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**THE EFFECT OF REGIONAL ECONOMIC INITIATIVES
ON AN UNDERDEVELOPED AREA:
AN EASTERN EXPERIENCE**

by

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I. INTRODUCTION

Following more than two decades of concentrated, federally sponsored economic development in the Appalachian Region, there is considerable interest as to its effect on the area's forests and forest industries. Presented is a brief on: (1) selected physical, social, and economic changes that have occurred in the heavily forested, southern Appalachian Mountain region (Southern Appalachia); and (2) the developmental roles of two regional institutions unique to Appalachia — the Tennessee Valley Authority (TVA) and the Appalachian Regional Commission (ARC).

II. THE AREA

Southern Appalachia, as discussed here, comprises 85 adjoining counties located in the southernmost part of the Appalachian Mountain chain — including portions of southwestern Virginia, western North Carolina, eastern Tennessee, and northern Georgia. It encompasses about 21 million acres of land and is populated with more than 3.4 million people. Located within the area are the cities of Knoxville and Chattanooga, Tennessee; Asheville, North Carolina; and the statistical metropolitan area of Kingsport-Johnson City-Bristol, Tennessee. Southern Appalachia is home to the Cherokee Indian Nation, Great Smoky Mountains National Park, and six national forests.

Southern Appalachia is mostly mountainous, encompassing a series of parallel ridges and valleys and the highest elevations east of the Rocky Mountains. Although rugged and prone to flash flooding and severe erosion, the area contains a variety of natural economic resources. It is heavily forested with both the northern forest and central hardwood forest types, water is plentiful, and wildlife abounds. Coal and natural gas deposits are substantial in much of the area. Even copper, manganese, sulfur, and gold were mined in the lower ridges during Southern Appalachia's early settlement (Mastran and Lowerre 1983). And the area's mild, four-season climate is conducive to commercial, residential, and recreational use.

Until recently, Southern Appalachia's physiography severely inhibited internal and external mobility. This helped bring about the rugged independence and self-sufficiency of its mountain people. But the area's inaccessibility also perpetuated the isolation of Southern Appalachia during periods when its economic self-sufficiency could no longer be sustained, and into which the social and economic diversity and advancements of the "outside", surrounding areas could not penetrate. It was the negative results of this isolation that, after six decades of study (Kendrick and Maher 1985), gave impetus to the Federal legislation forming the Tennessee Valley Authority in 1933 and the Appalachian Regional Commission in 1965 to combat the physical and social problems that had plagued the area for so long.

III. FIRST FOREST

Southern Appalachia's original settlers, the native American Indians, apparently lived well and in harmony with the land, as did the first white settlers upon their arrival in the mid- to late-1700s. It was not until the railroad reached the area from the North, South, and West in the late 1800s that the first forest's landscape was to begin its dramatic change. Lumbering of the region's timber began in earnest to fuel the Nation's industrial expansion and urban growth. According to Mastran and Lowerre (1983), "Within four decades, the logging boom dramatically altered the landownership pattern and influenced the economic and social structure of the Southern mountains. In addition, large-scale logging caused extensive damage to the mountain environment: "...Thus, by 1900...in the Tennessee River watershed...essentially all of the virgin forest had disappeared: total forest land was reduced to a little more than 50 percent of its original area, and total volume was 10 percent of the original amount" (Groton and Brooks 1987).

Timbering without land restoration, wildfires, burning to green-up land for farming, coal mining, surface mining, and smelting were some of the activities that opened the soil to severe erosion, flooding, acid deposition, infertility, and other land management problems. These problems would remain essentially untouched until combined Federal, state, and private conservation programs were begun in the early 1930s. According to Groton and Brooks (1987), "...reforestation was unheard of: between 1890 and 1932 only 3,870 acres were planted in the [Tennessee] Valley."

IV. AGENDA

The severity of this "neglected agenda" mandated national attention by the early 1930s. To address land-related problems, several Federal agencies, including the TVA, moved into Southern Appalachia. They focused on land conservation, reforestation, and harnessing the water resources that, while rich in potential, were tearing the country apart in their uncontrolled state. TVA's major approach was to develop a system of dams and reservoirs to control flooding and generate electricity. An immediate need was the establishment of a natural resource group to control land erosion and thus prevent siltation problems in the rivers, lakes, and hydroelectric generating dams. This further led to active, collaborative programs of reforestation, fire control, and other forest and farm land conservation practices within the mountains and adjacent watersheds.

TVA's emphasis on land conservation and forest management in Southern Appalachia lasted through the Depression and World War II years into the early 1950s. Then, though still active in land management, the TVA's forest and industry development programs focused increasing emphasis on providing on-the-ground technical assistance to promote forest-based economic development.

This activity currently includes developing better information and strategies to improve management of the forest consistent with its commercial use; providing technical assistance to improve and expand existing forest industries; providing industry and market information; formally assisting new industry to locate, especially high value-added operations such as pulp and paper; and providing comparative forest resource data and site analyses. Since 1934, the TVA's land and industry programs have significantly affected, directly or indirectly, more than 14 million acres and most of the forest industry in Southern Appalachia.

Still, in 1965, on the premise that "no existing organization, process, or program could solve the social problems of Appalachia" (Kendrick and Maher 1985), the ARC began a comprehensive development program to help resolve Southern Appalachia's socioeconomic problems. Its philosophy was to make health, education, housing, and general welfare of the area's people as important as highways, industrial parks, forests, and water systems. Using a growth center approach, the ARC undertook a broad array of action programs, including health care, vocational education, housing, sewage treatment, land stabilization, mine reclamation, and grants for economic development. In the broader context, programs involving water resources, research, and the development of highways and access roads in the mountains were undertaken. Between 1965 and 1985, the ARC subsidized the area's development in an amount upwards of \$1 billion, of which about 60 percent was invested in highway and other transportation programs (Kendrick and Maher 1985).

V. TODAY'S FORESTS

Southern Appalachia is currently more than 66 percent forested, 95 percent of which is classed as commercial. Changes in the forests have been significant and positive according to data from the USDA Forest Service, Southern and Southeastern Forest Experiment Stations' 1953-86 Forest Statistics Series. Since 1935, commercial forests have increased by about 1.7 million acres to a total of 13.4 million acres by the 1980 survey cycle. Growth was fairly rapid between 1935 and 1960 (16.4 percent), leveled off between

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the 1960 and 1970 survey periods, and then declined by about 1.7 percent between the early 1970s and early 1980s. This drop, however, was mostly one of definition — such as land being reclassified into protected reserