.1	4.1	0	4.1	6.6	0	6.6
2	9.7	0	9.7	12.6	0	12.6	20.4	0	20.4
3	3.1	0.1	3.2	4.0	0.1	4.1	6.5	0.1	6.6
4	8.2	35.2	43.4	10.7	45.9	56.6	17.2	74.3	91.5
5	1.7	0	1.7	2.3	0	2.3	3.7	0	3.7
6	5.1	0	5.1	6.6	0	6.6	10.7	0.1	10.8
7	6.9	7.2	14.1	9.0	9.4	18.4	14.5	15.2	29.7
8	11.1	0.1	11.2	14.6	0.2	14.8	23.6	0.3	23.9
Total	48.9	42.6	91.5	63.9	55.6	119.5	103.2	90.0	193.2

of effort has declined as revealed by analysis of trends in the number of fishermen and fishing craft. The shrimp fishery was expanded in the early 1940's in response to increased demand coupled with improved techniques of processing and marketing. With full utilization of known supplies, however, further expansion of this industry was curtailed. Oyster production, which reached its zenith in the early 1900's when there was an abundance of oysters and a demand for canned products, reached a low in 1960. The production of crabs, on the other hand, has steadily increased in response to expanded markets and abundant supply. It was assumed that domestic production in the future will meet foreign competition and that, while the total pounds of fish imported will continue to increase, the ratio of imports to domestic production will remain constant.

Planning Guides

General

The requirements for development of natural resources to serve the projected economy for some of the purposes designated in Public Law 85-850 are set forth in preceding parts of this Section. Such requirements have been designated in specific units for the basic resources of land and water. Other purposes have not been translated from the principal economic indicators (population, employment, and income) into specific units of resource requirements. Accordingly, planning to meet the requirement for development of projects and programs to serve these purposes must be accomplished through indicators other than resource units.

Purposes Expressed in Land Resource Units

As previously indicated, agricultural activity, including forestry, is the primary user of land. Section V presents the specific production requirements to serve the projected economy and also presents the land areas that could be used to meet the agricultural production requirements with generalized and average unit yield data. Accordingly, the primary considerations in planning for the use of land for agricultural purposes (reclamation and drainage, soil conservation, forest conservation, and sediment control) are to obtain the required production quantities in the most efficient manner. This should be accomplished by determining the optimum combination of inputs which would result in production equal to the food and fiber requirements. Another consideration is the desirability of installing soil conservation practices for the preservation of land for purposes other than meeting production requirements. Industrial development is directly dependent upon land and water resources, but planning for its development is more closely associated with economic factors. Provision for adequate land resources to serve this purpose has been included in the category of service and other lands in Section V. Water for industrial purposes is included in water supply requirements.

Purposes Expressed in Water Resource Units

The purposes listed in Public Law 85-850 for which specific requirements are developed in this section are water supply, irrigation, and pollution abatement. The requirements are specified in units of acre-feet per year for 1975 and 2000. Accordingly, the planning activity would require the development of projects and programs to meet, in the most economical manner, the water supply requirements for individual communities and areas.

Other Purposes

Certain of the purposes listed in Public Law 85-850 to be included in the comprehensive plan have not been translated into specific units of land and water resources for use in planning. Some of these purposes cannot be expressed in land and water units to serve as a basis for planning while others have not been so expressed because of the great depth of study required. The purposes included in this category are flood control, navigation, hydroelectric power, fish and wildlife, recreation, public health, and beach erosion control and hurricane protection.

PART FOUR – BENEFITS, COSTS, AND COST ALLOCATIONS

This Part of the Economics Appendix deals primarily with the application of basic economic theory and policies adopted and used in the evaluation of projects and programs included in the plan. General policy on economic criteria, objectives, and overall methodology are described in Part One of this Appendix.

The economic analysis of programs and projects carried out by the Study Commission covers only the new work for land and water resource development and conservation recommended by the Commission. There are naturally many established programs and projects now operating in this field. These going programs and those under construction or development in 1960 are not included in the economic analysis but are covered by the Commission plan in the sense that they represent a part of the area resources and economy. In determining the future needs and the scale of required new developments, going programs and projects and those being developed came under review.

SECTION I—GENERAL MEASUREMENT STANDARDS

The basic problem in making economic evaluations is one of comparing the value of goods and services expected with that of the estimated costs. To insure comparability of results, it was necessary to establish uniform standards for prices, interest rates, discount principles, the period of analysis, and the basis for comparison of project effects. Other specific standards of measurements for benefits and costs were also necessary and are discussed in Section II.

Price Levels

Price levels prevailing on or about January 1, 1960, were used for evaluating all present and future benefits and costs, except that an adjustment was made in prices received and some items of prices paid based upon an assumption of a parity ratio of 89 between prices paid and prices received by farmers. This approach provided a valid basis for comparison among purposes, as well as valid comparisons for facilities and programs within a single purpose and a reasonable projection of conditions expected to prevail during the period of analysis.

Interest Rates

An interest rate of 2⅝ percent provided by the Bureau of the Budget to Federal agencies for use in resource studies was used for the Federal rate. This rate was considered as the best available approach to a relatively risk-free and inflation-free rate for use in evaluation of the economic effect of Federal resource projects. For the non-Federal development of resource projects, an interest rate of 4¼ percent was adopted. These rates assumed that adequate allowance for most risks were included in cost and benefit items.

During the process of project formulation and the arraying of projects, the 2⅝ percent interest rate was used in most cases. The exceptions were when a 4¼ percent or other rate had already been applied and it was clear from the array of project costs and benefits that the project evaluated would have an excess of benefits over costs regardless of results that might have been forthcoming from the use of the 2⅝ percent interest rate. Where benefits and costs were extracted from published data, is was impractical to adjust to the 2⅝ percent interest rate when the interest rate mix of the published data was uncertain.

The use of the 2⅝ percent interest rate for project formulation and arraying of projects resulted in all projects receiving the same consideration and did not discriminate against the non-Federal projects in this process due to the lower interest rate having a more favorable relationship of benefits to costs.

Also, the 2⅝ percent interest rate, except as noted above, was used for all projects when the

investment was to be Federal and for those projects for which the investment sources were questionable at the time of evaluation. For converting certain other non-Federal project costs and benefits to annual equivalent basis, a 4¼ percent interest rate was generally used.

In August 1962, the Bureau of the Budget revised their recommended interest rates for water resource analysis from 2⅝ percent to 2⅞ percent. This change in interest rates came too late to be used in the Commission analyses.

Discount Principles

Program or project benefits and costs which are estimated to accrue at different times and over varying periods of time were adjusted to a common basis of measurement. Annual equivalent values were used. The conversion from capital values to annual equivalent amounts was accomplished by application of compound interest formulas after selection of the proper interest rate and period of analysis.

This procedure permits a valid comparison of benefits and costs of an individual project or program.

Period of Analysis

The period of analysis used in the studies was the economic life or 50 years, whichever was the lesser, for each project or program as established on the basis of an individual analysis. During the course of the studies, consideration was also given to a 100-year period of analysis but was not applied to any of the projects in the plan.

In using a 50-year limit for the period of analysis when the major structure had an expected life in excess of this period, the studies express conservatism. This conservatism allows for obsolescence due to unforeseen technological advances and other changes which may cause the value of the project to be reduced in the distant future.

Had a 100-year period of analysis been used, the annual equivalent costs generally would have been smaller and the annual equivalent benefits generally would have remained the same. The magnitude of change in costs depends on a number of factors, such as the relationship of the annual equivalent operation, maintenance, and replacements costs to investment costs and the amount of delayed investment costs. Annual equivalent benefits would increase only if there was a lag or delay in reaching maximum annual amounts. As the time period is increased, annual costs decrease in relation to annual benefits, although to a lesser degree each year as the time is extended.

In some of the intangible evaluations of a project or program, such as the preservation of our basic soil and water resources, effects extending further into the future than 50 years, or even 100 years, were considered, but none of these values were reduced to tangible amounts.

Comparison of Project Effects

Systematic treatment of costs and benefits in an economic analysis is essential for consistency and comparability of results. Effects of projects or programs were, to the extent practicable, expressed in common monetary terms. Effects which were impracticable of being expressed adequately in monetary terms were considered and described to depict their importance and influence on project formulation and project selection.

In evaluating and formulating projects for resource utilization, a level of development at some particular time was selected on which to base measurements. A common concept of future conditions "with" the project and "without" the project was adopted. Projections of population, income, employment, prices, crop yields, land use, and other factors were made to compare future conditions "with" the project or program to future conditions "without" the project or program. Future conditions "with" the project or program were those conditions expected to prevail during the period of analysis with the project or program in existence. The future conditions "without" included all developments existing or under construction as of January 1960 and assumed that adequate operation and maintenance of these developments would be continued. Technological gains not directly associated with the project or program under consideration were recognized as part of the "without" condition. Under "without" conditions, it was assumed that no part of the project under consideration might develop through agency or individual efforts.

Measurement Problems and Data Limitations

Project evaluation must include consideration of all problems that arise concerning the identification of all costs and benefits, whether tangible or intangible. The major measurement difficulties encountered were those of determining benefit values, acquisition cost of land and improvements, and selection of appropriate alternatives and physical data to estimate their costs. These problems were largely due to lack of basic information and in some cases lack of values to be applied to the basic data.

When market prices did not exist for specific tangible effects, a derived or estimated value was used in the analysis. The derived or estimated values in some cases were the most economical cost of producing a similar effect by an alternative means and for others it was an analogous effect measured or estimated indirectly from established market prices.

Intangible effects, such as prevention of loss of life and improvement of health, have no market value but were evaluated on the basis of acceptable expenditures or values necessary to produce this effect.

Intangible effects arise from almost all economic activities. They are either significant or insignificant. The effects range from small loss to strengthening of a regional economy by encouraging new industry. Monetary values were not assigned but they did receive consideration. In many cases, judgment and a qualitative description of these effects were the only satisfactory ways of expressing these benefits or costs.

Acquisition costs, including legal fees, were recognized in normal project costs. However, the market price does not always reflect the actual acquisition cost. The reduction or loss of productivity, not adequately reflected in the purchase price, resulting from changes in land use was determined in the same manner as project benefits and recognition was given to this cost (Appendix 12, Planning). Since project salvage values were not claimed in the studies, the omission of productivity losses exceeding acquisition cost from project cost did not appear to be of significance in these reconnaissance-type studies.

Selection of appropriate alternatives was difficult in a number of cases. Time and data limitations precluded the study of all alternatives and limited the selection in a number of cases to alternatives based on judgments. Basic data including costs for the alternative under consideration often were not of the same grade as the project under study.

Because of the necessity of using projections, estimates of time occurrences, averages for specific locations, and the problems stated above, the study results should be reviewed with these limitations in mind. General observations may be made regarding study results that are based on broad averages and projections but care needs to be exercised in applying such findings to specific projects and locations.

Data presented in Tables 4.1 and 4.2 are derived values as used in economic studies, whereas the same data appearing in the basin appendixes and the U. S. Study Commission Report and in Tables 5.3 through 5.10 in this Appendix have been rounded to four significant digits.

SECTION II – BENEFIT AND COST EVALUATION PRINCIPLES

Tangible Costs

Tangible costs considered in these studies were of two basic kinds: The project or program and the associated costs. Project costs as set forth in the studies included the initial investment in land, labor and materials, and the cost for operation, maintenance, and replacements required to keep the project functioning as planned. These costs were compared with the project benefits. Associated costs as used in these studies were those costs, exclusive of investment and operation, maintenance, and replacements costs of the project or program under study, necessary to the realization of the primary benefits. Associated costs generally were deducted from overall benefits to derive the project or program benefits.

Investment Cost

The investment cost as shown in the Report is the total project or program cost necessary to

construct a project or install a program and place it in operation. Investment cost includes all expenditures for detailed planning, design, and construction chargeable to the project or program; the estimated value of any item transferred or furnished without the expenditure of funds; technical assistance; and accrued interest on these items during the construction period.

Interest during construction was determined on projects when the construction period exceeded 2 years. On projects and programs where the expenditures in 1 year would result in benefit accrual in the next year, no interest during construction was determined, even though the total expenditure may have been spread over several years. The item of interest during construction included in the investment cost was based on simple interest on one-half of the construction cost for the period of construction.

Operation, Maintenance, and Replacements Costs

Operation and maintenance costs include estimates of all annual and periodic costs that are of a recurring nature required to keep the project or program operating at the planned level over its expected life. Included as a maintenance cost were the minor replacement items.

Replacements costs were determined for major replacement items required to keep the project or program in operation over the period of analysis, to insure the realization of the benefits claimed in the analysis. Major replacement items were considered to be those items usually having a life expectancy greater than 5 years. The costs of the replacement items were expressed as annual costs. These annual replacements costs are usually included as a part of the total project or program operation, maintenance, and replacements costs shown in the Report. The procedure followed in determining annual replacements costs involved reducing the costs of the replacements to present worth from the time of replacement to the beginning year of project analysis and amortizing the present worth costs over the period of analysis.

The operation, maintenance, and replacements costs at year 2000, as expressed for cost sharing purposes, are based on the estimated average annual operation, maintenance, and replacements costs occurring during the period when the project or program as contained in the comprehensive plan is being fully utilized with full benefit realization as projected for the year 2000. These same average annual operation, maintenance, and replacements costs are used in the determination of the annual equivalent.

Other Economic Costs

In addition to the tangible cost items referred to above, other items of cost such as consequential damages, uncompensated losses and taxes were considered in project selection. Consequential damages and uncompensated losses were not added as project costs in the economic analysis. These costs were considered in the process of project formulation and played their role in this process.

Taxes as a cost were not estimated or included as such in project or program cost except for projects containing hydroelectric power; then only for power. Except for hydroelectric power, these costs usually are minor in nature. For hydroelectric power, taxes which would be paid by a private utility for like facilities and production were included as a project cost without regard to whether governmental or private interests would develop the project. This was also true in the determination of alternative power costs and power benefits.

Annual Equivalent Cost

Project investment cost, expressed in capital amounts and sometimes accruing over a period of time, and annual operation, maintenance, and replacements costs were adjusted to a common point of time to permit a valid comparison with annual equivalent benefits which were similarly adjusted for time occurrence and varying rates of benefit accrual. The conversion from capital and annual operation, maintenance, and replacements costs to annual equivalent values was accomplished by use of appropriate compound interest factors for the interest rates and period of analysis which pertained to the project or program evaluated.

Scheduling of installation of certain facilities was delayed when there was no need for the facilities at the time the initial nucleus of the project was proposed for construction. In the economic evaluation of projects, the entire investment cost of deferred facilities was included as a project cost. All of the deferred costs were converted to a present worth value at year one of the initial nucleus,

then amortized over the period of analysis for the project in determining annual equivalent costs. The annual equivalent value of operation and maintenance costs, also benefits, for the deferred facilities was determined on the basis of the economic life of the deferred facilities or a period of years equal to the period of analysis for the project, whichever was lesser, before converting the values to present worth. In no case was a period of years claimed for the deferred facility that would extend beyond the economic life of the initial controlling facilities. Replacement items for deferred facilities were determined for these facilities over the same period of years as the related benefits or as stated for the deferred facilities costs. Annual equivalent replacements costs for the deferred facilities were determined by obtaining the present worth value to the year one and amortizing this value over the period of analysis. Salvage values were not computed for replacements items or other project facilities. It was assumed that salvage values of land or other facilities would be part of a number of unmeasured benefits that would be offset by cost items such as displaced facility cost, consequential damages, and productivity losses. Neither benefits from salvage values of land nor cost of displaced facilities, consequential damages, or productivity losses were used in economic evaluation.

Intangible Costs

Intangible costs are defined as those project or program effects which are not evaluated in monetary terms. However, intangible costs were recognized in the studies and in those instances when they were considered sufficiently important were presented in qualitative terms by means of narrative discussion. They were also considered in the light of what they might have been in the absence of the project.

Tangible Benefits

The tangible effects of projects and programs were given major attention in the economic evaluation studies. Tangible benefits are composed of primary and secondary effects. Primary benefits are applicable from national and regional viewpoints. Secondary benefits are applicable from a local or regional viewpoint with only a small portion being applicable from the national viewpoint.

Primary Benefits

The increases in the value of goods or services directly resulting from a project, less all associated costs incurred in their realization, are considered as primary benefits. Primary benefits usually were evaluated at the first point in the chain of effects where the goods or services produced have an actual or estimated market value. In some cases, the market price estimated from the cost of production by the most likely alternative source of the goods or services was the best available measure of value. Primary benefits as measured for the various purposes in this study are summarized in Table 4.1. The evaluation principles adopted and the procedures actually used in evaluating primary benefits for the different purposes are set forth in the following paragraphs.

Flood control and prevention benefits—Benefits resulting from flood control and prevention projects or programs fall into six categories. Their realization is not limited to the provision of dams, levees, or channel improvement.

(1) Benefits from prevention of physical damage were measured as the cost of replacing, repairing, or rehabilitating the affected property, or reduction in value of property not subject to repair or replacements. Affected property is that property which is considered to exist in the flood plain under expected future conditions without the flood control and prevention project.

(2) Benefits from avoidance of costs made necessary by floods, such as flood fighting, evacuation, cleanup, and relief were measured in terms of the estimated costs that would be avoided with flood control and which would be incurred if flood control were not provided.

(3) Benefits from prevention or interruption of normal business, commercial or industrial activity by floods. Increased operating expenses or reduced net income over the period of analysis for future conditions with the project as compared to future conditions without the project were used as a measure of these benefits.

(4) Benefits from prevention of damage to agricultural crops were measured as the difference in net income to farmers with and without flood control under expected future conditions over the period of analysis.

(5) Benefits from more intensive use of property due to change in land use or restoration to former productivity because of flood control were measured as the change in net income of the affected property under conditions expected with and without flood control. Items (4) and (5) were not applied to the same tract of land.

(6) Benefits from prevention of loss of life and impairment of heatlh, from effects on national defense, and from prevention or disruption of normal community activities were considered but not evaluated in monetary terms.

Domestic, municipal, and industrial water supply benefits—The value of water to the users was assumed to equal its costs. This was the basis of measurement of benefits from water supply. Water supply benefits were measured by assuming the value of water in adequate quantity and quality to the users would be equal to the cost of obtaining water of similar quantity and quality from the cheapest alternative source. In actual application, the cheapest alternative source was used for benefit evaluation when the water source was a surface supply, whereas when the water source was from wells, benefit values were assumed to be equal to the cost of a well supply.

Benefits from improvement of existing domestic water supplies were assumed to be equal to costs; however, project justification was based largely on the basis of intangible benefits.

Navigation benefits—These benefits fall rather logically into seven categories, although each navigation development did not produce benefits for all categories.

(1) The difference in the cost of transporting goods on an improved waterway as compared to the least costly alternative, including the existing waterway if development were an improvement thereto, represents the benefits for movement of traffic which would move by alternative means in the absence of the improvement. In actual application, the difference in published rates was used to reflect differences in cost as actual cost differences were not available.

(2) The difference between the estimated maximum economical cost for transportation of the goods and the cost of shipment by way of the improved waterway represents the benefits for the movement of traffic which would not move economically in the absence of the improvement. Here again, rate differentials were used rather than actual cost and maximum economical cost determinations. This category of benefits was minor and did not seem to warrant a special study at this time to determine the maximum economic cost for transportation of these goods, especially in view of the reconnaissance nature of the study.

(3) Benefits from provision of a safer and more efficient waterway or harbor were measured as increased net income to vessel operators due to reduction in vessel damage and savings in time and operating expense if this increased net income was not reflected in savings in costs of transporting goods in (1) and (2) above.

(4) Benefits from creation of new land by deposition of dredged spoil were measured in terms of the net increased market value or net annual income, or the cost of equivalent fill, whichever was lesser, exclusive of development costs and any additional costs of depositing the spoil. The net income can be expressed assuming an appropriate rate of return and applying this to the expected market value of the new land. This principle was applied to the navigation studies.

(5) Benefits due to reduction in maintenance of an existing facility were measured as the differences in operation and maintenance costs of the existing facility with, as compared without, the navigation improvement.

(6) Benefits due to the effects of the project on fish and wildlife, recreation, pollution abatement, or sediment control were evaluated in accordance with procedures applicable to these purposes.

(7) Benefits from new deep-draft harbor terminal facilities were measured as the estimated gross revenues (increased costs associated with cargo handling are included as project costs). Where applicable, an additional benefit amounting to 50 percent of the per ton savings on petroleum products resulting from the use of larger tankers permitted as a result of the increased depth of approach channel was included.

Reclamation and drainage benefits—Benefits from drainage or reclamation of land for agricultural purposes were measured as the change in net income to the farmer from the estimated production response.

Irrigation benefits—Benefits from irrigation were measured as the change in net income to the farmer based upon the estimated crop production response due to the use of irrigation as compared to the absence of irrigation under expected future conditions.

Hydroelectric power benefits—Benefits from hydroelectric power were estimated as the cost of equivalent power from the most likely alternative, modern, steam-electric powerplant. Benefits attributable to the project from improvement in downstream power generation should reflect any increase in cost by downstream beneficiaries incurred to realize the improved power generation. However, benefit values in these studies did not include benefits attributable to improvement in downstream power generation. These benefit values should be determined before hydroelectric powerplants are built.

Soil conservation and utilization benefits—Benefits from soil conservation and utilization were measured as the change in net income to the farmer based upon an efficient combination of soil conservation and utilization practices as compared to the absence of these practices under expected future conditions. Soil conservation and utilization practices considered were those for the protection, use, maintenance, and improvement of the soil resources to the point where such resources can be protected and soil losses controlled or losses reduced insofar as practical to serve best the human needs both during the planning period and for all posterity. The actual determination or estimation of the benefit figures appearing in the Report was based on the relationship of net returns to program cost from the view point of the farmer for areas where soil conservation and utilization practices of the magnitude recommended in this plan had been carried out and the net returns to the farmer had been calculated. Admittedly, this method falls short of meeting the desired objectives of comparing all benefits with all costs; however, it is more desirable than merely assuming that all aspects of soil conservation and utilization are worthy of their costs at any magnitude. The market price of benefits or net returns for soil conservation fails to fully recognize the desirability of conserving the soil resource beyond the planning period.

Forest conservation and utilization benefits—The procedure adopted and utilized for these studies was that benefits from forest conservation and utilization would be measured as the increase in net income from growing the forest resources. Stumpage values of increased production and the net leasing value received from the increased number of trees expected to be worked for production of gum naval stores were used to represent the forest conservation and utilization benefits. Benefits that accrue to forest conservation because of its effect on flood control, sediment control, agricultural uses, wildlife and recreational use were measured by the procedure set forth for those purposes.

Fish and wildlife benefits—The value of increased production at expected market prices less any increased expense on the part of the commercial fisherman represents benefits to commercial fishing. However, in the estimating of commercial fishing benefits, the benefits were based on the estimated value of increased landings of commercial fish without deducting the increased expenses to the fisherman. These increased expenses were included in the project costs. Benefits to sport fishing and wildlife were evaluated by applying a range of values to the increase in user-days resulting from the project under expected future conditions with the project. Certain aspects of fish and wildlife development, such as the preservation of rare species of wildlife were not evaluated in monetary terms but discussed and described as a basis for qualitative judgment of their importance in project formulation and evaluation.

Recreation benefits—Recreational benefits consist of the estimated value of any increase in the amount of recreational use expected as a result of the project. Benefits to recreation were evaluated by applying a range of values to the increase in user-days anticipated with the project. The development or protection of aesthetic, scenic, historic, and scientific values were treated in the same manner as the preservation of rare species of wildlife.

Salinity control benefits—Since the plan contained no measures exclusively for salinity control, benefits for this function were not evaluated.

Sediment control benefits—The plan does not include any projects or programs exclusively for sediment control. Sediment control would be largely a byproduct of land-treatment measures

and prudent highway construction and maintenance practices. Therefore, benefits for this function as such were not evaluated.

Pollution abatement benefits—Evaluation of benefits for pollution abatement projects and programs was made only for storage for low-flow augmentation. Other means of pollution abatement were justified on the basis of intangibles. Benefits for water stored to augment low flows and increase the assimilative capacity of the stream were taken as the average cost of the tertiary treatment to provide the same improvement in stream water quality. Benefits were established on the basis of oxygen demanding wastes only. No low-flow augmentation was considered until after primary and secondary treatments were provided. Even where streamflows have been augmented, no benefits have been assessed for reduction in concentration of inorganic and toxic materials.

Streamflow maintenance, or low-flow augmentation, by provision of storage to assure flowing water in streams which historically dry up or nearly dry up during periods of low rainfall, is considered very important to the future development of some river basins. In order to give some recognition to this value in the Suwannee basin, a portion of the fish and wildlife and recreation benefits, net of access area costs on the improved streams, is assigned to low-flow augmentation. These benefits are distributed to upstream reservoirs on the basis of their average contribution to low flows.

An arbitrary limit of 15 percent of the cost of a storage unit was established as the maximum amount that could be allocated to low-flow augmentation on this basis.

Public health protection benefits—Protection or improvement of health which results directly from a land- or water-based resource development provides benefits which were evaluated on the basis of the cost of the most economical means of providing this service. For some programs recommended in the plan, justification was made on the basis of intangibles without any attempt to determine the cost of alternative means of providing the same service.

Annual Equivalent Benefits

Benefits accruing at varying times are comparable to cost only if they are adjusted to the same common point of time. Benefits, similar to costs, were converted to annual equivalent values by use of appropriate compound interest factors for the interest rates, period of analysis, or time of occurrence which pertained to the project or program evaluated.

Secondary Benefits

Secondary benefits are defined as the value of goods and services created in secondary activities stemming from or induced by the project, less all secondary costs incurred in their realization. Secondary benefits may be tangible, intangible, or both.

Secondary benefits were treated in the following manner.

(1) Secondary benefits were used as additional justification of projects from a regional or local point of view but were not evaluated in any detail from a national point of view due to the limited data available to the U. S. Study Commission on national and other regional studies. Principal reliance was placed on primary benefits in determining the most economical project or program needed to achieve the desired goals.

(2) Because of the limitations of time, acceptable data, and procedures, secondary benefits were not normally measured in monetary terms in the studies but were qualitatively described for projects having local or regional effects.

(3) Secondary benefits were considered in working out cost-sharing and reimbursement arrangements.

Intangible Benefits

Intangible benefits are those project and program effects which cannot be measured satisfactorily in monetary values. These intangible effects are recognized by means of a narrative discussion of their significance.

Economic Impacts

Economic impacts are the effects of all the benefits resulting from a project that are of an economic nature, whether they are tangible, intangible, primary, secondary, direct, or indirect.

In addition to the direct products or purposes of a project, the local economic effects are of vital interest to the local citizen. The technical aspects of feasibility are of less interest to the local businessman than are the project effects

expressed in terms of business activity, employment, and local taxes. A recreation or fish and wildlife project may be feasible from the standpoint of direct benefits based on recreational user-days and fish and wildlife user-days; but, in addition, the local people are interested in how this can be translated into business activity in the community or area. A project may provide tangible benefits from navigation, hydroelectric power, and water supply, but the general public in the local area is also interested in the project effects expressed in terms of industry development possibilities. Other programs may lead to increased raw materials production which is measurable in units of yield, but this increased production means more to the local citizens when expressed in terms of new jobs it may create.

Frequent attempts have been made to express these impacts through the use of economic multipliers or in quantitative terms such as, one dollar of economic activity in primary industries leads to one and a half dollars' increased business in services and trades. Or so many new manufacturing jobs mean an increase of a specified number of other jobs in services and trades. These economic multipliers are affected greatly by variables such as time, place, and the basic economic condition of the community or area, making them of questionable value for general application.

Another approach is to state these impacts in qualitative terms. This has been the approach generally followed in the Southeast River Basins area reports. Occasionally, quantitative terms are employed to demonstrate economic impacts but are generally used for illustrative purposes only.

An attempt has been made to show flood control impacts in terms of the value of more intensive use of real property. Water supply impacts have been expressed in terms of the value of water to industrial and economic development. Navigation will produce savings in transportation costs which could, in turn, affect industrial and economic development. The agricultural programs mean increased production to supply raw materials for food-processing industries or a more efficient means of producing the same amount of food and fiber. To achieve this improved agricultural program, there will be also a step-up in trades and services because of the sales of fertilizer, feeds, seeds, machinery, and so on. The forestry and commercial fishing program included in the plan will result in increased production and related increases in the harvesting, transporting, and processing of these raw materials.

Recreation areas will provide more user-days of recreation for a growing population which has more leisure time and money. But businesses and industries will be created, in turn, to serve these recreationists. The same can be said of the impacts from the fish and wildlife program.

Pollution abatement and public health programs are beneficial to the health, economic, and social well-being of the people. Hydroelectric power production can be measured in kilowatt-hours and proven feasible or infeasible on the basis of the cost to produce and the selling price. The availability of this power can lead to industrial development and a higher standard of living. Industry development itself creates more economic activity in the nonmanufacturing segments of the economy.

There will be other economic impacts forthcoming from sources that are not necessarily functions or programs. For instance, there will be temporary impacts from the construction activity in the form of wages paid the employees, materials bought locally, and local services. These are especially important in underdeveloped areas when projects and programs are financed by outside sources. Following completion of a reservoir, there are usually economic impacts stemming from land enhancement although they were not claimed as tangible benefits for justifying reservoir-type projects.

In addition to the above considerations, the comprehensive plan recognizes the potential economic implications of net migration gains which are expected during the period covered by the economic projections. In recent decades, the Southeast River Basins have had net losses in population through migration. The anticipated reversal of this trend sometime during the 40 years is based on a review of the possibilities for growth in the economy of the study area compared with that of other regions and the Nation as a whole. Inevitably, such estimates are, to a considerable degree, subjective and speculative in character.

TABLE 4.1

Summary of Benefits and Costs by Basins
(thousands of dollars)

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation maintenance, and replacements costs[1]	Total cost	Total benefits
Savannah basin						
Multiple purpose						
Highlands	52,404.0	3,569.4	1,377.6	2,216.7	3,594.3	6,365.4
Fish and wildlife	5,342.1	924.8	177.5	606.7	784.2	838.1
Recreation	47,061.9	2,644.6	1,200.1	1,610.0	2,810.1	5,527.3
Horsepasture	25,330.8	353.4	948.1	800.1	1,748.2	2,614.4
Power	20,838.3	169.2	800.2	650.6	1,450.8	1,596.2
Recreation	4,492.5	184.2	147.9	149.5	297.4	1,022.0
Fish and wildlife	0	0	0	0	0	-3.8
Jocassee	59,444.0	355.3	2,143.4	1,599.6	3,743.0	3,880.9
Power	58,414.5	325.0	2,106.2	1,570.0	3,676.2	3,718.3
Recreation	538.7	28.0	19.5	27.3	46.8	142.0
Fish and wildlife	490.8	2.3	17.7	2.3	20.0	20.6
Newry-Old Pickens	60,532.0	379.6	2,174.5	1,612.3	3,786.8	4,224.3
Power	56,439.8	307.7	2,031.9	1,552.7	3,584.6	3,763.0
Recreation	2,310.2	64.8	78.4	51.7	130.1	375.4
Fish and wildlife	1,782.0	7.1	64.2	7.9	72.1	85.9
Chattooga	138,296.6	946.2	4,978.9	3,982.4	8,961.3	9,576.3
Power	136,886.6	873.3	4,927.9	3,911.3	8,839.2	9,228.0
Recreation	1,410.0	72.9	51.0	71.1	122.1	369.1
Fish and wildlife	0	0	0	0	0	-20.8
Tallow Hill	78,750.0	409.6	2,835.1	1,731.9	4,567.0	4,827.3
Power	73,982.6	338.8	2,663.3	1,662.8	4,326.1	4,278.0
Recreation	3,184.2	65.2	114.8	63.5	178.3	488.8
Fish and Wildlife	1,583.2	5.6	57.0	5.6	62.6	60.5
Anthony Shoals	42,329.0	351.8	1,523.9	1,119.7	2,643.6	3,111.2
Power	38,088.8	265.6	1,371.1	1,035.6	2,406.7	2,476.0
Recreation	3,212.8	80.2	115.8	78.1	193.9	586.5
Fish and wildlife	1,027.4	6.0	37.0	6.0	43.0	48.7
Trotters Shoals	94,631.6	1,201.2	3,332.1	3,587.3	6,919.4	12,979.1
Power	74,976.3	488.2	2,699.1	3,061.2	5,760.3	8,527.0
Recreation	18,722.0	706.9	599.3	520.0	1,119.3	4,353.3
Fish and wildlife	933.3	6.1	33.7	6.1	39.8	98.8
Lower Savannah	197,829.3	2,086.4	5,476.0	2,815.4	8,291.4	14,139.3
Power	113,780.9	613.2	3,349.0	1,579.1	4,928.1	4,284.4
Recreation	24,193.3	1,259.1	771.5	1,104.5	1,876.0	8,566.7
Fish and wildlife	21,722.6	59.4	610.6	49.7	660.3	486.2
Navigation	38,132.5	154.7	744.9	82.1	827.0	802.0
Water-access areas	3,440.0	168.2	124.4	168.2	292.6	886.0
Recreation	2,150.4	126.9	77.8	126.9	204.7	797.0
Fish and wildlife	1,289.6	41.3	46.6	41.3	87.9	89.0
Upstream watersheds	44,300.0	582.0	1,601.0	582.0	2,183.0	3,062.0
Flood control	43,420.0	572.0	1,574.0	572.0	2,146.0	2,989.0
Drainage	880.0	10.0	27.0	10.0	37.0	73.0
Single purpose						
Water supply	122,097.0	11,254.8	2,812.4	6,156.8	8,969.2	[2]
Navigation	32,380.0	7,315.9	1,460.6	7,315.9	8,776.5	11,774.5
Irrigation and drainage	2,362.0	462.7	85.4	462.7	548.1	872.4
Soil conservation	22,371.0	1,780.2	808.4	1,780.2	2,588.6	3,147.4
Forest conservation	92,080.0	1,607.0	2,224.0	1,214.0	3,438.0	5,039.0

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Fish and wildlife	2,101.0	4,522.0	41.0	2,867.0	2,908.0	4,635.0
Recreation	32,527.0	2,258.9	768.9	1,201.9	1,970.8	7,703.5
Pollution abatement	110,678.5	1,686.3	2,768.6	1,080.0	3,848.6	[3]
Public health	460.0	1,678.5	11.4	1,596.2	1,607.6	[3]
Ogeechee basin						
Multiple purpose						
Groveland	26,710.0	783.9	909.7	643.3	1,553.0	5,137.9
Recreation	22,191.0	765.6	747.5	625.2	1,372.7	4,946.6
Fish and wildlife	4,519.0	18.3	162.2	18.1	180.3	191.3
Water-access areas	10,204.0	628.4	368.7	628.4	997.1	3,862.3
Recreation	9,910.6	610.3	358.1	610.3	968.4	3,833.3
Fish and wildlife	293.4	18.1	10.6	18.1	28.7	29.0
Upstream watersheds	3,037.4	25.7	109.8	25.7	135.5	274.0
Flood prevention	2,006.8	17.0	72.5	17.0	89.4	181.0
Drainage	1,030.6	8.7	37.3	8.7	46.1	93.0
Single purpose						
Water supply	16,771.9	1,812.8	423.4	986.5	1,409.9	[2]
Irrigation and drainage	2,572.0	485.0	92.0	485.0	577.0	1,767.0
Soil conservation	10,340.0	870.0	374.0	870.0	1,244.0	1,661.0
Forest conservation	34,730.0	893.0	820.0	706.0	1,526.0	3,182.0
Fish and wildlife	813.0	1,945.0	22.0	1,070.0	1,092.0	1,802.0
Recreation	30,696.4	1,644.3	969.1	1,302.9	2,272.0	3,406.5
Pollution abatement	27,251.2	202.7	636.7	120.6	757.3	[3]
Public health	0	412.0	0	412.1	412.1	[3]
Altamaha basin						
Multiple purpose						
Abbeville	50,748.7	478.4	1,840.7	830.6	2,671.3	3,403.4
Power	29,933.6	162.1	1,090.8	547.1	1,637.9	1,495.5
Recreation	14,361.4	282.8	517.6	250.0	767.6	1,642.1
Fish and wildlife	6,453.7	33.5	232.3	33.5	265.8	265.8
Big Flat Creek	6,565.0	239.2	237.7	233.7	471.4	963.4
Recreation	6,491.6	238.3	235.0	233.2	468.2	960.1
Fish and wildlife	73.4	0.9	2.7	0.5	3.2	3.3
Curry Creek	9,982.0	172.1	361.1	169.7	530.8	619.7
Water supply	553.2	1.9	20.0	1.9	21.9	52.2
Recreation	9,121.5	168.1	330.1	165.7	495.8	553.9
Fish and wildlife	307.3	2.1	11.0	2.1	13.1	13.6
Coopers Ferry	40,895.9	298.5	1,473.6	680.6	2,154.2	2,403.9
Power	29,845.3	145.4	1,076.2	530.4	1,606.6	1,502.5
Recreation	5,701.1	119.9	205.4	117.9	323.3	676.2
Fish and wildlife	5,349.5	33.2	192.0	32.3	224.3	224.3
Goose Creek	98,124.1	602.6	3,527.7	1,967.6	5,495.3	5,754.6
Power	84,755.3	463.1	3,051.2	1,849.1	4,900.3	4,900.5
Recreation	8,003.5	116.8	283.9	97.0	380.9	639.5
Fish and wildlife	5,365.3	22.7	192.6	21.5	214.1	214.6
Laurens Shoals	72,232.4	1,123.9	2,518.8	1,655.7	4,174.5	7,038.9
Power	51,200.9	283.8	1,845.8	1,015.3	2,861.1	2,518.5
Recreation	19,472.8	832.7	616.8	633.2	1,250.0	4,457.0
Fish and Wildlife	1,558.7	7.4	56.2	7.2	63.4	63.4
New Bethel	8,301.0	356.5	299.8	347.9	647.7	1,893.6
Recreation	8,250.0	355.9	297.9	347.3	645.2	1,891.1
Fish and wildlife	51.0	0.6	1.9	0.6	2.5	2.5

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Peachstone	22,200.9	693.2	760.7	584.9	1,345.6	2,349.6
Power	4,825.2	72.6	174.1	172.7	346.8	357.0
Recreation	17,022.3	619.2	573.8	410.8	984.6	1,976.8
Fish and wildlife	353.4	1.4	12.8	1.4	14.2	15.8
Townsend	5,789.0	142.0	208.8	142.0	350.8	600.4
Flood control	4,612.5	114.2	166.4	114.2	280.6	458.0
Drainage	1,176.5	27.8	42.4	27.8	70.2	142.4
Water-access areas	4,140.0	227.2	149.7	227.2	376.9	1,272.0
Recreation	3,201.0	195.9	115.7	195.9	311.6	1,206.0
Fish and wildlife	939.0	31.3	34.0	31.3	65.3	66.0
Upstream watersheds	15,842.0	182.3	572.5	182.3	754.8	1,184.5
Flood prevention	15,699.0	180.7	568.5	180.7	749.2	1,172.5
Drainage	143.0	1.6	4.0	1.6	5.6	12.0
Single purpose						
Water supply	64,153.0	6,389.3	1,579.2	3,476.2	5,055.4	[2]
Navigation	18,130.0	222.0	630.0	222.0	852.0	1,240.0
Irrigation and drainage	6,244.0	1,408.0	226.0	1,408.0	1,634.0	3,737.0
Soil conservation	42,490.0	2,433.0	1,536.0	2,433.0	3,969.0	5,320.0
Forest conservation	90,280.0	1,215.0	2,032.0	903.0	2,935.0	8,442.0
Fish and wildlife	3,880.0	3,361.0	136.0	2,036.0	2,172.0	3,555.0
Recreation	73,963.0	5,171.8	2,187.2	3,408.3	5,595.5	20,650.2
Pollution abatement	152,883.0	2,644.6	3,706.2	1,525.8	5,232.0	[3]
Public health	5,900.0	4,327.5	139.8	2,304.5	2,444.3	[3]
Satilla-St. Marys basins						
Multiple purpose						
Big Satilla Creek	8,442.0	175.0	290.9	139.2	430.1	977.8
Recreation	5,611.4	165.8	188.8	130.0	318.8	840.1
Fish and wildlife	2,799.8	9.1	101.0	9.1	110.1	135.2
Irrigation	30.8	0.1	1.1	0.1	1.2	2.5
Axson	5,287.0	93.5	187.3	81.9	269.2	714.1
Recreation	2,340.8	82.3	80.9	70.7	151.6	272.6
Fish and wildlife	2,240.1	8.8	80.9	8.8	89.7	141.6
Pollution abatement	687.3	2.3	24.8	2.3	27.1	297.4
Irrigation	18.8	0.1	0.7	0.1	0.8	2.5
Nassau	3,896.0	85.8	140.8	85.4	226.2	889.1
Recreation	183.0	13.2	6.6	12.8	19.4	61.5
Fish and wildlife	2,957.3	63.3	106.9	63.3	170.2	782.0
Flood control	615.5	9.0	22.2	9.0	31.2	55.6
Public health	140.2	0.3	5.1	0.3	5.4	10.0
Upper Hurricane	5,273.0	65.7	190.4	64.7	255.1	420.9
Recreation	1,985.3	55.2	71.6	54.2	125.8	213.0
Fish and wildlife	2,436.8	8.4	88.1	8.4	96.5	122.4
Pollution abatement	816.2	1.9	29.5	1.9	31.4	75.0
Irrigation	34.7	0.2	1.2	0.2	1.4	10.5
Broxton	2,430.0	41.1	87.7	40.4	128.1	363.4
Recreation	1,089.0	31.1	39.3	30.4	69.7	155.9
Fish and wildlife	95.0	2.2	3.5	2.2	5.7	7.5
Pollution abatement	1,246.0	7.8	44.9	7.8	52.7	200.0
Water-access areas	10,627.0	646.5	384.1	646.5	1,030.6	3,997.0
Recreation	9,838.2	613.3	355.6	613.3	968.9	3,934.0
Fish and wildlife	788.8	33.2	28.5	33.2	61.7	63.0
Upstream watersheds	14,784.0	167.6	534.3	167.6	701.9	2,894.0
Flood control	6,260.0	70.0	225.3	70.0	295.3	1,323.0
Drainage	8,524.0	97.6	309.0	97.6	406.6	1,571.0

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Single purpose						
Water supply	22,502.0	4,634.5	673.1	2,591.5	3,264.6	[2]
Navigation	10,890.0	710.6	477.4	710.6	1,188.0	1,066.0
Irrigation and drainage	5,036.0	892.7	181.3	892.7	1,074.0	2,548.0
Soil conservation	8,715.0	357.4	315.0	357.4	672.4	920.4
Forest conservation	46,650.0	1,086.0	1,109.0	880.0	1,989.0	4,051.0
Fish and wildlife	3,270.0	2,284.0	80.0	1,478.0	1,567.0	2,428.0
Recreation	58,942.0	3,460.4	1,693.8	2,204.2	3,898.0	16,183.2
Pollution abatement	20,902.9	319.8	487.9	185.0	672.9	[3]
Public health	400.0	666.4	7.2	501.4	508.6	[3]
Suwannee basin						
Multiple purpose						
Franks Creek	4,472.0	172.5	157.7	161.2	318.9	1,016.0
Recreation	4,409.1	171.7	155.5	160.4	315.9	1,009.3
Fish and wildlife	62.9	0.8	2.2	0.8	3.0	6.7
Tifton	4,567.0	127.1	164.8	124.9	289.7	424.4
Pollution abatement	2,043.6	40.9	73.7	40.9	114.6	123.6
Fish and wildlife	430.7	8.9	15.5	8.9	24.4	24.6
Recreation	2,043.6	76.3	73.8	74.1	147.9	273.2
Flood control	32.7	0.7	1.2	0.7	1.9	2.0
Irrigation	16.4	0.3	0.6	0.3	0.9	1.0
Hixtown Marsh	1,270.5	18.5	46.8	18.2	65.0	68.1
Fish and wildlife	904.0	10.2	32.4	10.3	42.7	44.3
Recreation	345.8	8.1	13.6	7.7	21.3	22.8
Irrigation	20.7	0.2	0.8	0.2	1.0	1.0
Moultrie	2,859.0	58.0	101.6	52.4	154.0	284.4
Pollution abatement	1,168.9	8.3	42.4	8.3	50.7	85.2
Fish and wildlife	181.7	1.7	6.6	1.6	8.2	11.9
Recreation	1,464.1	47.7	51.0	42.2	93.2	184.3
Flood control	29.5	0.2	1.1	0.2	1.3	2.0
Irrigation	14.8	0.1	0.5	0.1	0.6	1.0
Mud Swamp	525.5	14.7	20.2	14.1	34.3	40.4
Fish and wildlife	229 8	5.1	8.4	4.9	13.3	16.6
Recreation	281.9	9.3	11.3	8.9	20.2	22.8
Irrigation	13.8	0.3	0.5	0.3	0.8	1.0
Quitman	15,881.0	307.1	556.6	275.8	832.4	1,162.3
Pollution abatement	4,135.2	49.3	149.1	49.3	198.4	272.1
Fish and wildlife	1,080.4	14.8	39.1	14.8	53.9	71.7
Recreation	10,571.4	241.9	365.1	210.6	575.7	812.0
Flood control	80.6	1.0	2.9	1.0	3.9	5.5
Irrigation	13.4	0.1	0.4	0.1	0.5	1.0
Nashville	4,948.0	110.6	178.8	108.1	286.9	915.8
Pollution abatement	1,231.6	9.4	44.5	9.4	53.9	218.6
Recreation	2,832.8	91.8	102.4	89.3	191.7	595.0
Fish and wildlife	807.3	8.8	29.2	8.8	38.0	93.2
Flood control	68.6	0.5	2.5	0.5	3.0	8.0
Irrigation	7.7	0.1	0.2	0.1	0.3	1.0
Shiloh	16,186.0	343.3	584.5	337.5	922.0	2,061.6
Pollution abatement	4,597.3	43.7	166.1	43.7	209.8	401.7
Fish and wildlife	1,422.0	18.0	50.9	17.4	68.3	117.1
Recreation	9,381.4	274.2	339.1	269.0	608.1	1,501.2
Flood control	761.7	7.2	27.5	7.2	34.7	39.6
Irrigation	23.6	0.2	0.9	0.2	1.1	2.0

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation maintenance, and replacements costs[1]	Total cost	Total benefits
Ashburn	1,092.5	28.6	39.3	28.4	67.7	144.9
Pollution abatement	381.9	7.5	13.8	7.5	21.3	42.7
Fish and wildlife	340.3	7.5	12.2	7.5	19.7	25.7
Recreation	334.2	12.9	12.0	12.7	24.7	73.5
Flood control	24.1	0.5	0.9	0.5	1.4	2.0
Irrigation	12.0	0.2	0.4	0.2	0.6	1.0
Alapaha	9,637.8	189.3	348.3	188.0	536.3	863.3
Pollution abatement	1,731.9	31.1	62.6	31.1	93.7	227.0
Fish and wildlife	2,237.2	26.8	80.8	26.8	107.6	111.1
Recreation	5,233.8	122.6	189.2	121.3	310.5	500.4
Flood control	396.8	8.4	14.3	8.4	22.7	22.8
Irrigation	38.1	0.4	1.4	0.4	1.8	2.0
Water-access areas	9,719.0	530.7	351.2	530.7	881.9	2,923.0
Recreation	7,759.2	464.0	280.3	464.0	744.3	2,783.0
Fish and wildlife	1,959.8	66.7	70.9	66.7	137.6	140.0
Upstream watersheds	8,979.3	97.6	324.5	97.6	422.1	1,593.0
Flood control	3,773.9	41.0	136.3	41.0	177.3	743.0
Drainage	5,205.4	56.6	188.2	56.6	244.8	850.0
Single purpose						
Water supply	22,442.0	2,254.7	558.2	1,138.2	1,696.4	[2]
Navigation	70.0	7.0	2.0	7.0	9.0	11.0
Irrigation and drainage	8,094.0	1,393.0	292.0	1,393.0	1,685.0	5,866.0
Soil conservation	21,920.0	1,894.0	792.0	1,894.0	2,686.0	4,860.0
Forest conservation	86,840.0	2,208.0	2,115.0	1,774.0	3,889.0	6,733.0
Fish and wildlife	418.0	2,209.0	9.0	1,429.0	1,438.0	2,027.0
Recreation	23,606.8	1,787.3	737.8	1,145.2	1,883.0	4,644.0
Pollution abatement	40,092.5	618.8	1,015.4	373.3	1,388.7	[3]
Public health	0	1,005.5	0	1,005.5	1,005.5	[3]
		Ochlockonee basin				
Multiple purpose						
Doerun	1,368.0	22.4	49.4	22.1	71.5	405.7
Recreation	627.0	16.4	22.6	16.1	38.7	79.0
Fish and wildlife	63.1	0.7	2.4	0.7	3.1	5.0
Pollution abatement	677.9	5.3	24.4	5.3	29.7	321.7
Quincy	2,519.0	74.7	87.7	64.5	152.2	277.7
Recreation	1,905.2	68.9	64.8	58.8	123.6	243.6
Fish and wildlife	94.2	1.0	3.4	0.9	4.3	5.7
Pollution abatement	312.4	2.9	11.6	2.9	14.5	18.5
Water supply	207.2	1.9	7.9	1.9	9.8	9.9
Thomasville	5,695.0	164.6	200.1	150.8	350.9	703.8
Recreation	4,290.8	148.3	149.6	135.0	284.6	624.4
Fish and wildlife	791.4	10.0	28.4	9.5	37.9	48.0
Flood control	19.4	0.2	0.7	0.2	0.9	1.2
Pollution abatement	593.4	6.1	21.4	6.1	27.5	30.2
Tired Creek	3,397.0	84.7	123.0	82.9	205.9	468.0
Recreation	2,152.9	74.9	77.9	73.1	151.0	384.3
Fish and wildlife	285.7	2.7	10.4	2 7	13.1	20.8
Pollution abatement	728.0	5.4	26.3	5.4	31.7	49.7
Water supply	230.4	1.7	8.4	1.7	10.1	13.2
Gulf Coast Improvement	110,219.0	1,035.7	3,966.0	1,019.8	4,985.8	7,336.2
Recreation	39,547.8	728.6	1,424.6	713.4	2,138.0	4,369.2
Fish and wildlife	4,978.7	46.2	179.3	45.5	224.8	233.0
Navigation	6,611.5	23.5	238.1	23.5	261.6	270.0

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Drainage	2,141.5	8.8	77.1	8.8	85.9	90.0
Transportation	36,920.9	146.3	1,326.7	146.3	1,473.0	1,534.0
Landfill	17,635.0	72.5	634.4	72.5	706.9	740.0
Public health	2,383.6	9.8	85.8	9.8	95.6	100.0
Steinhatchee River Improvement	1,920.0	22.4	68.9	22.4	91.3	156.6
Navigation	718.5	3.3	25.7	3.3	29.0	29.0
Recreation	300.0	17.4	10.9	17.4	28.3	93.6
Fish and wildlife	106.5	0.2	3.8	0.2	4.0	4.0
Landfill	795.0	1.5	28.5	1.5	30.0	30.0
Wacissa area	2,393.3	112.6	81.9	92.8	174.7	265.1
Recreation	2,189.2	106.5	74.6	86.7	161.3	251.6
Fish and wildlife	204.1	6.1	7.3	6.1	13.4	13.5
Water-access areas	7,999.0	468.4	289.1	468.4	757.5	2,849.0
Recreation	7,024.3	431.7	253.8	431.7	685.5	2,776.0
Fish and wildlife	974.7	36.7	35.3	36.7	72.0	73.0
Upstream watersheds	15,466.7	155.3	558.0	155.3	713.3	975.5
Flood control	7,712.2	76.9	280.5	76.9	357.4	456.9
Drainage	7,953.0	78.4	285.6	78.4	364.0	518.6
Single purpose						
Flood control	220.0	1.1	7.9	1.1	9.0	12.6
Water supply	27,200.5	3,203.7	654.5	1,806.0	2,460.5	[2]
Navigation	5,700.0	44.0	204.0	44.0	248.0	401.0
Irrigation and drainage	3,210.0	573.8	116.2	573.8	690.0	1,507.0
Soil conservation	10,360.0	769.8	374.2	769.8	1,144.0	2,062.2
Forest conservation	64,940.0	1,632.0	1,607.0	1,315.0	2,922.0	3,839.0
Fish and wildlife	1,265.0	1,120.0	28.0	667.0	695.0	1,267.0
Recreation	19,890.0	1,238.0	563.8	797.0	1,360.8	3,869.2
Pollution abatement	30,557.0	385.2	712.8	219.1	931.9	[3]
Public health	0	579.5	0	449.5	449.5	[3]
Apalachicola-Chattahoochee-Flint basins						
Multiple purpose						
Cedar Creek	60,085.0	1,351.6	2,079.0	1,392.4	3,471.4	7,232.1
Power	18,646.8	188.8	677.4	573.8	1,251.2	1,363.5
Fish and wildlife	1,612.3	11.3	57.8	11.1	68.9	98.7
Recreation	33,203.0	1,063.4	1,105.4	719.4	1,824.8	5,371.1
Flood control	6,622.9	88.1	238.4	88.1	326.5	398.8
Dog River	5,064.0	36.1	183.2	36.1	219.3	335.0
Pollution abatement	4,046.8	27.3	146.3	27.3	173.6	279.0
Fish and wildlife	1,017.2	8.8	36.9	8.8	45.7	56.0
Atlanta Pollution Abatement	67,768.2	1,860.4	2,404.2	1,937.4	4,341.6	8,660.0
Power	3,885.4	87.4	104.3	164.4	268.7	285.0
Pollution abatement	63,882.8	1,773.0	2,299.9	1,773.0	4,072.9	8,375.0
Anneewakee	17,510.0	889.5	547.1	669.4	1,216.5	3,890.3
Recreation	13,790.0	844.2	413.4	605.9	1,019.3	3,677.6
Fish and wildlife	3,720.0	45.3	133.7	63.5	197.2	212.7
West Point	55,857.1	414.8	2,006.8	952.7	2,959.5	3,792.0
Power	34,005.6	238.4	1,225.9	792.8	2,018.7	2,166.4
Recreation	2,486.6	121.9	82.5	105.4	187.9	748.2
Fish and wildlife	2,619.3	14.1	94.4	14.1	108.5	130.1
Flood control	16,745.6	40.4	604.0	40.4	644.4	747.3
Middle Chattahoochee	308,746.5	1,673.3	11,107.8	2,776.5	13,884.3	14,190.5
Power	69,197.6	647.5	2,487.4	1,753.5	4,240.9	4,100.0
Recreation	4,962.1	143.7	178.4	140.9	319.3	875.1

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Fish and wildlife	1,068.6	11.3	38.0	11.3	49.3	41.8
Navigation	233,518.2	870.8	8,404.0	870.8	9,274.8	9,173.6
Omussee Creek	2,253.7	40.6	81.4	39.9	121.3	170.9
Fish and wildlife	283.8	2.8	10.2	2.8	13.0	15.0
Recreation	1,969.9	37.8	71.2	37.1	108.3	155.9
Spewrell Bluff	67,474.1	588.0	2,411.2	1,293.3	3,704.5	4,792.6
Power	39,685.1	291.1	1,428.7	1,061.1	2,489.8	2,669.0
Fish and wildlife	2,050.5	12.3	73.7	12.1	85.8	100.5
Recreation	10,114.8	237.0	346.4	172.5	518.9	1,321.8
Flood control	14,936.6	44.8	537.7	44.8	582.5	667.3
Navigation	687.1	2.8	24.7	2.8	27.5	34.0
Lazer Creek	44,911.4	494.0	1,604.7	1,099.5	2,704.2	3,809.7
Power	30,515.7	241.2	1,102.8	911.2	2,014.0	2,338.0
Recreation	11,681.7	243.3	403.9	178.8	582.7	1,321.8
Fish and wildlife	905.5	5.8	32.6	5.8	38.4	58.9
Flood control	1,665.1	3.2	60.2	3.2	63.4	82.0
Navigation	143.4	0.5	5.2	0.5	5.7	9.0
Lower Auchumpkee	50,240.6	395.6	1,811.9	1,006.8	2,818.7	3,232.6
Power	33,918.3	260.5	1,225.8	884.2	2,110.0	2,202.7
Recreation	5,615.0	93.4	199.6	81.0	280.6	555.1
Fish and wildlife	1,682.9	10.8	60.6	10.7	71.3	79.8
Flood control	8,693.9	29.4	313.9	29.4	343.3	380.0
Navigation	330.5	1.5	12.0	1.5	13.5	15.0
Lower Flint River	66,780.0	554.6	2,413.4	772.0	3,185.4	3,165.9
Power	19,650.0	171.9	710.2	387.5	1,097.7	1,097.7
Recreation	5,549.6	95.7	200.6	94.0	294.6	465.5
Fish and wildlife	3,738.9	25.6	135.1	25.6	160.7	160.7
Navigation	37,841.5	261.4	1,367.5	264.9	1,632.4	1,442.0
Muckalee	3,434.0	57.9	124.2	57.1	181.3	295.6
Flood control	906.8	6.5	32.7	6.5	39.2	14.6
Water Supply	1,491.4	18.2	53.9	18.2	72.1	87.0
Recreation	841.9	32.4	30.5	31.7	62.2	155.9
Fish and wildlife	193.9	0.8	7.1	0.7	7.8	8.1
Kinchafoonee	1,515.0	20.6	54.7	20.5	75.2	86.1
Flood control	1,408.8	18.8	50.9	18.8	69.7	80.3
Fish and wildlife	106.2	1.8	3.8	1.7	5.5	5.8
Chipola River	3,140.0	192.3	92.8	149.2	242.0	787.8
Recreation	2,613.0	183.9	91.3	141.2	232.5	754.8
Fish and wildlife	527.0	8.4	1.5	8.0	9.5	33.0
Water-access areas	20,020.0	1,235.4	723.4	1,235.4	1,958.8	7,859.0
Recreation	17,958.4	1,158.4	648.9	1,158.4	1,807.3	7,705.0
Fish and wildlife	2,061.6	77.0	74.5	77.0	151.5	154.0
Upstream watersheds	30,400.0	400.0	1,100.0	400.0	1,500.0	4,200.0
Flood prevention	24,800.0	309.0	933.0	309.0	1,242.0	2,500.0
Drainage	5,600.0	91.0	167.0	91.0	258.0	1,700.0
Single purpose						
Flood control	12,400.0	87.0	446.0	87.0	533.0	1,240.0
Water supply	362,612.0	33,535.1	8,050.1	17,448.3	25,498.4	[2]
Navigation	--	--	--	--	--	--
Irrigation and drainage	2,948.0	595.8	106.5	545.8	652.3	1,391.0
Soil conservation	59,900.0	3,323.0	2,167.0	3,323.0	5,490.0	7,030.0
Forest conservation	127,800.0	1,812.0	2,960.0	1,371.0	4,331.0	5,715.0
Fish and wildlife	36,219.0	7,652.0	1,312.0	6,096.0	7,408.0	12,744.0
Recreation	100,149.0	6,742.3	2,752.9	4,166.[r]	6,919.4	23,439.0

(continued)

TABLE 4.1—Continued

Project or purpose	Investment cost	Operation, maintenance, and replacements costs at year 2000	Annual equivalent			
			Investment cost	Operation, maintenance, and replacements costs[1]	Total cost	Total benefits
Pollution abatement	395,223.0	3,790.1	9,657.2	2,315.9	11,973.1	[3]
Public health	9,398.8	7,674.7	229.6	5,013 6	5,243.2	[3]
Choctawhatchee-Perdido basins						
Multiple purpose						
Ariton	9,644.3	122.7	344.1	107.3	451.4	867.7
Recreation	3,820 1	91.8	134.4	76.4	210.8	398.1
Fish and wildlife	1,083.7	4.9	39.2	4.9	44.1	79.6
Flood control	4,735.5	26.0	170.5	26.0	196.5	390.0
Crestview	39,518.6	533.1	1,410.1	818.7	2,228.8	3,939.2
Power	18,072.5	131.1	653.1	469.5	1,122.6	1,154.0
Recreation	8,424.7	318.4	286.5	265.6	552.1	2,093.8
Fish and wildlife	13,021.4	83.6	470.5	83.6	554.1	691.4
Deadening Lakes	15,658.1	793.0	563.7	620.3	1,184.0	3,023.8
Recreation	14,154.9	672.8	509.6	511.2	1,020.8	2,860.0
Fish and wildlife	1,503.2	120.2	54.1	109.1	163.2	163.8
Fishing Lakes	759.0	63.1	24.0	56.1	80.1	232.2
Fish and wildlife	29.0	17.1	1.0	17.1	18.1	61.0
Recreation	730.0	46.0	23.0	39.0	62.0	171.2
Water-access areas	12,720.0	778.7	459.7	778.8	1,238.5	4,772.5
Recreation	12,024.9	735.5	434.6	735.5	1,170.1	4,702.5
Fish and wildlife	695.1	43.3	25.1	43.3	68.4	70.0
Upstream watersheds	1,949.0	28.5	70.4	28.5	98.9	127.4
Flood control	987.7	14.5	34.5	14.5	50.4	63.9
Drainage	961.3	14.0	35.9	14.0	48.5	63.5
Single purpose						
Flood control	1,303.0	7.0	47.0	7.0	54.0	74.0
Water supply	118,757.5	18,269.9	2,661.0	9,680.8	12,341.8	[2]
Navigation	16,490.0	2,520.0	741.0	2,520.0	3,261.0	3,897.0
Irrigation and drainage	1,446.0	231.0	52.0	231.0	283.0	699.0
Soil conservation	25,900.0	1,882.0	936.0	1,882.0	2,818.0	3,747.0
Forest conservation	100,100.0	2,007.0	2,304.9	1,562.0	3,866.0	7,402.0
Fish and wildlife	7,010.0	8,256.0	155.0	2,444.0	2,599.0	6,582.0
Recreation	102,715.6	6,893.4	2,374.4	3,506.2	5,880.6	17,608.8
Pollution abatement	175,868.0	2,140.3	4,106.3	1,220.1	5,326.4	[3]
Public health	2,335.0	3,211.8	46.8	1,956.1	2,002.9	[3]

NOTES: [1] Projects with hydroelectric power contain an item of taxes in the operation, maintenance, and replacements costs. For amount of tax item, see Table 4.2.
[2] Benefits for providing a suitable ground water supply are assumed to be equal to the cost. Surface supplies benefits are assumed to be equal to the cost of the cheapest and most likely alternative supply.
[3] Benefits are assumed to be equal to the cost of the cheapest alternative but are not assigned a monetary value. Justification is based largely on intangible benefits which are discussed in narrative in Section II, Part Four of each basin appendix.

SECTION III – COST ALLOCATIONS FOR MULTIPLE-PURPOSE PROJECTS

Cost allocations were made in order to apportion the investment and operation, maintenance, and replacements costs of multiple-purpose projects among the various purposes served by the projects as provided for in Public Law 85-850 which specified that consideration was to be given to repayment rates and reimbursement requirements.

Method of Cost Allocation

The Separable Costs-Remaining Benefits Method of cost allocation was the principal method used with the Alternative Justifiable Expenditure Method and the Use of Facilities Method used as satisfactory alternatives under appropriate conditions. The Alternative Justifiable Ex-

penditure Method was used on a few projects for recreation and fish and wildlife where separable cost estimates were not available. The Use of Facilities Method was used for allocating costs to flood prevention and drainage in upstream watershed projects.

Certain terms used in cost allocation studies have specific meaning. The more important among these are defined in the following paragraphs.

Alternative costs were considered as costs of the cheapest single-purpose alternative project or program in the same area which would produce comparable benefits for the purpose as would be realized for that purpose in the multiple-purpose project.

Justifiable investment was considered as the amount that can be expended for a particular purpose of the multiple-purpose project as measured by the lesser of benefits or single-purpose alternative cost.

Specific costs are the costs of individual physical features and other costs that serve only one purpose. All readily identifiable costs of facilities for one purpose are assigned to that purpose in the allocation process. They represent the minimum allocation to that purpose in the Alternative Justifiable Expenditure Method. The specific costs for power in these studies include an item of taxes regardless of whether the power facility is to be built by Federal or non-Federal entities.

Separable costs are the investment costs which could be omitted from the project if one purpose of the project were excluded or the difference between project costs with the purpose included and project costs with the purpose excluded. Separable costs may also be costs incurred for facilities serving several but not all purposes. They represent the minimum allocation to that function or purpose under the Separable Costs-Remaining Benefits Method. Specific costs are a part of separable costs and in some cases may be identical.

Joint costs, as used in the Separable Costs-Remaining Benefits Method, are the costs remaining after all separable costs have been deducted from total project costs. In this case, joint costs are costs which cannot be readily separated and identified with a specific purpose and must be allocated among the purposes served by the project.

Jointly used facilities costs as used in the Alternative Justifiable Expenditure Method include those items in the cost estimates representing the total cost of jointly used physical factors. The common definition of joint costs applies in this case and is the total cost of the jointly used facilities.

Separable Costs-Remaining Benefits Method

The Separable Costs-Remaining Benefits Method of cost allocation was used to obtain an equitable distribution of the cost of a multiple-purpose project among the purposes served. Each purpose was assigned its separable costs plus a share of the joint costs in proportion to the remaining justifiable investment.

An exception to this procedure was made in a few projects where retention of the project in the plan was based on unmeasured tangible and intangible benefits in addition to primary tangible benefits. In such cases, the difference between justifiable investment (based on tangibles only) and total cost was assigned to the purpose or purposes to which unmeasured tangible and intangible benefits are expected to accrue.

Alternative Justifiable Expenditure Method

This method of cost allocation differs from the Separable Costs-Remaining Benefits Method only to the extent that specific costs are used to determine the remaining justifiable investment rather than separable costs. It was considered as a satisfactory alternative method of cost allocation when necessary basic data to determine separable costs were not available and expenditure of time and money required to obtain the data was not warranted.

Use of Facilities Method

The procedure followed in the Use of Facilities Method as employed for allocating costs to flood prevention and drainage in upstream watershed projects was to first obtain the total channel investment cost for the joint purpose of flood prevention and drainage by multiplying the larger of the two acreages needing project action, flood prevention or drainage, by the investment cost per acre of an applicable sample.

The total investment cost was divided between

purposes in proportion to the ratio of the areas requiring project action for each purpose to the total acreage requiring project action for both purposes.

The annual operation and maintenance costs were obtained in the same way as the investment cost except that the operation and maintenance costs per acre were used in the computations instead of total operation and maintenance.

Cost Allocation Summary for Each Project by Basins

A summary of the cost allocation for each multiple-purpose project shown in Part Four of the basin appendixes is presented in Table 4.2. All values are expressed as annual equivalents except for total allocated capital investment cost and operation, maintenance, and replacements at year 2000.

TABLE 4.2

Summary of Cost Allocations for Multiple-Purpose Projects by Basins (thousands of dollars)

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Savannah basin												
Highlands	6,365.4	..	3,708.0	2,930.7	777.3	690.6	1,377.6	2,216.7	..	3,594.3	52,404.0	3569.4
Fish and wildlife	838.1	997.5	838.1	598.0	240.1	213.3	177.5	606.7	..	784.2	5,342.1	924.8
Recreation	5,527.3	2,869.9	2,869.9	2,332.7	537.2	477.3	1,200.1	1,610.0	..	2,810.1	47,061.9	2,644.6
Horsepasture	2,614.4	..	1,921.6	1,279.0	642.6	469.2	948.1	318.7	481.4	1,748.2	25,330.8	353.4
Power	1,596.2	1,596.2	1,596.2	1,057.5	538.7	393.3	800.2	169.2	481.4	1,450.8	20,838.3	169.2
Recreation	1,022.0	325.4	325.4	221.5	103.9	75.9	147.9	149.5	..	297.4	4,492.5	184.2
Fish and wildlife	−3.8	..	..	..	..	..	..	..	..	..	..	..
Jocassee	3,880.9	..	3,785.8	2,453.0	1,332.8	1,290.0	2,143.4	354.6	1,245.0	3,743.0	59,444.0	355.3
Power	3,718.3	3,718.3	3,718.3	2,407.0	1,311.3	1,269.2	2,106.2	325.0	1,245.0	3,676.2	58,414.5	325.0
Recreation	142.0	46.9	46.9	43.4	3.5	3.4	19.5	27.3	..	46.8	538.7	28.0
Fish and wildlife	20.6	1,292.6	20.6	2.6	18.0	17.4	17.7	2.3	..	20.0	490.8	2.3
Newry-Old Pickens	4,224.3	..	3,990.2	2,819.1	1,171.1	967.7	2,174.5	367.3	1,245.0	3,786.8	60,532.0	379.6
Power	3,763.0	3,763.0	3,763.0	2,735.5	1,027.5	849.1	2,031.9	307.7	1,245.0	3,584.6	56,439.8	307.7
Recreation	375.4	141.3	141.3	77.0	64.3	53.1	78.4	51.7	..	130.1	2,310.2	64.8
Fish and wildlife	85.9	914.8	85.9	6.6	79.3	65.5	64.2	7.9	..	72.1	1,782.0	7.1
Chattooga	9,576.3	..	9,352.6	7,476.6	1,876.0	1,484.7	4,978.9	944.4	3,038.0	8,961.3	138,296.6	946.2
Power	9,228.0	9,228.0	9,228.0	7,363.9	1,864.1	1,475.3	4,927.9	873.3	3,038.0	8,839.2	136,886.6	873.3
Recreation	369.1	124.6	124.6	112.7	11.9	9.4	51.0	71.1	..	122.1	1,410.0	72.9
Fish and wildlife	−20.8	..	..	..	..	..	..	..	..	..	..	..
Tallow Hill	4,827.3	..	4,513.7	3,085.7	1,428.0	1,481.3	2,835.1	407.9	1,324.0	4,567.0	78,750.0	409.6
Power	4,278.0	4,278.0	4,278.0	2,987.7	1,290.3	1,338.4	2,663.3	338.8	1,324.0	4,326.1	73,982.6	338.8
Recreation	488.8	175.2	175.2	93.3	81.9	85.0	114.8	63.5	..	178.3	3,184.2	65.2
Fish and wildlife	60.5	1,412.8	60.5	4.7	55.8	57.9	57.0	5.6	..	62.6	1,583.2	5.6
Anthony Shoals	3,111.2	..	2,731.1	2,048.7	682.4	594.9	1,523.9	349.7	770.0	2,643.6	42,329.0	351.8
Power	2,476.0	2,476.0	2,476.0	1,935.6	540.4	471.1	1,371.1	265.6	770.0	2,406.7	38,088.8	265.6
Recreation	586.5	206.4	206.4	109.1	97.3	84.8	115.8	78.1	..	193.9	3,212.8	80.2
Fish and wildlife	48.7	560.8	48.7	4.0	44.7	39.0	37.0	6.0	..	43.0	1,027.4	6.0
Trotters Shoals	12,979.1	..	10,377.8	4,989.6	5,388.2	1,929.8	3,332.1	1,014.3	2,573.0	6,919.4	94,631.6	1,201.2
Power	8,527.0	8,527.0	8,527.0	4,216.5	4,310.5	1,543.8	2,699.1	488.2	2,573.0	5,760.3	74,976.3	488.2
Recreation	4,353.3	1,752.0	1,752.0	766.1	985.9	353.2	599.3	520.0	..	1,119.3	18,722.0	706.9
Fish and wildlife	98.8	2,142.8	98.8	7.0	91.8	32.8	33.7	6.1	..	39.8	933.3	6.1
Lower Savannah	14,139.3	..	7,396.9	5,331.8	2,065.1	2,869.6	5,476.0	1,724.8	1,090.6	8,291.4	197,829.3	2,086.4
Power	4,284.4	4,284.4	4,284.4	2,863.5	1,420.9	1,974.6	3,349.0	488.5	1,090.6	4,928.1	113,780.9	613.2
Recreation	8,566.7	1,824.3	1,824.3	1,691.8	132.5	184.2	771.5	1,104.5	..	1,876.0	24,193.3	1,259.1
Fish and wildlife	486.2	[1]	486.2	38.8	447.4	621.5	610.6	49.7	..	660.3	21,722.6	59.4
Navigation	802.0	4,330.6	802.0	737.7	64.3	89.3	744.9	82.1	..	827.0	38,132.5	154.7
Water-access areas	886.0	..	301.5	79.4	222.1	213.2	124.4	168.2	..	292.6	3,440.0	168.2
Recreation	797.0	213.2	213.2	..	213.2	204.7	77.8	126.9	..	204.7	2,150.4	126.9
Fish and wildlife [2]	89.0	88.3	88.3	79.4	8.9	8.5	46.6	41.3	..	87.9	1,289.6	41.3
Upstream watersheds [3]	3,062.0	..	..	..	..	..	1,601.0	582.0	..	2,183.0	44,300.0	582.0
Flood prevention	2,989.0	..	..	..	..	..	1,574.0	572.0	..	2,146.0	43,420.0	572.0
Drainage	73.0	..	..	..	..	..	27.0	10.0	..	37.0	880.0	10.0

(continued)

TABLE 4.2—Continued

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Ogeechee basin												
Groveland	5,137.9	..	1,592.1	935.7	656.4	617.3	909.7	643.3	..	1,553.0	26,710.0	783.9
Recreation	4,946.6	1,400.8	1,400.8	931.9	468.9	440.8	747.5	625.2	..	1,372.7	22,191.0	765.6
Fish and wildlife	191.3	580.1	191.3	3.8	187.5	176.5	162.2	18.1	..	180.3	4,519.0	18.3
Water-access areas	3,862.3	..	998.9	166.4	832.5	830.7	368.7	628.4	..	997.1	10,204.0	628.4
Recreation [2]	3,833.3	970.2	970.2	166.4	803.8	802.0	358.1	610.3	..	968.4	9,910.6	610.3
Fish and wildlife	29.0	28.7	28.7	..	28.7	28.7	10.6	18.1	..	28.7	293.4	18.1
Upstream watersheds	274.0	..	..	..	..	..	109.8	25.7	..	135.5	3,037.4	25.7
Flood prevention [3]	181.0	..	..	..	..	..	72.5	17.0	..	89.4	2,006.8	17.0
Drainage	93.0	..	..	..	..	..	37.3	8.7	..	46.1	1,030.6	8.7
Altamaha basin												
Abbeville	3,403.4	..	2,528.9	1,657.3	871.6	1,014.0	1,840.7	445.6	385.0	2,671.3	50,748.7	478.4
Power	1,495.5	1,495.5	1,495.5	1,276.9	218.6	361.0	1,090.8	162.1	385.0	1,637.9	29,933.6	162.1
Recreation	1,642.1	767.6	767.6	363.6	404.0	404.0	517.6	250.0	..	767.6	14,361.4	282.8
Fish and wildlife	265.8	1,105.9	265.8	16.8	249.0	249.0	232.3	33.5	..	265.8	6,453.7	33.5
Big Flat Creek	963.4	..	473.9	355.4	118.5	116.0	237.7	233.7	..	471.4	6,565.0	239.2
Recreation	960.1	470.6	470.6	354.6	116.0	113.6	235.0	233.2	..	468.2	6,491.6	238.3
Fish and wildlife	3.3	116.8	3.3	0.8	2.5	2.4	2.7	0.5	..	3.2	73.4	0.9
Curry Creek	619.7	..	540.3	299.2	241.1	231.6	361.1	169.7	..	530.8	9,982.0	172.1
Water supply	52.2	22.5	22.5	7.3	15.2	14.6	20.0	1.9	..	21.9	553.2	1.9
Recreation	553.9	504.2	504.2	290.8	213.4	205.0	330.1	165.7	..	495.8	9,121.5	168.1
Fish and wildlife	13.6	217.7	13.6	1.1	12.5	12.0	11.0	2.1	..	13.1	307.3	2.1
Coopers Ferry	2,403.0	..	2,050.1	1,407.5	642.6	746.7	1,473.6	295.6	385.0	2,154.2	40,895.9	298.5
Power	1,502.5	1,502.5	1,502.5	1,231.7	270.8	374.9	1,076.2	145.4	385.0	1,606.6	29,845.3	145.4
Recreation	676.2	323.3	323.3	161.3	162.0	162.0	205.4	117.9	..	323.3	5,701.1	119.9
Fish and wildlife	224.3	705.7	224.3	14.5	209.8	209.8	192.0	32.3	..	224.3	5,349.5	33.2
Goose Creek	5,754.6	..	5,496.2	4,349.4	1,146.8	1,145.9	3,527.7	581.6	1,386.0	5,495.3	98,124.1	602.6
Power	4,900.5	4,900.5	4,900.5	4,195.5	705.0	704.8	3,051.2	463.1	1,386.0	4,900.3	84,755.3	463.1
Recreation	639.5	381.1	381.1	139.1	242.0	241.8	283.9	97.0	..	380.9	8,003.5	116.8
Fish and wildlife	214.6	1,160.7	214.6	14.8	199.8	199.3	192.6	21.5	..	214.1	5,365.3	22.7
Laurens Shoals	7,038.9	..	3,832.0	3,112.7	719.3	1,061.8	2,518.8	924.2	731.5	4,174.5	72,232.4	1,123.9
Power	2,518.5	2,518.5	2,518.5	2,102.1	416.4	759.0	1,845.8	283.8	731.5	2,861.1	51,200.9	283.8
Recreation	4,457.0	1,250.1	1,250.1	1,004.9	245.2	245.1	616.8	633.2	..	1,250.0	19,472.8	832.7
Fish and wildlife	63.4	1,007.7	63.4	5.7	57.7	57.7	56.2	7.2	..	63.4	1,558.7	7.4
New Bethel	1,893.6	..	649.4	592.5	56.9	55.2	299.8	347.9	..	647.7	8,301.0	356.5
Recreation	1,891.1	646.9	646.9	591.7	55.2	53.5	297.9	347.3	..	645.2	8,250.0	355.9
Fish and wildlife	2.5	77.0	2.5	0.8	1.7	1.7	1.9	0.6	..	2.5	51.0	0.6
Peachstone	2,349.6	..	1,403.6	897.9	505.7	447.7	760.7	484.8	100.1	1,345.6	22,200.9	693.2
Power	357.0	357.0	357.0	268.9	88.1	77.9	174.1	72.6	100.1	346.8	4,825.2	72.6
Recreation	1,976.8	1,030.8	1,030.8	627.7	403.1	356.9	573.8	410.8	..	984.6	17,022.3	619.2
Fish and wildlife	15.8	449.0	15.8	1.3	14.5	12.9	12.8	1.4	..	14.2	353.4	1.4
Townsend [3]	600.4	..	..	..	..	..	208.8	142.0	..	350.8	5,789.0	142.0
Flood control	458.0	..	..	..	..	..	166.4	114.2	..	280.6	4,612.5	114.2
Drainage	142.4	..	..	..	..	..	42.4	27.8	..	70.2	1,176.5	27.8
Water-access areas	1,272.0	..	386.9	55.6	331.3	321.3	149.7	227.2	..	376.9	4,140.0	227.2
Recreation	1,206.0	321.3	321.3	..	321.3	311.6	115.7	195.9	..	311.6	3,201.0	195.9
Fish and wildlife [2]	66.0	65.6	65.6	55.6	10.0	9.7	34.0	31.3	..	65.3	939.0	31.3
Upstream watersheds [3]	1,184.5	..	..	..	..	..	572.5	182.3	..	754.8	15,842.0	182.3
Flood prevention	1,172.5	..	..	..	..	..	568.5	180.7	..	749.2	15,699.0	180.7
Drainage	12.0	..	..	..	..	..	4.0	1.6	..	5.6	143.0	1.6
Satilla-St. Marys basins												
Big Satilla Creek	977.8	..	510.3	259.2	251.1	170.9	290.9	139.2	..	430.1	8,442.0	175.0
Recreation	840.1	373.3	373.3	202.4	170.9	116.4	188.8	130.0	..	318.8	5,611.4	165.8
Fish and wildlife	135.2	227.9	135.2	56.8	78.4	53.3	101.0	9.1	..	110.1	2,799.8	9.1
Irrigation	2.5	1.8	1.8	..	1.8	1.2	1.1	0.1	..	1.2	30.8	0.1
Axson	714.1	..	405.7	163.3	242.4	105.9	187.3	81.9	..	269.2	5,287.0	93.5
Recreation	272.6	201.1	201.1	113.1	88.0	38.5	80.9	70.7	..	151.6	2,340.8	82.3
Fish and wildlife	141.6	155.3	141.6	49.4	92.2	40.3	80.9	8.8	..	89.7	2,240.1	8.8
Pollution abatement	297.4	61.2	61.2	0.8	60.4	26.3	24.8	2.3	..	27.1	687.3	2.3
Irrigation	2.5	1.8	1.8	.	1.8	0.8	0.7	0.1	..	0.8	18.8	0.1

(continued)

TABLE 4.2—Continued

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Nassau Embayment	889.1	..	249.0	198.0	49.0	26.2	140.8	85.4	..	226.2	3,896.0	85.8
Recreation	61.5	19.4	19.4	19.4	..	..	6.6	12.8	..	19.4	183.0	13.2
Fish and wildlife	782.0	184.0	184.0	152.3	29.7	15.9	106.9	63.3	..	170.2	2,957.3	63.3
Flood control	35.6	52.4	35.6	26.3	9.3	4.9	22.2	9.0	..	31.2	615.5	9.0
Public health	10.0	10.0	10.0	..	10.0	5.4	5.1	0.3	..	5.4	140.2	0.3
Upper Hurricane	420.9	..	315.3	128.7	186.6	126.4	190.4	64.7	..	255.1	5,273.0	65.7
Recreation	213.0	144.6	144.6	86.1	58.5	39.7	71.6	54.2	..	125.8	1,985.3	55.2
Fish and wildlife	122.4	168.4	122.4	42.0	80.4	54.5	88.1	8.4	..	96.5	2,436.8	8.4
Pollution abatement	75.0	46.5	46.5	..	46.5	31.4	29.5	1.9	..	31.4	816.2	1.9
Irrigation	10.5	1.8	1.8	0.6	1.2	0.8	1.2	0.2	..	1.4	34.7	0.2
Broxton	363.4	..	165.0	71.1	93.9	57.0	87.7	40.4	..	128.1	2,430.0	41.1
Recreation	155.9	89.3	89.3	39.5	49.8	30.2	39.3	30.4	..	69.7	1,089.0	31.1
Fish and wildlife	7.5	59.8	7.5	2.8	4.7	2.9	3.5	2.2	..	5.7	95.0	2.2
Pollution abatement	200.0	68.2	68.2	28.8	39.4	23.9	44.9	7.8	..	52.7	1,246.0	7.8
Water-access areas	3,997.0	..	1,060.3	32.8	1,027.5	997.8	384.1	646.5	..	1,030.6	10,627.0	646.5
Recreation	3,934.0	997.8	997.8	..	997.8	968.9	355.6	613.3	..	968.9	9,838.2	613.3
Fish and wildlife[3]	63.0	62.5	62.5	32.8	29.7	28.9	28.5	33.2	..	61.7	788.8	33.2
Upstream watersheds[3]	2,894.0	..	..	..	..	..	534.3	167.6	..	701.9	14,784.0	167.6
Flood prevention	1,323.0	..	..	..	..	..	225.3	70.0	..	295.3	6,260.0	70.0
Drainage	1,571.0	..	..	..	..	..	309.0	97.6	..	406.6	8,524.0	97.6
Suwannee basin												
Franks Creek	1,016.0	..	458.3	233.4	224.9	85.5	157.7	161.2	..	318.9	4,472.0	172.5
Recreation	1,009.3	451.6	451.6	232.6	219.0	84.3	155.5	160.4	..	315.9	4,409.1	171.7
Fish and wildlife	6.7	86.3	6.7	0.8	5.9	2.2	2.2	0.8	..	3.0	62.9	0.8
Tifton	424.4	..	304.0	106.0	198.0	183.7	164.8	124.9	..	289.7	4,567.0	127.1
Pollution abatement	123.6	134.6	123.6	..	123.6	114.6	73.7	40.9	..	114.6	2,043.6	40.9
Fish and wildlife	24.6	205.9	24.6	21.3	3.3	3.1	15.5	8.9	..	24.4	430.7	8.9
Recreation	273.2	152.8	152.8	84.7	68.1	63.2	73.8	74.1	..	147.9	2,043.6	76.3
Flood control	2.0	[1]	2.0	..	2.0	1.9	1.2	0.7	..	1.9	32.7	0.7
Irrigation	1.0	[1]	1.0	..	1.0	0.9	0.6	0.3	..	0.9	16.4	0.3
Hixtown Marsh	68.1	..	66.6	11.6	55.0	53.0	46.8	18.2	..	65.0	1,270.5	18.5
Fish and wildlife	44.3	55.5	44.3	2.5	41.8	40.2	32.4	10.3	..	42.7	904.0	10.2
Recreation	22.8	21.3	21.3	9.1	12.2	11.8	13.6	7.7	..	21.3	345.8	8.1
Irrigation	1.0	[1]	1.0	..	1.0	1.0	0.8	0.2	..	1.0	20.7	0.2
Moultrie	284.4	..	201.6	62.5	139.1	91.5	101.6	52.4	..	154.0	2,859.0	58.0
Pollution abatement	85.2	77.0	77.0	..	77.0	50.7	42.4	8.3	..	50.7	1,168.9	8.3
Fish and wildlife	11.9	92.4	11.9	0.9	11.0	7.3	6.6	1.6	..	8.2	181.7	1.7
Recreation	184.3	109.7	109.7	61.6	41.8	31.6	51.0	42.2	..	93.2	1,464.1	47.7
Flood control	2.0	[1]	2.0	..	2.0	1.3	1.1	0.2	..	1.3	29.5	0.2
Irrigation	1.0	[1]	1.0	..	1.0	0.6	0.5	0.1	..	0.6	14.8	0.1
Mud Swamp	40.4	..	38.9	8.4	30.5	23.6	20.2	14.1	..	34.3	525.5	14.7
Fish and wildlife	16.6	24.8	16.6	1.0	15.6	12.1	8.4	4.9	..	13.3	229.8	5.1
Recreation	22.8	21.3	21.3	7.4	13.9	10.7	11.3	8.9	..	20.2	281.9	9.3
Irrigation	1.0	[1]	1.0	..	1.0	0.8	0.5	0.3	..	0.8	13.8	0.3
Quitman	1,162.3	..	1,072.8	188.4	884.4	644.0	556.6	275.8	..	832.4	15,881.0	307.1
Pollution abatement	272.1	347.5	272.1	..	272.1	198.4	149.1	49.3	..	198.4	4,135.2	49.3
Fish and wildlife	71.7	308.9	71.7	4.9	66.8	49.0	39.1	14.8	..	53.9	1,080.4	14.8
Recreation	812.0	722.5	722.5	183.5	539.0	392.2	365.1	210.6	..	575.7	10,571.4	241.9
Flood control	5.5	[1]	5.5	..	5.5	3.9	2.9	1.0	..	3.9	80.6	1.0
Irrigation	1.0	[1]	1.0	..	1.0	0.5	0.4	0.1	..	0.5	13.4	0.1
Nashville	915.8	..	569.2	120.2	449.0	166.7	178.8	108.1	..	286.9	4,948.0	110.6
Pollution abatement	218.6	145.2	145.2	..	145.2	53.9	44.5	9.4	..	53.9	1,231.6	9.4
Recreation	595.0	321.8	321.8	114.8	207.0	76.9	102.4	89.3	..	191.7	2,832.8	91.8
Fish and wildlife	93.2	172.1	93.2	5.4	87.8	32.6	29.2	8.8	..	38.0	807.3	8.8
Flood control	8.0	145.2	8.0	..	8.0	3.0	2.5	0.5	..	3.0	66.6	0.5
Irrigation	1.0	[1]	1.0	..	1.0	0.3	0.2	0.1	..	0.3	7.7	0.1

(continued)

TABLE 4.2—Continued

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Shiloh	2,061.6	..	1,356.4	384.0	972.4	538.0	584.5	337.5	..	922.0	16,186.0	343.3
Pollution abatement	401.7	379.0	379.0	..	379.0	209.8	166.1	43.7	..	209.8	4,597.3	43.7
Fish and wildlife	117.1	535.5	117.1	7.5	109.6	60.8	50.9	17.4	..	68.3	1,422.0	18.0
Recreation	1,501.2	818.7	818.7	347.7	471.0	260.4	339.1	269.0	..	608.1	9,381.4	274.2
Flood control	39.6	147.2	39.6	28.8	10.8	5.9	27.5	7.2	..	34.7	761.7	7.2
Irrigation	2.0	147.2	2.0	..	2.0	1.1	0.9	0.2	..	1.1	23.6	0.2
Ashburn	144.9	..	90.7	19.7	71.0	48.0	39.3	28.4	..	67.7	1,092.5	28.6
Pollution abatement	42.7	31.5	31.5	..	31.5	21.3	13.8	7.5	..	21.3	381.9	7.5
Fish and wildlife	25.7	55.1	25.7	7.1	18.6	12.6	12.2	7.5	..	19.7	340.3	7.5
Recreation	73.5	30.5	30.5	12.6	17.9	12.1	12.0	12.7	..	24.7	334.2	12.9
Flood control	2.0	38.7	2.0	..	2.0	1.3	0.9	0.5	..	1.4	24.1	0.5
Irrigation	1.0	30.3	1.0	..	1.0	0.7	0.4	0.2	..	0.6	12.0	0.2
Alapaha	863.3	..	547.3	237.6	309.7	298.7	348.3	188.0	..	536.3	9,637.8	189.3
Pollution abatement	227.0	265.2	94.3	80.3	14.0	13.4	62.6	31.1	..	93.7	1,731.9	31.1
Fish and wildlife	111.1	333.1	111.1	4.5	106.6	103.1	80.8	26.8	..	107.6	2,237.2	26.8
Recreation	500.4	317.1	317.1	131.6	185.5	178.9	189.2	121.3	..	310.5	5,233.8	122.6
Flood control	22.8	191.5	22.8	21.2	1.6	1.5	14.3	8.4	..	22.7	396.8	8.4
Irrigation	2.0	51.2	2.0	..	2.0	1.8	1.4	0.4	..	1.8	38.1	0.4
Water-access areas	2,923.0	..	908.5	112.2	796.3	769.7	351.2	530.7	..	881.9	9,719.0	530.7
Recreation	2,783.0	769.7	769.7	..	769.7	744.3	280.3	464.0	..	744.3	7,759.2	464.0
Fish and wildlife[2]	140.0	138.8	138.8	112.2	26.6	25.4	70.9	66.7	..	137.6	1,959.8	66.7
Upstream watersheds[3]	1,593.0	..	..	..	..	..	324.5	97.6	..	422.1	8,979.3	97.6
Flood prevention	743.0	..	..	..	..	..	136.3	41.0	..	177.3	3,773.9	41.0
Drainage	850.0	..	..	..	..	..	188.2	56.6	..	244.8	5,205.4	56.6
Ochlockonee basin												
Doerun	405.7	..	103.8	35.0	68.8	36.5	49.4	22.1	..	71.5	1,368.0	22.4
Recreation	79.0	55.9	55.9	19.4	36.5	19.3	22.6	16.1	..	38.7	627.0	16.4
Fish and wildlife	5.0	74.0	5.0	0.8	4.2	2.3	2.4	0.7	..	3.1	63.1	0.7
Pollution abatement	321.7	42.9	42.9	14.8	28.1	14.9	24.4	5.3	..	29.7	677.9	5.3
Quincy	277.7	....	172.3	98.6	73.7	53.6	87.7	64.5	..	152.2	2,519.0	74.7
Recreation	243.6	138.2	138.2	84.7	53.5	38.9	64.8	58.8	..	123.6	1,905.2	68.9
Fish and wildlife	5.7	58.9	5.7	0.8	4.9	3.5	3.4	0.9	..	4.3	94.2	1.0
Pollution abatement	18.5	24.6	18.5	3.6	14.9	10.9	11.6	2.9	..	14.5	312.4	2.9
Water supply	9.9	20.0	9.9	9.5	0.4	0.3	7.9	1.9	..	9.8	207.2	1.9
Thomasville	703.8	..	394.1	200.3	193.8	150.6	200.1	150.8	..	350.9	5,695.0	164.6
Recreation	624.4	314.7	314.7	179.3	135.4	105.3	149.6	135.0	..	284.6	4,290.8	148.3
Fish and wildlife	48.0	166.6	48.0	2.5	45.5	35.4	28.4	9.5	..	37.9	791.4	10.0
Flood control	1.2	[1]	1.2	..	1.2	0.9	0.7	0.2	..	0.9	19.4	0.2
Pollution abatement	30.2	87.3	30.2	18.5	11.7	9.0	21.4	6.1	..	27.5	593.4	6.1
Tired Creek	468.0	..	265.2	115.4	149.8	90.5	123.0	82.9	..	205.9	3,397.0	84.7
Recreation	384.3	182.1	182.1	103.7	78.4	47.3	77.9	73.1	..	151.0	2,152.9	74.9
Fish and wildlife	20.8	97.1	20.8	1.3	19.5	11.8	10.4	2.7	..	13.1	285.7	2.7
Pollution abatement	49.7	49.1	49.1	5.2	43.9	26.5	26.3	5.4	..	31.7	728.0	5.4
Water supply	13.2	50.3	13.2	5.2	8.0	4.9	8.4	1.7	..	10.1	230.4	1.7
Gulf Coast Improvement	7,336.2	..	5,160.9	1,252.8	3,908.1	3,733.0	3,966.0	1,019.8	..	4,985.8	110,219.0	1,035.7
Recreation	4,369.2	2,193.9	2,193.9	944.9	1,249.0	1,193.1	1,424.6	713.4	..	2,138.0	39,547.8	713.6
Fish and wildlife	233.0	[1]	233.0	42.9	190.1	181.9	179.3	45.5	..	224.8	4,978.7	45.2
Navigation	270.0	[1]	270.0	81.0	189.0	180.6	238.1	23.5	..	261.6	6,611.5	23.5
Drainage	90.0	[1]	90.0	..	90.0	85.9	77.1	8.8	..	85.9	2,141.5	8.8
Transportation	1,534.0	1,544.0	1,534.0	184.0	1,350.0	1,289.0	1,326.7	146.3	..	1,473.0	36,920.9	146.3
Landfill	740.0	[1]	740.0	..	740.0	706.9	634.4	72.5	..	706.9	17,635.0	72.5
Public health	100.0	[1]	100.0	..	100.0	95.6	85.8	9.8	..	95.6	2,383.6	9.8

TABLE 4.2—Continued

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Steinhatchee River												
Improvement	156.6	..	91.3	31.3	60.0	60.0	68.9	22.4	..	91.3	1,920.0	22.4
Navigation	29.0	[1]	29.0	3.0	26.0	26.0	25.7	3.3	..	29.0	718.5	3.3
Recreation	93.6	28.3	28.3	28.3	..	..	10.9	17.4	..	28.3	300.0	17.4
Fish and wildlife	4.0	[1]	4.0	..	4.0	4.0	3.8	0.2	..	4.0	106.5	0.2
Landfill	30.0	[1]	30.0	..	30.0	30.0	28.5	1.5	..	30.0	795.0	1.5
Wacissa	265.1	..	180.0	132.2	47.8	44.7	81.9	92.8	..	174.7	2,393.3	112.6
Recreation	251.6	166.5	166.5	119.7	46.8	43.8	74.6	86.7	..	161.3	2,189.2	106.5
Fish and wildlife	13.5	15.3	13.5	12.5	1.0	0.9	7.3	6.1	..	13.4	204.1	6.1
Water-access areas	2,849.0	..	781.4	48.6	732.8	708.9	289.1	468.4	..	757.5	7,999.0	468.4
Recreation	2,776.0	708.9	708.9	..	708.9	685.5	253.8	431.7	..	685.5	7,024.3	431.7
Fish and wildlife[2]	73.0	72.5	72.5	48.6	23.9	23.4	35.3	36.7	..	72.0	974.7	36.7
Upstream watersheds[3]	975.5	..	..	..	..	..	566.1	155.3	..	721.4	15,665.2	155.3
Flood prevention	456.9	..	..	..	..	..	280.5	76.9	..	357.4	7,712.2	76.9
Drainage	518.6	..	..	..	..	..	285.6	78.4	..	364.0	7,953.0	78.4
Apalachicola-Chattahoochee-Flint basins												
Cedar Creek	7,232.1	..	4,056.1	2,236.3	1,819.8	1,233.7	2,079.0	1,007.4	385.0	3,471.4	60,085.0	1,351.6
Power	1,363.5	1,363.5	1,363.5	1,010.7	352.8	239.1	677.4	188.8	385.0	1,251.2	18,646.8	188.8
Fish and wildlife	98.7	[1]	98.7	6.5	92.2	62.4	57.8	11.1	..	68.9	1,612.3	11.3
Recreation	5,371.1	2,195.1	2,195.1	1,044.6	1,150.5	780.2	1,105.4	719.4	..	1,824.8	33,203.0	1,063.4
Flood control	398.8	[1]	398.8	174.5	224.3	152.0	238.4	88.1	..	326.5	6,622.9	88.1
Dog River	335.0	..	272.0	3.3	268.7	216.0	183.2	36.1	..	219.3	5,064.0	36.1
Pollution abatement	279.0	216.0	216.0	..	216.0	173.6	146.3	27.3	..	173.6	4,046.8	27.3
Fish and wildlife	56.0	219.3	56.0	3.3	52.7	42.4	36.9	8.8	..	45.7	1,017.2	8.8
Atlanta Pollution Abatement	8,660.0	..	4,398.2	4,201.2	197.0	140.4	2,404.2	1,860.4	77.0	4,341.6	67,768.2	1,860.4
Power	285.0	285.0	285.0	228.1	56.9	40.6	104.3	87.4	77.0	268.7	3,885.4	87.4
Pollution abatement	8,375.0	4,113.2	4,113.2	3,973.1	140.1	99.8	2,299.9	1,773.0	..	4,072.9	63,882.8	1,773.0
Anneewakee	3,890.3	..	1,216.5	1,155.1	61.4	61.4	475.1	669.4	..	1,216.5	17,510.0	889.5
Recreation	3,677.6	1,019.3	1,019.3	1,012.2	7.1	7.1	413.4	605.9	..	1,019.3	13,790.0	844.2
Fish and wildlife	212.7	197.2	197.2	142.9	54.3	54.3	133.7	63.5	..	197.2	3,720.0	45.3
West Point	3,792.0	..	3,235.6	1,683.8	1,551.8	1,275.7	2,006.8	398.3	554.4	2,959.5	55,857.1	414.8
Power	2,166.4	2,166.4	2,166.4	1,336.5	829.9	682.2	1,225.9	238.4	554.4	2,018.7	34,005.6	238.4
Recreation	748.2	191.8	191.8	170.2	21.6	17.7	82.5	105.4	..	187.9	2,486.6	121.9
Fish and wildlife	130.1	[1]	130.1	8.7	121.4	99.8	94.4	14.1	..	108.5	2,619.3	14.1
Flood control	747.3	1,217.5	747.3	168.4	578.9	476.0	604.0	40.4	..	644.4	16,745.6	40.4
Middle Chattahoochee	14,190.5	..	13,615.9	12,098.7	1,517.2	1,785.6	11,107.8	1,670.5	1,106.0	13,884.3	308,746.5	1,673.3
Power	4,100.0	4,100.0	4,100.0	3,303.5	796.5	937.4	2,487.4	647.5	1,106.0	4,240.9	69,197.6	647.5
Recreation	875.1	300.5	300.5	192.6	107.9	126.7	178.4	140.9	..	319.3	4,962.1	143.7
Fish and wildlife	41.8	41.8	41.8	4.6	37.2	44.7	38.0	11.3	..	49.3	1,068.6	11.3
Navigation	9,173.6	10,426.6	9,173.6	8,598.0	575.6	676.8	8,404.0	870.8	..	9,274.8	233,518.2	870.8
Omussee Creek	170.9	..	134.9	44.6	90.3	76.7	81.4	39.9	..	121.3	2,253.7	40.6
Fish and wildlife	15.0	[1]	15.0	1.5	13.5	11.5	10.2	2.8	..	13.0	283.8	2.8
Recreation	155.9	119.9	119.9	43.1	76.8	65.2	71.2	37.1	..	108.3	1,969.9	37.8
Spewrell Bluff	4,792.6	..	4,038.6	1,983.3	2,055.3	1,721.2	2,411.2	523.3	770.0	3,704.5	67,474.1	588.0
Power	2,669.0	2,669.0	2,669.0	1,565.5	1,103.5	924.3	1,428.7	291.1	770.0	2,489.8	39,685.1	291.1
Fish and wildlife	100.5	1,612.0	100.5	6.6	93.9	79.2	73.7	12.1	..	85.8	2,050.5	12.3
Recreation	1,321.8	567.8	567.8	269.3	298.5	249.6	346.4	172.5	..	518.9	10,114.8	237.0
Flood control	667.3	1,377.0	667.3	141.9	525.4	440.6	537.7	44.8	..	582.5	14,936.6	44.8
Navigation	34.0	[1]	34.0	..	34.0	27.5	24.7	2.8	..	27.5	687.1	2.8

(continued)

TABLE 4.2—Continued

Project and purpose	Annual equivalent										Total investment cost	OM&R cost at year 2000
	Benefits	Single-purpose alternative cost	Justifiable investment	Separable cost	Remaining justifiable investment	Joint cost	Investment cost	OM&R cost	Taxes	Total cost		
Lazer Creek	3,809.7	..	3,256.6	1,746.4	1,510.2	957.8	1,604.7	429.5	670.0	2,704.2	44,911.4	494.0
Power	2,338.0	2,338.0	2,338.0	1,451.8	886.2	562.2	1,102.8	241.2	670.0	2,014.0	30,515.7	241.2
Recreation	1,321.8	768.7	768.7	259.9	508.8	322.8	403.9	178.8	..	582.7	11,681.7	243.3
Fish and wildlife	58.9	1,063.7	58.9	3.9	55.0	34.5	32.6	5.8	..	38.4	905.5	5.8
Flood control	82.0	1,090.6	82.0	30.8	51.2	32.6	60.2	3.2	..	63.4	1,665.1	3.2
Navigation	9.0	1,059.8	9.0	0	9.0	5.7	5.2	0.5	..	5.7	143.4	0.5
Lower Auchumpkee	3,232.6	..	2,978.1	1,604.0	1,374.1	1,214.7	1,811.9	383.1	623.7	2,818.7	50,240.6	395.6
Power	2,202.7	2,202.7	2,202.7	1,406.6	796.1	703.4	1,225.8	260.5	623.7	2,110.0	33,918.3	260.5
Recreation	555.1	300.6	300.6	126.4	174.2	154.2	199.6	81.0	..	280.6	5,615.0	93.4
Fish and wildlife	79.8	1,294.5	79.8	5.8	74.0	65.5	60.6	10.7	..	71.3	1,682.9	10.8
Flood control	380.0	[1]	380.0	65.2	314.8	278.1	313.9	29.4	..	343.3	8,693.9	29.4
Navigation	15.0	[1]	15.0	..	15.0	13.5	12.0	1.5	..	13.5	330.5	1.5
Lower Flint River	3,165.9	..	2,995.0	1,948.1	1,046.9	1,237.3	2,413.4	556.4	215.6	3,185.4	66,780.0	554.6
Power	1,097.7	[1]	1,097.7	633.2	434.5	434.5	710.2	171.9	215.6	1,097.7	19,650.0	171.9
Recreation	465.5	294.6	294.6	119.1	175.5	175.5	200.6	94.0	..	294.6	5,549.6	95.7
Fish and wildlife	160.7	[1]	160.7	12.2	148.5	148.5	135.1	25.6	..	160.7	3,738.9	25.6
Navigation	1,442.0	[1]	1,442.0	1,153.6	288.4	478.8	1,367.5	264.9	..	1,632.4	37,841.5	261.4
Muckalee	295.6	..	205.8	62.6	143.2	118.7	124.2	57.1	..	181.3	3,434.0	57.9
Flood control	44.6	109.0	44.6	13.4	31.2	25.8	32.7	6.5	..	39.2	906.8	6.5
Water supply	87.0	87.0	87.0	..	87.0	72.1	53.9	18.2	..	72.1	1,491.4	18.2
Recreation	155.9	66.1	66.1	43.1	23.0	19.1	30.5	31.7	..	62.2	841.9	32.4
Fish and wildlife	8.1	109.8	8.1	6.1	2.0	1.7	7.1	0.7	..	7.8	193.9	0.8
Kinchafoonee	86.1	..	80.0	1.0	79.0	74.2	54.7	20.5	..	75.2	1,515.0	20.6
Flood control	80.3	74.2	74.2	..	74.2	69.7	50.9	18.8	..	69.7	1,408.8	18.8
Fish and wildlife	5.8	38.0	5.8	1.0	4.8	4.5	3.8	1.7	..	5.5	106.2	1.8
Chipola River	787.8	..	266.9	237.6	29.3	4.4	92.8	149.2	..	242.0	3,140.0	192.3
Recreation	754.8	236.2	236.2	231.8	4.4	0.7	91.3	141.2	..	232.5	2,613.0	183.9
Fish and wildlife	33.0	30.7	30.7	5.8	24.9	3.7	1.5	8.0	..	9.5	527.0	8.4
Water-access areas	7,859.0	..	2,004.5	107.1	1,897.4	1,851.7	723.4	1,235.4	..	1,958.8	26,020.0	1,235.4
Recreation	7,705.0	1,851.7	1,851.7	..	1,851.7	1,807.3	648.9	1,158.4	..	1,807.3	17,958.4	1,158.4
Fish and wildlife[2]	154.0	152.8	152.8	107.1	45.7	44.4	74.5	77.0	..	151.5	2,061.6	77.0
Upstream watersheds[3]	4,200.0	..	..	..	..	..	1,100.0	400.0	..	1,500.0	30,400.0	400.0
Flood prevention	2,500.0	..	..	..	..	..	933.0	309.0	..	1,242.0	24,800.0	309.0
Drainage	1,700.0	..	..	..	..	..	167.0	91.0	..	258.0	5,600.0	91.0
Choctawhatchee-Perdido basins												
Ariton	867.7	..	693.6	169.2	524.4	282.2	344.1	107.3	..	451.4	9,644.3	122.7
Recreation	398.1	297.2	297.2	110.2	187.0	100.6	134.4	76.4	..	210.8	3,820.1	91.8
Fish and wildlife	79.6	284.0	79.6	2.8	76.8	41.3	39.2	4.9	..	44.1	1,088.7	4.9
Flood control	390.0	316.8	316.8	56.2	260.6	140.3	170.5	26.0	..	196.5	4,735.5	26.0
Crestview	3,939.2	..	2,441.1	1,430.4	1,010.7	798.4	1,410.1	480.3	338.4	2,228.8	39,518.6	533.1
Power	1,154.0	1,801.4	1,154.0	1,002.9	151.1	119.7	653.1	131.1	338.4	1,122.6	18,072.5	131.1
Recreation	2,093.8	595.7	595.7	389.2	206.5	162.9	286.5	265.6	..	552.1	8,424.7	318.4
Fish and wildlife	691.4	836.8	691.4	38.3	653.1	515.8	470.5	83.6	..	554.1	13,021.4	83.6
Deadening Lakes	3,023.8	..	1,186.2	213.0	973.2	971.0	563.7	620.3	..	1,184.0	15,658.1	793.0
Recreation	2,860.0	1,022.4	1,022.4	143.0	879.4	877.8	509.6	511.2	..	1,020.8	14,154.9	672.8
Fish and wildlife	163.8	243.2	163.8	70.0	93.8	93.2	54.1	109.1	..	163.2	1,503.2	120.2
Fishing lakes	232.2	..	85.1	73.2	11.9	6.9	24.0	56.1	..	80.1	759.0	63.1
Recreation	171.2	64.1	64.1	58.8	5.3	3.2	23.0	39.0	..	62.0	730.0	46.0
Fish and wildlife	61.0	21.0	21.0	14.4	6.6	3.7	1.0	17.1	..	18.1	29.0	17.1
Water-access areas	4,772.5	..	1,278.5	110.5	1,168.0	1,128.0	459.7	778.8	..	1,238.5	12,720.0	778.8
Recreation[2]	4,702.5	1,208.5	1,208.5	80.5	1,128.0	1,089.6	434.6	735.5	..	1,170.1	12,024.9	735.5
Fish and wildlife[2]	70.0	70.0	70.0	30.0	40.0	38.4	25.1	43.3	..	68.4	695.1	43.3
Upstream watersheds[3]	127.4	..	..	..	..	..	70.4	28.5	..	98.9	1,949.0	28.5
Flood prevention	63.9	..	..	..	..	..	34.5	14.5	..	50.4	987.7	14.5
Drainage	63.5	..	..	..	..	..	35.9	14.0	..	48.5	961.3	14.0

NOTES:
[1] Single-purpose alternative cost determinations were carried only to the point where they exceeded benefits.
[2] Alternative Justifiable Expenditure Method of cost allocation used for water-access program. The separable cost value is for specific facilities. A corresponding value is included in the benefits and single-purpose alternative cost.
[3] Cost allocated by Use of Facilities Method.

PART FIVE – COST SHARING AND FINANCING

SECTION I – COST SHARING

General Objective and Procedures for Cost Sharing

The objective of cost-sharing arrangements and procedures is to distribute costs so as to serve best the public interest. Several general guides which have been useful in achieving this objective are discussed below. Each has the purpose of helping to obtain those cost-sharing arrangements which will contribute to the optimum development and use of resources. Cost-sharing policies and procedures have been developed within the general framework of assumptions and principles adopted by the Commission for planning land and water developments in the Southeast River Basins.

The Act establishing the U. S. Study Commission specifically recognizes the rights of the States in resource development and their responsibilities in the planning and execution of programs and projects for this development. The overall objective of the Commission was to propose and develop cost-sharing arrangements that are equitable, provide for sound resource development, and encourage cooperation between Federal and non-Federal entities in the planning and carrying out of needed water and land resource development.

In the broadest sense, cost sharing can be considered to cover all arrangements, private as well as public, where there is agreement to share expenses. But in Commission work, the division of investment cost and annual operation and maintenance costs, the latter calculated at full development for the year 2000, between the Federal and non-Federal entities was emphasized. The circumstances in which the Federal Government is justified in contributing to resource development vary greatly from program to program and from one time to another. Accordingly, cost-sharing proposals emphasize the range in which Federal cost-sharing policy may be applied. For specific projects and programs, the level of Federal cost sharing was determined on the basis of circumstances expected to prevail in the basin during the life of the project or program. The following general rules were used: (1) Projects and programs having mainly local impacts will be the responsibility of non-Federal interests, and (2) projects and programs of national importance will be the responsibility of the Federal Government. Between these positions are a substantial number of projects and programs which were considered to be regional in character and for which costs will be shared by Federal and non-Federal groups. The degree of Federal participation in programs and projects of less than national significance will depend upon: (a) The need for demonstration of new approaches to resource development and use; (b) the usefulness of the local or regional project or program in research and experimentation which has more than local implications; (c) support of projects or programs which by policy or legislation have become accepted as Federal or part Federal responsibilities such as forest fire control, flood control, etc.; and (d) where areas are designated as undeveloped or underdeveloped and in need of economic assistance, there may be justification for Federal Government contribution to local works.

It was recognized in developing the plan that cost sharing may be a positive instrument of public policy by: (1) Encouraging sound resource development, economic growth, and social stability; (2) promoting maximum efficiency in the use of personnel and public funds; (3) obtaining an equitable relationship between the incidence of benefits and costs; (4) preventing waste of resources, unwarranted windfall gains, and undesirable agency competition; (5) serving as a check on project desirability and encouraging desirable types and sizes of enterprises; (6) securing consistency between the various purposes of resource development; and

(7) promoting public understanding and cooperation in resource development.

Recognizing the general purposes and objectives which cost-sharing policy may serve, the following general guides were developed for use in cost sharing.

(1) For purposes or elements of the plan for which cost-sharing arrangements have been generally established by law or by agency administrative procedures which are now in effect, these procedures were used as a guide. Except in areas of conflict, it was not considered appropriate to propose cost-sharing arrangements different from those being applied to similar projects and programs in other parts of the country.

(2) Conflicts in existing laws and procedures were recognized and consideration was given to effects which might tend to complicate or retard development.

(3) The Commission applied some changes in present cost-sharing arrangements which seem necessary for acceleration of projects and programs needed in the area.

(4) Where there is no clear cost-sharing policy under existing law or practice, proposals are made for purposes and programs included in the plan.

Distinction Between Public and Private Benefits

The foundations of a successful cost-sharing policy are built upon a knowledge of the costs to be shared, the nature and incidence of the benefits and damages of programs and projects involved, and the character of the interests affected.

A difficult problem is the differentiation between public and private benefits, and between public benefits which are national in character and those which are essentially regional or local. A major objective in defining the several types of public and private benefits which follow from resource development was to distinguish between investment for public benefits and public investment that benefitted specific individuals, groups, and areas. The cost-sharing studies were guided by the extensive experience of the State and Federal Governments in working out cost-sharing arrangements for the many types of resource projects and programs included in the comprehensive plan.

The difficulty experienced in clearly distinguishing between private and public benefits stemmed partly from the absence of agreement on the nature of the public interest, and partly from problems of measurement. The area of complication included the extent to which public and other interests were intermingled and overlapped.

In the broadest view, the public interest could be considered essentially the aggregate of various groups of individual interests. At the other extreme, public interest might be interpreted to be limited to a few specific activities considered as basic governmental responsibilities, the benefits of which were available to or shared by all, such as national defense.

Neither of these extreme positions were considered appropriate for land and water resource planning. An intermediate viewpoint was adopted in which public interest was not limited to a few specific governmental functions but included all types of programs where benefits were so widespread as to preclude specific assignment. Thus, in dividing the costs of resource development between Federal and non-Federal interests, it was recognized that the benefits to the general public, for a number of purposes served by the plans, would consist largely of contributions toward fulfilling general welfare responsibilities and objectives where the benefits were widely dispersed, beyond the administrative areas of non-Federal groups.

For any given project or program, the total benefits measured from the local viewpoint were ordinarily in excess of those measured from a national public viewpoint. Thus, the cost-sharing policies and procedures took into account the differences between national, regional, and local viewpoints. The local impact of projects and programs was estimated in general terms for all important parts of the plan. Intangibles are also carefully considered in cost-sharing work of the Commission.

Connections Between Cost Sharing and Evaluations

In economic evaluation studies, principal emphasis was on the ways in which economic benefits are produced; in cost sharing, the distribution of benefits among the various interests was the chief concern.

In using benefit-cost analysis when repayment

problems were being considered, certain practices were used which were not considered appropriate for purposes of project appraisal and selection. In the reimbursement analysis, provision was made for consideration of all secondary benefits, many of which were not used in the evaluation analysis made from the national point of view.

While cost-sharing and reimbursement considerations did not play an important role in economic evaluation, they were recognized as important independent factors influencing the scope and character of resource developments as well as the distribution and incidence of their costs.

Elements of Cost-Sharing Policy

For purposes of this study, the division of costs is limited to the Federal and non-Federal categories. No attempt is made to divide the non-Federal costs among the participating parties, although this is recognized as an important step in the execution of cost-sharing policies. Consideration is given to a number of factors in making the broad division of costs. Costs are divided in such a way that the optimum development of resources is encouraged and the distinction between private and public benefits is taken into consideration.

Consistency in Cost-Sharing Arrangements

One of the objectives of the cost-sharing policy is to achieve a greater degree of consistency in cost-sharing policy and arrangements than has been common in the past. The variation in cost-sharing requirements for similar resource programs now exceeds any reasonable justification in terms of systematic principles. Recognizing the need to consider present cost-sharing practices in designing future cost-sharing arrangements, it is not possible to achieve complete consistency between or even within programs. But, in providing a suggested range for cost sharing and in recognizing the need to modify cost-sharing procedures over time, steps toward consistency were achieved.

Equitable Distribution of Costs in Relation to Benefits

An equitable distribution of charges based upon a substantial degree of association between the incidence of benefits and that of costs was the primary objective of the cost-sharing policy. The cost-allocation procedures used in these studies aided in the attainment of this objective. In programs where benefits are widely dispersed and where it is difficult, if not impossible, to obtain an equitable contribution from all beneficiaries, the costs are assigned as Federal costs; for example, large-scale flood control projects.

Relation of Cost Sharing to Other Policy Objectives

It is recognized that cost-sharing arrangements must be sufficiently flexible to take into account other objectives of resource development. Chief among these are provisions for the dispersion of benefits to meet stated welfare objectives and provisions for the stimulation of economic growth. The presence of distressed areas was recognized in the planning, particularly in the scheduling of projects and in the designation of projects as demonstrations in which the Federal Government would bear a larger share of the cost than similar projects in areas which are not distressed economically.

Summary of Present Practices and Problems in Cost Sharing

In the development of Commission cost-sharing policy, considerable weight has been given to current cost-sharing practices in each major field of land and water resources development. Late in the course of the Commission studies, amendments to the law affecting cost sharing in upstream watershed projects became effective. To the extent that time would permit, these also are given consideration in developing cost-sharing policy. Some of the significant laws and policies in the field of cost sharing which were considered in developing cost-sharing procedures of the U. S. Study Commission are:

(1) Flood control, under the Corps of Engineers, including local flood protection, multiple-purpose reservoirs, and hurricane flood protection, as contained in the Flood Control Acts of 1936 and 1938 and other general flood control laws;

(2) flood control, under the Soil Conservation Service, encompassing the provisions of Public Law 566, 83d Congress, 2d Session, as amended, Watershed Protection and Flood Prevention Act;

(3) water supply under the Water Supply Act of 1958, with authority granted to the Secretaries of the Army and Interior to incorporate provisions for municipal and industrial water supply in Federal projects and a similar authority with limitations granted to the Secretary of Agriculture under provisions of Public Law 566 as amended. There are also provisions under the laws and regulations governing the Farmers Home Administration and the Housing and Home Finance Agency applicable to this purpose;

(4) navigation, under the River and Harbor Act of 1920 and amendatory laws thereto; The President's "Message on Transportation," April 1962, as it applies to water transportation;

(5) irrigation, including general recognition of reclamation laws and specific recognition of Federal cost sharing locally applicable under the Agricultural Conservation Program (ACP), technical and loan assistance of other U. S. Department of Agriculture agencies, including watershed and other authority;

(6) drainage, including the Flood Control Act of 1944, the U. S. Department of Agriculture authority for drainage under the provisions of the applicable watershed, technical, and ACP cost-sharing assistance programs;

(7) hydroelectric power, the existing law and administrative procedures of the Federal agencies;

(8) soil conservation and utilization, under the Agricultural Conservation Program, the practices primarily (a) for the establishment of permanent vegetative cover, (b) for improvement and protection of established vegetative cover, (c) for the conservation and disposal of water, (d) for establishing temporary protective vegetative cover, (e) for the temporary protection of soil from wind and water erosion, and (f) to meet special county conservation needs. Under the Watershed and Flood Prevention Act as amended a broad program of conservation, development, utilization, and disposal of water is carried out with provision for cooperation between Federal and non-Federal groups in cost sharing;

(9) forest conservation and utilization, under administrative assignment of the Secretary of Agriculture, agencies therein have responsibilities for administering cooperative forestry programs with the States for Cooperative Fire Control and Forestation under Sections 2 and 4 of the Clarke-McNary Act of 1924, as amended; cooperative forest management under the Cooperative Forest Management Act of 1950; cooperative forest insect and disease control under the Forest Pest Control Act of 1947; and the U. S. Forest Service assignment of responsibilities under Public Law 566, as amended, and for two major ACP forestry practices;

(10) fish and wildlife, (a) Federal aid in Wildlife Restoration Act of 1937, and (b) Federal aid in Fish Restoration Act of 1950. Also, the Fish and Wildlife Act of 1956, and Fish and Wildlife Coordination Act of 1958, fish and wildlife facilities provisions of Public Law 566, Bureau of the Budget Circular A-47 (replaced by Senate Document 97, 87th Congress, 2d Session), and State policy considerations;

(11) recreation, cost sharing by Federal Government provision for national parks, monuments, and forests; technical assistance of National Park Service; policy and procedures for Federal participation or cost sharing in recreational use as defined in the Flood Control Act of 1944, Public Law 566 as amended and Bureau of Budget Circular A-47;

(12) salinity and sediment control, the Federal agricultural erosion control programs which aid in reducing sediment. Salinity control was not involved;

(13) pollution abatement, Water Pollution Control Act (Public Law 84-660), as amended by Public Law 87-88, provision for Federal incentive grants for municipalities for construction of sewage treatment works; Housing and Home Finance Administration and multiple-use river projects provisions for low-flow augmentation and dilution water;

(14) beach erosion control, under Public Law 87-874, including erosion control studies, and financing and construction of beach protective works; and,

(15) applicable to all purposes is "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources," prepared by The President's Water Resources Council, Senate Document 97, 87th Congress, 2d Session.

River Regulation

A Federal interest and participation in regulation of high flows or floods has been expressed for many years in the flood control laws and programs. A similar interest has been expressed in regulation for specific purposes such as power development, navigation, and irrigation for land reclamation in the West. On the other hand, the need for streamflow regulation, including regulation of low flow for many purposes, has just begun to be recognized. The recent report and papers of the Senate Select Committee on National Water Resources give heavy emphasis to this need. This need is reflected in the comprehensive plan.

Looking to the future, the heavy demands upon the surface water resource by growth of many urban areas and industries along reaches of rivers, and the requirement that these rivers must carry off residual wastes and still maintain some semblance of the quality necessary for use as a source of domestic water, and for recreation, and for preservation of fish and wildlife, it becomes obvious that regulation and improvement of low flow becomes a major necessity of the future. In fact, the problem of low-flow regulation may inevitably increase in importance until it overshadows the need for high-flow regulation, or flood control. Destructive high flows may be expected at relatively infrequent intervals, and by reasonable regulation of flood plain use, some future flood problems may be avoided. But with increasing urban and industrial development, adverse low-flow conditions may be expected in varying degrees every year and with increasing severity.

The solution of the problem of low-flow regulation may require the storage of water in sufficient quantities solely to augment river flows during dry seasons. This effect may extend many miles along a river and benefit many cities, towns, and industries to the extent that it becomes a general and nonexclusive benefit. This seems analogous to the effect of major reservoirs constructed for reduction of flood damage on long reaches of river. The Commission recognized the importance of low-flow regulation and, when appropriate, included this purpose in its plan, with the understanding that not more than 15 percent of the total cost of any reservoir could be assigned to this purpose.

Area Redevelopment Loans and Grants

In distressed areas, qualified for assistance under the Area Redevelopment Act of 1961, the amount of Federal cost sharing will vary according to the type of project and the Federal agency (other than the Area Redevelopment Administration) involved. Under Section 6 of the Act, ARA can make loans up to 65 percent of the project cost for development of land and facilities. Under Sections 7 and 8, loans and grants for public facilities, there may be a combination of a grant from ARA, a loan from ARA and a loan from another Federal agency. The amounts of each will vary according to the project.

Cost Sharing Proposed by U. S. Study Commission

The division of development cost between Federal and non-Federal interests was made in the following manner. For each major purpose a range was developed representing the possible scope of Federal participation. This range, expressed in percentage of the total project or program cost, covers the total construction and operation, maintenance, and replacements costs to be shared by the Federal Government. Table 5.1 shows the proposed ranges in Federal participation. In the application of cost sharing, the project and program costs were expressed in two groups: (1) Initial investment cost which would include construction cost as well as all costs of lands and rights-of-way needed for project purposes, and (2) operation, maintenance, and replacements costs estimated at the level of full development at year 2000 for each project and program.

A working guide showing the division of investment and operation and maintenance costs for typical projects by purposes is shown in Table 5.2. Its principal purpose was to aid in obtaining uniform treatment of similar projects for all basins. However, it should be emphasized that, for cost sharing, each project was studied separately and individual cost-sharing arrangements suggested for each project purpose according to the character of the project and the conditions and circumstances prevailing in the area or anticipated during the life of the project. Some of the cost-sharing considerations for each purpose are discussed following Table 5.2.

TABLE 5.1

Cost Sharing Used in U. S. Study Commission Studies
(Expressed in percent of Federal participation in total costs—investment and operation, maintenance and replacements at year 2000)

Function	Range of Federal participation in cost sharing (percent)
Flood control	
Local flood protection	0–85
Regional reservoir projects	75–100
Hurricane flood protection	30–50
Flood forecasting and warning	---
Water supply	
Water supply storage	*0
Ground water recharge	75–100
Navigation	
Commercial	100
Noncommercial	0–50
Irrigation	0–45
Drainage	0–45
Hydropower	0
Soil and water conservation	
Estimate of vegetative cover	0–45
Improvement and protection of established cover	0–45
Conservation and disposal of water	0–45
Estimated temporary protective cover	0–45
Protect soil from wind and water	0–45
Forestry	
Cooperative fire control	25–50
Cooperative forestation	25–45
Cooperative forest management	25–30
Cooperative insect and disease control	25–45
Forestry in Public Law-566	0–45
Fish and wildlife	
Federal-State aid projects	25–50
Small watershed	0–50
Regional reservoir projects	0–75
Migratory bird habitat	100
Reservoir projects other than those above	0–50
Stream improvements	0–50
Salt-water improvements	0–50
Recreation	
National projects	100
Regional projects	0–60
Local projects	0–30
Salinity and sediment control	0–60
Pollution abatement and public health	
Sewage treatment works	0–40
Water quality management	20–80
Vector control and other	20–80
River regulation	
Low-flow improvement	0–65

* None except in case of interest-free loans in certain instances.

TABLE 5.2

Guide for Application of Cost-Sharing Principles
(Expressed in percent of Federal and non-Federal participation)

Function and type of function	Percent of cost sharing			
	Initial investment		Operation maintenance and replacements at year 2000	
	Federal	Non-Federal	Federal	Non-Federal
Flood control and prevention				
Local flood protection				
Small reservoirs	55	45	0	100
Levees, channels, etc.	50	50	0	100
Regional reservoirs	75	25	75	25
Hurricane flood protection	--	--	--	--
Water supply				
Water supply storage	[1] 0	100	[1] 0	100
Ground water recharge	--	--	--	--
Navigation				
Commercial	80	20	95	5
Noncommercial	30	70	15	85
Irrigation				
General	25	75	0	100
Reservoir water	--	--	--	--
Drainage	25	75	0	100
Hydroelectric power	0	100	0	100
Soil and water conservation	30	70	0	100
Forest conservation				
National projects	100	0	100	0
Cooperative projects	35	65	30	70
Forestry in Public Law 566	35	65	30	70
Fish and wildlife				
National projects	100	0	100	0
Federal-State aid projects	40	60	0	100
Small watershed projects	35	65	0	100
Local projects	0	100	0	100
Regional projects				
Demonstration projects	75	25	20	80
Federal interest projects	15	85	15	85
Substantial Federal interest projects	50	50	15	[3]85
Stream improvements	30	70	0	100
Salt water improvements	50	50	0	100
Water-access				
Salt and fresh water	40	60	15	85
Commercial fisheries	60	40	60	40
Recreation				
National projects	100	0	100	0
Regional projects				
Demonstration projects	60	40	20	80
Federal interest projects	15	85	15	[3]85
Substantial Federal interest projects	25	75	15	85
Local projects	0	100	0	100
Water-access				
Salt and fresh water	40	60	15	85
Pollution abatement and public health				
Sewage treatment				
Municipal	30	70	0	100
Industrial	0	100	0	100
Low-flow augmentation	40	60	0	100
Vector control	--	--	20	80
Solid-waste disposal	0	100	0	100
River regulation				
Low-flow improvement	50	50	50	50

NOTES: [1] None except in case of interest-free loans in certain instances.
[2] Exception is Nassau Embayment and where OM&R is 75.25.
[3] Exceptions are Crestview, West Point, and Cedar Creek which have a higher degree of Federal interest.

Flood Control

Local flood protection – There is now a great variation in the proportion of the total cost of flood protection works borne by the local interests. Local flood protection works are of many types including levees, channel improvements, and small to medium size reservoirs. Federal participation from project to project varies considerably. On the basis of total project cost, a range of Federal participation from 0 to 85 percent was established with the suggestion that over the long run the proportion of total cost for local protection borne by the Federal Government be reduced. This suggestion was based on the belief that local communities can pay for a substantial part of the cost of local flood protection once the value of this work is known, and effective means of control demonstrated. For typical local flood protection works in the comprehensive plan, capital investment costs will be shared 55 percent Federal and 45 percent non-Federal. Operation, maintenance, and replacements costs for local flood protection works will be a 100 percent non-Federal responsibility.

Where reservoirs are used as a means of local flood protection, they will be built under a number of different cost-sharing arrangements. Those constructed as a part of the U. S. Department of Agriculture program will fall under Public Law 566 and cost sharing for actual construction will be 100 percent Federal with rights-of-way furnished by participants. In other instances, small flood control reservoirs will be built by special improvement districts and by counties with other cost-sharing arrangements.

Regional reservoir projects – When large-scale reservoirs are used as a means of downstream flood protection, it has proven very difficult to determine the extent of benefits to the beneficiaries and assess charges for flood control benefits received. In a number of instances, the Federal Government has borne 100 percent of the total cost of regional reservoir projects. Efforts should be made to obtain some local financial support in all cases, although there may be some instances where this is impractical. Generally, the Federal share of the total cost of regional reservoir projects will range from 75 to 100 percent. For most projects in the regional reservoir class, the Federal Government will provide 75 percent of the capital investment cost and non-Federal interests will provide 25 percent. Capital investment cost includes all land costs. For operation, maintenance, and replacements, the Federal share is recommended as 75 percent and the non-Federal share as 25 percent.

Water Supply

Municipal and industrial water supply was considered as 100 percent non-Federal for purposes of cost sharing. Where circumstances warranted, consideration was given in the plan to some deferment of water use or interest charges where the public interest would not be otherwise protected.

Water-quality management – The following points were considered in the cost-sharing problems in water supply: (1) The primary effort in pollution abatement should be toward reduction or elimination of pollution wastes at the source with all costs to be met by those creating the waste, (2) dilution is not a substitute for waste treatment but should be looked on as a supplement to a program of adequate treatment. The cost of storing water to augment low flows should be shared among the benefiting parties, as outlined below in the sections on pollution abatement and river regulation.

Navigation

Commercial—Inland navigation improvements in the past have been paid for largely by the Federal Government, but there have been some non-Federal contributions usually in the form of rights-of-way, spoil disposal areas, and alterations in services, waterlines, and drainage ditches. The possibility of greater non-Federal contributions for this work has not been adequately explored. Cost sharing of commercial navigation costs for capital investment will be shared 80 percent Federal and 20 percent non-Federal. Operation, maintenance, and replacements costs will be shared 60 percent Federal and 40 percent local for typical projects. In some instances, there may be commercial navigation projects where the Federal Government will provide a major part of the financing even though the original aim was for substantial local contributions.

The use which can be made of harbors and river ports naturally depends upon the docks, warehouses, and other facilities which are established. The development of these facilities is the responsibility of the non-Federal interests. Where the spoil from dredging will result in land improvements, a sum representing this enhancement is normally contributed by the non-Federal interests to the cost of improvements undertaken by the Federal Government at harbors. The furnishing of land for spoil purposes sometimes represents an important contribution to the harbor improvement projects.

Noncommercial – The development of harbors for small boats and the improvement of streams for pleasure craft are considered joint responsibilities of Federal and non-Federal interests. The range in Federal cost sharing is from 0 to 50 percent for total project cost. For typical projects, the Federal contribution to capital investment cost for noncommercial navigation will be 30 percent and for operation, maintenance, and replacements costs, 15 percent.

Irrigation and Drainage

Irrigation and drainage in the Southeast are usually small-scale local projects. A range in Federal cost sharing from 0 to 45 percent for irrigation and drainage projects was used. For the typical or median project, the Federal contribution to capital investment cost will not exceed 25 percent. All operation, maintenance, and replacements costs will usually be borne by non-Federal interests.

If there is need in the future for large-scale projects like the Central and Southern Florida Flood Control District south of the study area, special cost-sharing arrangements will need to be developed on the basis of special study. In general, the Federal contribution to the construction of large-scale drainage projects should not exceed 45 percent of the capital investment cost, with rights-of-way and operation, maintenance, and replacements local responsibilities.

Hydroelectric Power

The users of hydroelectric power are expected to pay the cost allocated to power. Provision is sometimes made in structures for possible later inclusion of power without seeking immediate reimbursement.

Soil and Water Conservation Programs

The following soil and water conservation activities were included in the cost-sharing studies: (1) Establishment of vegetative cover, (2) improvement and protection of established cover, (3) conservation and disposal of water, (4) establishment of temporary protective cover, and (5) protection of soil from wind and water.

Currently, there is a considerable range between areas, States, and between practices in the proportion of the soil and water conservation activities paid for by the Federal Government. A range for cost sharing of soil and water conservation was set at 0 to 45 percent. For the typical project, it is expected that the Federal contribution will not exceed 30 percent of the capital investment cost. Non-Federal interests will be expected to take care of all operation, maintenance, and replacements costs.

Forest Conservation and Utilization

For purposes of cost sharing, the following forestry activities have been considered: Cooperative fire control, cooperative forestation, cooperative forest management, cooperative forest insect and disease control, and forestry under Public Law 566. In considering forestry, it was believed that cooperative fire control and cooperative forest management should be cost shared from 25 to 50 percent by the Federal Government. Cooperative forestation and cooperative insect and disease control would be cost shared 25 to 45 percent by the Federal Government. For forestry under Public Law 566, Federal cost sharing will range from 0 to 45 percent.

Fish and Wildlife

The fish and wildlife program includes projects of many different types having many different cost-sharing arrangements. For purposes of cost sharing, only projects for improving the habitat are included. The migratory bird program is wholly paid for by the Federal Government. There are many Federal-State aid projects (Pittman-Robertson Act and Dingell-Johnson Act) in the plan. A range of cost sharing from 25 to 50 percent for the total Federal contribution was established for these projects. Generally, these contributions will be for capital investment rather than for operation, maintenance, and replacements. The typical Federal-State aid

projects will be cost shared 40 percent Federal and 60 percent non-Federal.

There will be important wildlife values in many of the small watershed projects. Some of these projects will be carried out under Public Law 566. Cost sharing for fish and wildlife in small watershed projects varies considerably from project to project. A range of 0 to 50 percent for Federal participation was adopted for capital investment. Operation, maintenance, and replacements will be the responsibility of the non-Federal interests. For typical small watershed projects, it was estimated that the Federal contribution to investment will average 35 percent with the non-Federal contribution 65 percent.

Large-scale multiple-purpose projects, as those involving hydroelectric power development and flood control, have some values for fish and wildlife development. From project to project there will be marked differences in the degrees to which fish and wildlife needs are satisfied. As a general guide for Federal cost sharing on regional reservoir projects, a range from 0 to 75 percent for fish and wildlife was used. In reservoir projects such as Crestview, Franks Creek, Mud Swamp, and the Lower Savannah projects, there is a substantial Federal interest in the fish and wildlife phase and a 50-50 sharing of development costs in these projects, and a 15-percent Federal contribution to the operation, maintenance, and replacements of these projects was used. There will be numerous additional reservoir projects in which there is a lesser Federal interest. In these cases, a Federal contribution of 15 percent to capital investment and 15 percent to operation, maintenance, and replacements was used.

In addition to those reservoir projects proposed principally for other purposes but having fish and wildlife phases, the plan contains a number of reservoir projects proposed largely for fish and wildlife and recreation. These projects, in a number of instances, are looked upon as demonstrations of the value of large-scale developments for fish and wildlife and recreation. These demonstrations for fish and wildlife include Cedar Creek reservoir, Deadening Lakes area, and the Groveland reservoir. These last two are demonstrations for recreation as well as fish and wildlife.

Fish and wildlife portions of projects designated as fish and wildlife demonstrations in the plan will be cost shared 75 percent Federal for capital investment and 20 percent Federal for operation, maintenance, and replacements. A number of factors were taken into consideration in selecting projects for demonstrations, including (1) characteristics of the area, (2) proximity to population centers, (3) regional distribution, and (4) the state of the area economy.

The Nassau Embayment project was also classified as a demonstration area for fish and wildlife and will be cost shared accordingly. This is a salt-water improvement project. Projects of this type not classified as demonstration will be cost shared 50 percent by the Federal Government for capital investment, but operation, maintenance, and replacements will be non-Federal.

Recreation

In these studies, recreation facilities are classified as (1) national, (2) regional, and (3) local. National facilities include sites suitable for national parks, archeological areas, etc. National projects will be fully paid for and operated by the Federal Government, though nominal admission fees may be collected in some cases.

Regional sites include major reservoir projects, principal beach areas at the seacoast, and certain major recreational areas in the highlands. The degree of Federal cost sharing for regional recreation projects will vary considerably. A range of 0 to 60 percent Federal cost sharing for this type of project was used.

As in the case of fish and wildlife projects, there will be a number of demonstration projects in the field of recreation. Recreation phases of projects designated as recreation demonstrations will be cost shared 60 percent Federal for capital investment and 15 percent Federal for operation, maintenance, and replacements. In this category are the following projects. (1) Groveland reservoir; (2) Big Satilla Creek reservoir; (3) Franks Creek and Mud Swamp projects; (4) Deadening Lakes area; and (5) Cedar Creek reservoir.

In addition to the major recreational demonstrations, there are two reservoir projects which have a substantial Federal interest from the recreational point of view. These are Crestview and West Point. The cost allocated to recreation in

these projects will be cost shared 25 percent Federal for capital investment and 15 percent Federal for operation, maintenance, and replacements. Factors used in selecting recreational demonstration projects were essentially the same as those listed in discussing the fish and wildlife demonstrations.

Water-access areas – The success of the fish and wildlife program and of the recreational program depends upon the availability of areas for public access. The cost of access areas will vary considerably. Those providing access to the seacoast will usually be quite costly. Those providing access to streams will not be very expensive. Generally, it is proposed that the Federal Government bear the cost of access areas to seacoasts and to the major reservoirs and that non-Federal groups pay for the needed access to streams, parks, etc. For purposes of cost sharing, the access areas have been treated as a group. On the average, the Federal Government will bear 40 percent of the capital cost of access areas and the non-Federal interests, 60 percent. For operation, maintenance, and replacements the Federal contribution to access areas will average 15 percent of these costs and local contribution, 85 percent.

Pollution Abatement and Public Health

The present grant program to assist municipalities in the construction of sewage treatment works is an incentive program to stimulate pollution abatement rather than a cost-sharing program. Over the past 4 years, contract awards for sewage treatment plant construction have averaged about $360 million annually in the study area. Based on the known backlog of current needs, an average of $600 million a year will be required to catch up by 1970.

The provision of incentives to industry to construct necessary waste disposal facilities has been considered in the Congress over a long period of time. Various proposals to effect this remedial work have been advanced, but none has resulted in an action program. While the provision of waste treatment works by industries is considered to be a necessary cost of doing business, the provision of incentives to industry by fast amortization for tax purposes or some other financial incentives does in the long run constitute a sharing of costs by the Federal Government in the form of a reduction in Federal tax revenues.

For the purpose of cost sharing of municipal sewage treatment works, a range from 0 to 40 percent for the Federal contribution to total cost was used. For municipal sewerage projects presented in the plan, the Federal contribution to capital investment cost will be 30 percent and the non-Federal contribution, 70 percent. Operation, maintenance, and, replacements will be a local responsibility. Industrial sewage treatment is considered a 100-percent non-Federal responsibility for capital cost and operation, maintenance, and replacements costs.

Water quality management, of which low-flow augmentation is a very important aspect, was considered carefully and for this purpose Federal cost sharing is proposed on the basis that total cost could range from 20 to 80 percent depending upon the Federal interest in any particular project. Projects of this type shown in the plan will be cost shared 40 percent Federal for capital investment and will be operated and maintained entirely by the non-Federal group where this is practical.

Vector control is cost shared 20 percent Federal for operation and maintenance. No capital cost is involved for this work.

River Regulation

In the future, it is believed there will be a growing interest in river regulation, particularly low-flow regulation or improvement. Low-flow regulation of rivers is necessary for power development, navigation, irrigation, water quality control, and improvement of streams for fishing and recreational purposes. Studies indicate that the utility of streams for fishing may be increased two to five times with low-flow regulation.

The importance of river regulation, particularly low-flow improvement, was recognized in the studies and it was included as a purpose with the understanding that not more than 15 percent of the total cost of any project could be assigned to this purpose. Actually, however, the purpose of river regulation was applied in only one basin, the Suwannee, and then only for pollution abatement or water quality control and fishing and recreational purposes. The costs were charged to pollution abatement and public health and cost shared at 50 percent Federal on

both investment cost and operation, maintenance, and replacements costs.

Beach Erosion Control

As the development and use of seashore areas increase, there will be greater need for protecting seashore areas from erosion. The Federal Government has taken an active part in investigations of beach erosion problems for many years. Where public interest is involved, the Federal Government may participate in financing and construction of beach protective works. Under legislation approved by the Congress in 1962, the basis was laid for a greater financial participation in beach erosion work. Under Public Law 87-874 of 1962, the limit of Federal contribution to beach erosion projects was raised from one-third to one-half of the construction cost and the full cost of erosion control studies may be borne entirely by the Federal Government instead of divided 50-50 with local interests as before. For areas in public parks and areas set aside for conservation purposes, the Federal Government may contribute to beach erosion projects to the extent of 70 percent of the construction cost. No specific cost has been included in the plan for beach erosion control and, accordingly, data on this item were not included in Tables 5.1 and 5.2.

TABLE 5.3

Cost Sharing in Savannah Basin Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose*										
Flood control	43,420	23,880	55	19,540	45	572	--	--	572	100
Water supplies	122,100	--	--	122,100	100	11,250	--	--	11,250	100
Navigation	70,480	56,384	80	14,096	20	7,475	6,006	80	1,469	20
Irrigation	1,945	486	25	1,459	75	434	--	--	434	100
Drainage	1,297	324	25	973	75	39	--	--	39	100
Hydroelectric power	573,400	--	--	573,400	100	3,382	--	--	3,382	100
Soil conservation	22,370	6,710	30	15,660	70	1,781	--	--	1,781	100
Forest conservation	92,080	32,230	35	59,850	65	1,607	482	30	1,125	70
Sport fisheries and wildlife	36,220	15,212	42	21,008	58	5,044	155	3	4,889	97
Commercial fisheries	60	36	60	24	40	530	318	60	212	40
Recreation	139,800	32,300	23	107,500	77	6,491	1,150	18	5,341	82
Pollution abatement	110,680	21,200	19	89,480	81	1,686	--	--	1,686	100
Public health	460	--	--	460	100	1,678	--	--	1,678	100
Other purposes	--	--	--	--	--	--	--	--	--	--
Project*										
Highlands										
Highlands	52,400	14,440	28	37,960	72	3,569	536	15	3,033	85
Chattooga	138,300	--	--	138,300	100	947	--	--	947	100
Horsepasture	25,330	1,130	25	24,200	75	353	28	15	325	85
Jocassee	59,440	--	--	59,440	100	355	--	--	355	100
Newry-Old Pickens	60,530	--	--	60,530	100	380	--	--	380	100
Tallow Hill	78,750	--	--	78,750	100	410	--	--	410	100
Anthony Shoals	42,330	--	--	42,330	100	352	--	--	352	100
Trotters Shoals	94,630	5,150	5	89,480	95	1,201	107	15	1,094	85
Lower Savannah	197,800	47,400	24	150,400	76	2,086	345	15	1,741	85
Savannah Pollution Abatement	27,000	8,100	30	18,900	70	314	--	--	314	100
Water-access areas	3,400	1,376	60	2,064	60	168	25	15	143	85
Upstream watersheds	44,300	24,100	54	20,200	46	582	--	--	582	100
Intracoastal waterway	730	585	80	145	20	20	19	95	1	5
Savannah Harbor	31,650	25,320	80	6,330	20	7,300	5,840	80	1,460	20

* Costs for purposes and projects are not additive. Costs of projects are included as part of the costs by purpose.

TABLE 5.4

Cost Sharing in Ogeechee Basin Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose[1]										
Flood control	2,007	1,305	65	702	35	17	--	--	17	100
Water supply	16,770	--	--	16,770	100	1,813	--	--	1,813	100
Irrigation	1,953	488	25	1,165	75	443	--	--	443	100
Drainage	1,649	412	25	1,237	75	51	--	--	51	100
Soil conservation	10,340	1,461	30	8,879	70	870	--	--	870	100
Forest conservation[2]	34,730	12,155	35	22,575	65	893	268	30	625	70
Sport fisheries and wildlife[3]	5,406	3,744	69	1,662	31	375	41	11	334	89
Commercial fisheries	217	130	60	87	40	1,606	964	60	642	40
Recreation[4]	62,800	30,063	48	32,737	52	3,020	917	30	2,103	70
Pollution abatement[5]	27,250	8,175	30	19,075	70	203	20	10	183	90
Public health	--	--	--	--	--	412	82	20	330	80
Project[1]										
Groveland	26,710	16,704	63	10,006	37	784	157	20	627	80
Water-access areas	10,200	4,080	40	6,120	60	628	95	15	533	85

NOTES: [1] Costs for purposes and projects are not additive. Costs of projects are included as part of the costs by purposes.
[2] Ten percent of the basin timberland is in Fort Stewart, increasing the Federal share of costs in this function.
[3] Federal share of fish and wildlife costs is higher than normal because of Blackbeard Island, Fort Stewart, and recommendations of Groveland project as a demonstration in fish and wildlife.
[4] Federal share of recreation costs is higher than normal because of Blackbeard Island, fish hatchery, and recommendation of Groveland project as a demonstration in recreation.
[5] There are three Federal installations involved in pollution abatement, increasing the Federal share in this function.

TABLE 5.5

Cost Sharing in Altamaha Basin Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose*										
Flood control	20,310	10,940	54	9,370	46	294	--	--	294	100
Water supplies	64,700	--	--	64,700	100	6,391	--	--	6,391	100
Navigation	18,130	14,500	80	3,630	20	222	211	95	11	5
Irrigation	6,113	1,528	25	4,585	75	1,399	--	--	1,399	100
Drainage	1,451	363	25	1,088	75	39	--	--	39	100
Hydroelectric power	200,600	--	--	200,600	100	1,127	--	--	1,127	100
Soil conservation	42,490	12,750	30	29,740	70	2,434	--	--	2,434	100
Forest conservation	90,300	31,600	35	58,700	65	1,215	365	30	850	70
Sport fisheries and wildlife	24,060	10,400	43	13,660	57	3,141	18	1	3,123	99
Recreation	165,600	20,070	12	145,530	88	8,100	840	10	7,260	90
Pollution abatement	152,900	44,800	30	108,100	70	2,644	--	--	2,644	100
Public health	5,900	--	--	5,900	100	4,328	--	--	4,328	100
Commercial fisheries	270	162	60	108	40	352	211	60	141	40
Project*										
Abbeville	50,760	6,815	13	43,945	87	478	47	10	431	90
Big Flat Creek	6,573	--	--	6,573	100	239	--	--	239	100
Curry Creek	9,987	--	--	9,987	100	172	--	--	172	100
Coopers Ferry	40,900	4,100	10	36,800	90	298	23	8	275	92
Goose Creek	98,120	4,685	5	93,435	95	603	21	3	582	97
Laurens Shoals	72,260	2,925	4	69,335	96	1,124	125	11	999	89
New Bethel	8,300	--	--	8,300	100	357	--	--	357	100
Peachstone	22,200	2,550	11	19,650	89	693	93	13	600	87
Townsend	5,790	2,600	45	3,190	55	142	--	--	142	100
Buffalo Creek	2,500	1,000	40	1,500	60	24	--	--	24	100
Water-access areas	4,140	1,656	40	2,484	60	225	34	15	191	85
Upstream watersheds	15,840	8,670	55	7,170	45	182	--	--	182	100

* Costs for purposes and projects are not additive. Costs of projects are included as part of the cost by purpose.

TABLE 5.6

Cost Sharing in Satilla-St. Marys Basins Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose[1]										
Flood control	6,880	3,780	55	3,100	45	79	--	--	79	100
Water supplies	22,500	--	--	22,500	100	4,634	--	--	4,634	100
Navigation[2]	10,890	7,840	72	3,050	28	711	156	22	555	78
Irrigation[3]	4,860	1,260	26	3,600	74	874	--	--	874	100
Drainage	8,776	2,190	25	6,586	75	117	--	--	117	100
Soil conservation	8,715	2,615	30	6,100	70	357	--	--	357	100
Forest conservation	46,650	16,330	35	30,320	65	1,086	326	30	760	70
Sport fisheries and wildlife[4]	14,385	4,830	34	9,555	66	1,156	22	2	1,134	98
Commercial fisheries	215	130	60	85	40	1,254	752	60	502	40
Recreation[3]	79,980	32,650	41	47,330	59	4,422	1,308	30	3,114	70
Pollution abatement	23,790	7,375	31	16,415	69	332	--	--	332	100
Public health[5]	400	--	--	400	100	666	--	--	666	100
Project[1]										
Big Satilla Creek[3 6]	8,440	3,800	45	4,640	55	175	35	20	140	80
Axson[3]	5,290	630	12	4,660	88	94	2	2	92	98
Nassau River Embayment[4]	3,900	2,650	68	1,250	32	86	15	17	71	83
Upper Hurricane Creek[3]	5,270	738	14	4,532	86	66	2	3	64	97
Broxton Creek	2,430	510	21	1,920	79	41	0.4	1	40.6	99
Water-access areas	10,630	4,252	40	6,378	60	647	97	15	550	85
Upstream watersheds	14,780	5,573	38	9,207	62	168	--	--	168	100
Brunswick Harbor[2]	8,910	7,070	79	1,840	21	474	141	30	333	70
Fernandina Beach Harbor[2]	1,830	730	40	1,100	60	236	14	6	222	94
Umbrella Creek Channel	150	75	50	75	50	0.6	0.2	33	0.4	67

NOTES:
[1] Costs for purposes and projects are not additive. Costs of projects are included as part of the cost by purpose.
[2] Navigation costs in harbor improvement projects are cost shared on the basis of the type of work involved.
[3] For purposes of this study, cost of irrigation in reservoir projects are included as Federal costs. Sharing of costs by the irrigation beneficiaries should be made on a case-by-case basis when project is constructed.
[4] Nassau River Embayment is recommended as a demonstration in fish and wildlife, largely for research purposes.
[5] The vector control program is a demonstration in vector control at Nassau River Embayment.
[6] Big Satilla Creek reservoir is recommended as a demonstration in the field of recreation.

TABLE 5.7

Cost Sharing in Suwannee Basin Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose*										
Flood control	5,172	3,105	60	2,067	40	59	14	23	45	77
Water supplies	22,440	--	--	22,440	100	2,254	--	--	2,254	100
Navigation	70	60	80	10	20	7	6	95	1	5
Irrigation	7,724	2,011	26	5,713	74	1,377	2	--	1,375	100
Drainage	5,740	1,435	25	4,305	75	75	--	--	75	100
Soil conservation	21,920	6,580	30	15,340	70	1,894	--	--	1,894	100
Forest conservation	86,840	30,390	35	56,450	65	2,210	665	30	1,545	70
Sports fisheries and wildlife	10,002	2,949	30	7,053	70	2,378	21	1	2,357	99
Commercial fisheries	68	41	60	27	40	196	118	60	78	40
Recreation	68,280	12,273	18	56,007	82	3,306	298	9	3,008	91
Pollution abatement	55,410	16,070	29	39,340	71	925	--	--	925	100
Public health	--	--	--	--	--	1,006	41	4	965	96

(continued)

TABLE 5.7—Continued

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Project*										
Franks Creek	4,470	2,676	60	1,794	40	173	35	20	138	80
Tifton	4,570	1,272	28	3,298	72	127	18	14	109	86
Hixtown Marsh	1,270	1,011	80	259	20	18	12	67	6	33
Moultrie	2,860	767	27	2,093	73	58	8	14	50	86
Mud Swamp	525	298	57	227	43	15	3	20	12	80
Quitman	15,900	3,610	23	12,290	77	305	47	15	258	85
Nashville	4,949	1,138	23	3,811	77	110	18	16	92	84
Shiloh	16,200	4,240	26	11,960	74	343	58	17	205	83
Ashburn	1,090	285	26	805	74	29	4	14	25	86
Alapaha	9,640	2,153	30	7,487	70	191	30	26	161	74
Water-access areas	9,720	3,888	40	5,832	60	531	80	15	451	85
Upstream watersheds	8,980	3,378	38	5,602	62	98	--	--	98	100

* Costs for purposes and projects are not additive. Costs of projects are also included as part of the cost by purpose.

TABLE 5.8

Cost Sharing in Ochlockonee Basin Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose[1]										
Flood control	7,949	4,361	55	3,588	45	78	--	--	78	100
Water supplies	27,640	--	--	27,640	100	3,208	--	--	3,208	100
Navigation	13,030	10,080	77	2,950	23	70	30	42	41	58
Irrigation	3,160	790	25	2,370	75	570	--	--	570	100
Drainage	10,140	2,536	25	7,604	75	91	--	--	91	100
Soil conservation	10,360	3,108	30	7,252	70	770	--	--	770	100
Forest conservation	64,940	22,730	35	42,210	65	1,632	490	30	1,142	70
Sport fisheries and wildlife	7,728	3,092	40	4,636	60	831	14	2	817	98
Commercial fisheries	1,032	619	60	413	40	403	242	60	161	40
Recreation	77,920	17,140	22	60,780	78	2,931	437	15	2,494	85
Pollution abatement	32,860	8,630	26	24,230	74	405	4	1	401	99
Public health	2,380	1,190	50	1,190	50	590	116	20	474	80
Other purposes[2]	55,345	18,460	33	36,885	67	219	--	--	219	100
Project[1]										
Doerun	1,368	271	20	1,097	80	22	1	4	21	96
Quincy	2,519	124	5	2,395	95	75	--	1	75	99
Thomasville	5,695	1,011	18	4,684	82	165	26	16	139	84
Tired Creek	3,397	291	9	3,106	91	85	1	1	84	99
Gulf Coast Improvement	110,200	37,930	34	72,270	66	1,036	121	12	915	88
Steinhatchee River Improvement	1,920	314	16	1,606	84	22	3	14	19	86
Wacissa	2,392	359	15	2,033	85	113	17	15	96	85
Water-access areas	7,998	3,199	40	4,799	60	469	70	15	399	85
Upstream watersheds	15,470	6,188	40	9,282	60	155	--	--	155	100
St. Marks Levee	220	110	50	110	50	1	--	--	1	100
Intracoastal Waterway, Carrabelle to Apalachee Bay	3,785	3,028	80	757	20	34	20	59	14	41
St. Marks Channel Improvement	1,780	1,424	80	356	20	2	1	50	1	50
Panacea Channel Improvement	135	127	94	8	6	8	5	62	3	38

NOTES: [1] Costs for purposes and projects are not additive. Costs of projects are included as part of the cost by purpose.
[2] Includes only costs for (1) transportation as part of the Gulf Coast Improvement project of which the non-Federal share of the investment cost would be 50 percent and the operation, maintenance, and replacements costs would be 100 percent non-Federal and (2) landfill by use of excess spoil material as part of the Gulf Coast Improvement and Steinhatchee River Improvement projects of which all costs would be non-Federal.

TABLE 5.9

Cost Sharing in Apalachicola-Chattahoochee-Flint Basins Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose[1]										
Flood control	88,110	57,565	65	30,545	35	627	154	25	473	75
Water supplies	364,100	--	--	364,100	100	33,548	--	--	33,548	100
Navigation	272,490	217,995	80	54,495	20	1,172	1,114	95	58	5
Irrigation	2,350	588	25	1,762	75	378	--	--	378	100
Drainage	6,200	1,550	25	4,650	75	121	--	--	121	100
Hydroelectric power	249,450	--	--	249,450	100	2,127	--	--	2,127	100
Soil conservation	59,900	17,970	30	41,930	70	3,323	--	--	3,323	100
Forest conservation	127,800	44,730	35	83,070	65	1,812	544	30	1,268	70
Sport fisheries and wildlife	57,060	22,113	39	34,947	61	6,090	38	1	6,052	99
Commercial fisheries	670	402	60	268	40	1,799	1,080	60	719	40
Recreation	210,800	53,455	25	157,345	75	10,995	1,213	11	9,782	89
Pollution abatement	463,100	135,480	29	327,620	71	5,601	6	1	5,595	99
Public health	9,400	--	--	9,400	100	7,700	--	--	7,700	100
Project[1]										
Highlands[2]										
Cedar Creek	60,000	26,070	43	33,930	57	1,351	281	21	1,070	79
Dog River	5,000	1,950	39	3,050	61	36	8	20	28	80
Atlanta Pollution Abatement	67,800	19,170	28	48,630	72	1,861	--	--	1,861	100
Anneewakee	17,500	11,060	63	6,440	37	890	178	20	712	80
West Point	55,800	13,290	24	42,510	76	415	50	12	365	88
Middle Chattahoochee	308,700	188,570	61	120,130	39	1,703	879	52	824	48
Columbus-Phenix City	7,200	3,600	50	3,600	50	22	--	--	22	100
Omussee	2,250	--	--	2,250	100	42	--	--	42	100
Spewrell Bluff	67,500	13,600	20	53,900	80	588	75	13	513	87
Lazer Creek	44,900	3,250	7	41,650	93	494	40	7	454	93
Lower Auchumpkee	50,200	7,860	16	42,340	84	395	40	10	355	90
Lower Flint River	66,800	31,670	47	35,130	53	560	271	48	289	52
Muckalee Creek	3,400	495	15	2,905	85	58	--	--	58	100
Kinchafoonee Creek	1,500	770	51	730	49	21	--	--	21	100
Chipola River	3,100	--	--	3,100	100	192	--	--	192	100
Apalachicola Bay Oyster Development	430	258	60	172	40	766	460	60	306	40
Water-access areas	20,000	8,000	40	12,000	60	1,235	186	15	1,049	85
Upstream watersheds	30,400	15,040	49	15,360	51	400	--	--	400	100
Flood control levees	5,200	2,600	50	2,600	50	65	--	--	65	100

NOTES: [1] Costs for purposes and projects are not additive. Costs of projects are included as part of the cost by purpose.
[2] Data shown in Appendix 1, Savannah Basin.

TABLE 5.10

Cost Sharing in Choctawhatchee-Perdido Basins Comprehensive Plan

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Purpose[1]										
Flood control	7,026	3,799	54	3,227	46	48	--	--	48	100
Water supplies	118,700	--	--	118,700	100	18,270	--	--	18,270	100
Navigation[2]	16,490	2,600	16	13,890	84	2,520	180	7	2,340	93
Irrigation	1,258	315	25	943	75	215	--	--	215	100

(continued)

TABLE 5.10 —Continued

Purpose or project	Investment costs					Annual operation, maintenance, and replacements costs at year 2000				
	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)	Total ($1,000)	Federal ($1,000)	Federal (pct.)	Non-Federal ($1,000)	Non-Federal (pct.)
Drainage	1,149	287	25	862	75	30	--	--	30	100
Hydroelectric power	18,080	--	--	18,080	100	131	--	--	131	100
Soil conservation	25,900	7,770	30	18,130	70	1,882	--	--	1,882	100
Forest conservation	100,100	35,040	35	65,060	65	2,007	602	30	1,405	70
Sport fisheries and wildlife[3]	23,180	6,650	29	16,530	71	7,197	44	1	7,153	99
Commercial fisheries	170	100	60	70	40	1,329	797	60	532	40
Recreation[3]	141,850	19,660	14	122,190	86	8,757	560	6	8,197	94
Pollution abatement	175,900	50,700	29	125,200	71	2,140	--	--	2,140	100
Public health	2,300	--	--	2,300	100	3,212	--	--	3,212	100
Project[1]										
Ariton[3]	9,644	4,104	43	5,540	57	123	15	13	108	87
Crestview[3]	39,520	3,220	8	36,300	92	533	60	11	473	89
Deadening Lakes[3]	15,660	9,621	61	6,039	39	793	159	20	634	80
Fishing lakes	759	12	2	747	98	63	--	--	63	100
Water-access areas	12,720	5,088	40	7,632	60	779	117	15	662	85
Upstream watersheds	1,949	783	40	1,166	60	29	--	--	29	100
Brewton levee	684	342	50	342	50	2	--	--	2	100
Flomaton levee	619	310	50	309	50	5	--	--	5	100
Port St. Joe Harbor[2]	6,300	270	4	6,030	96	1,140	20	2	1,120	98
Panama City Harbor[2]	6,030	360	6	5,670	94	1,150	30	3	1,120	97
Pensacola Harbor[2]	2,221	421	19	1,800	81	188	90	48	98	52
Gulf County Canal	539	431	80	108	20	22	21	95	1	5
Perdido Pass	1,400	1,120	80	280	20	20	19	95	1	5

NOTES: [1] Costs for purposes and projects are not additive. Cost of projects are included as a part of the costs by purpose.
[2] Most of the work involved in the three harbor projects is of the nature of terminal facilities which should be paid for by non-Federal interests.
[3] Three multiple-purpose reservoir projects are of regional significance, therefore, increasing the Federal share of recreation and fish and wildlife costs.

SECTION II – FINANCING THE SOUTHEAST RIVER BASINS PLAN

Introduction

The success of the plan for the development of land and water resources of the Southeast River Basins area will depend to a great degree upon the development of an effective program for financing the natural resource programs and projects required for the anticipated economic growth of the Southeast and the Nation. Public financial policies and practices involve many considerations outside the scope of the Commission studies. However, the studies explain the magnitude of the financing required for carrying out the development plans for the Southeast River Basins area. Also, the studies point out several possible ways of financing public and private resource development, recognizing that there are numerous approaches to this complex problem, and that effective results may be achieved in more than one way.

Definitions

The following definitions will apply: (a) *Financing* relates to the immediate source and management of funds. (b) *Cost sharing* relates to the final division of costs between cooperating parties. Clearly there is a close relationship between cost-sharing policies and needed financing, but the distinction between financing and cost sharing must be kept in mind in using this and related reports of the Commission. (c) *Cost allocation* relates to the division of costs among the purposes of resource development. (d) *Reimbursable* and *nonreimbursable* relate to categories of funds – reimbursable funds are recovered by the financing source or agency; nonreimbursable funds are not recovered by the financing source or agencies. Where Federal financing is involved, nonreimbursable expenditures ordinarily become the responsibility of the general

public through the medium of general tax revenues. (e) *Repayment* relates to the arrangement for recovery by the financing entity.

Scope of Financial Study

As the cost-sharing work has been confined to the two categories of Federal and non-Federal, this division is followed in the financial studies. Attention also has been given to the relationship between new investments and operation, maintenance, and replacements costs. Judging by past experience the relationship between annual new investment for natural resource development and investment for operation, maintenance, and replacements of existing projects is almost one-third total expenditures for new investment and two-thirds for operation, maintenance, and replacements. The cost, and ultimately the financing, of the Southeast River Basins plan is viewed in terms of the economy it is designed to serve and which it will in turn help to shape.

Plan formulation rests upon the conventional benefit-cost analysis, political, institutional, and sociological considerations, and needs and opportunities as determined for each purpose. Within the realm of this concept, the resultant plan reflects the optimal allocation and utilization of land and water resources. However, in recognition of the limitations imposed by the nature and scope of the planning studies, a further study was made to test the reasonableness and practicability of the plan in terms of the feasibility of implementing and financing the developments.

A special study was made of the historical nature and magnitude of resource expenditures in the Southeast River Basins area and at the national level. This study showed that, particularly during recent years of peace and relatively normal economic growth, total Federal expenditures for land and water resource development and utilization bore a fairly consistent relationship to gross national product and total nonmilitary Federal expenditures. Furthermore, this study showed that the magnitude of total Federal and non-Federal expenditures for land and water resource development in the Southeast River Basins area bore a fairly consistent relationship to total personal income in the area.

Using these relationships as a tentative guide or check of reasonableness and practicability, the magnitude of required resource expenditures of the Commission plan was tested by comparing it to the projections of resource expenditures anticipated by the tentative guideline of historical experience in the area. From these studies, it appeared that the total magnitude of the plan for the whole planning period closely approximated the level of the tentative guideline. Thus, from this rough guideline, it appeared that the total plan could be implemented by a level of expenditure over the whole planning period of about the same percentage of total personal income as has been spent during recent years.

Another observation from the study was that the early action phase of the plan will require a level of expenditure for resource development considerably higher than the extrapolated resource expenditure level. This was to be expected because the area is considerably behind the national economy in the development and utilization of its resources. In order to attain the potentials of this area, the outlay for resource development must be significantly increased during the early action phase. A significant portion of the capital for these increased expenditures must come from outside the area economy. The area economy must also bear increased outlays for other forms of investment, particularly outlays for expanded industrial plants, improved educational facilities, and other forms of social overhead capital. The cost-sharing proposals of the plan account for and are compatible with this schedule. A higher level of Federal cost sharing during the early action phase of the comprehensive plan appears justified by both social and economic considerations. As economic development in this area, as reflected by per capita income levels, more nearly approaches that of the national economy during the latter part of the planning period, the area economy can and should assume a greater share of the costs as shown in the cost-sharing proposals. The implications of these assumptions are compatible with the national policy of full employment and maximum economic growth. On the basis of comparison of the scheduling of costs of the Commission plan with the extrapolated rate of resource expenditures applied to personal income projections, the magnitude of the plan is likely

to be too low toward the end of the planning period because the planning procedure did not project needs beyond the year 2000.

The comprehensive plan is designed to meet all of the needs for resource development as projected only to the year 2000. Since the growth and development of the area will undoubtedly continue to increase, the resulting needs for resources will continue to increase following 2000. This cutoff of the Commission projections has artificially retarded the magnitude of the projections development in the latter portion of the 1975 and 2000 period. Undoubtedly as the plan is revised from time to time and as the projections include periods further into the future, the projections for population, income, and other factors will also increase in magnitude and the resource-needs requirements will correspondingly be increased. However, the comprehensive plan, as presented in this Report, covers all of the needs projected to the year 2000 and in a number of cases includes certain capabilities of land areas, multiple-purpose reservoirs, and other developments which, with a small incremental investment in access areas and other facilities, could be enlarged to serve the unprojected post-2000 requirements.

The land-oriented phases of the plan, where rights are more firmly held and financial institutions more highly developed, will pose less of a problem from the financial point of view than the water phases of the plan. The water phases of the plan are the most extensive. They depart more sharply from traditional concepts and, accordingly, there is greater need for development of financial and other institutions. This is true at all levels of government and in the private sector.

Almost 40 percent of the plan is invested in small to large water storage reservoirs. While many of these facilities serve multiple purposes, the controlling purposes for many of them is recreation and fish and wildlife. This is a departure from past practice where power, flood control, and water supply have been the controlling factors in most reservoir projects. The facilities for evaluation, pricing, selling, and collecting for hydroelectric power and water supply are well developed and widely understood. Flood control policies are also relatively well defined in law and practice. This cannot be said of recreation and fish and wildlife fields and, consequently, there is urgent need to explore the methods and policies for successful practices in these fields. Clearly, the financing of the U. S. Study Commission plan will require continued study especially for recreation and fish and wildlife developments.

General Policy On Financing

Recognizing that there are many complexities to financing a large-scale resource program, the following policies were established as basic to resource financing for the plan.

(1) Where the Federal Government assumes the full cost and responsibility for a project or program, the Federal Government will be responsible for full financing of the work. The possibility that fees may be collected from users in certain cases (as entrance fees at national parks) does not alter this proposition, though it does have a bearing on the final division of cost.

(2) Where there is a traditional nationwide policy and practice in regard to financing, whether Federal or non-Federal, this practice will generally be followed. For example, there is a long-established policy of Federal financing for Federal-sponsored hydroelectric power, water supply, and project-type irrigation works with provision for reimbursement from users.

(3) For projects not included in (1) and (2) above and where the costs are to be shared between the Federal and non-Federal interests, each will provide for the financing of its share. The non-Federal share originates from State and local governments and private sources. In addition to direct appropriations, government and private, for the non-Federal share, development funds, authority funds, special bond issues, and revenue bonds are, among other means, available for financing the non-Federal share. Such methods vary by States. As stated in (2) above, the Federal share will be provided under such laws and regulations as are in force at the time of financing. It is recognized that for regional recreation projects, low-flow river regulation, ground water recharge, hurricane flood protection, and certain other projects, there may be a need for Federal incentives to achieve initial establishments of projects. In these cases, Fed-

eral assistance in the financing of the non-Federal share of this work will be recommended with appropriate provision for repayment.

(4) Cost sharing and financing for each project and program and for each basin will be determined by the individual character of projects and programs and the basins plans. Each basin report will contain a statement of the needed financing, as determined by applications of the cost-sharing policy.

Repayment Schedules, Rates, and Returns

A study of repayment schedules, rates, and returns for the projects and programs contained in the comprehensive plan was not undertaken in detail. Repayment schedules are to be worked out by the action agencies or individuals when final plans, designs, and estimates are made. At that time, equitable repayment schedules, power rates, use taxes or other sources of repayment funds can be more clearly identified for the reimbursable costs. Development of payout schedules as appropriate for portions of the plan can be realistically accomplished by the action agencies which make the final plan and cost estimates. A cursory payout analysis of certain costs such as hydroelectric power has been made. Generally, it is concluded that repayment of water supplies and power can be accomplished within prospective rates.

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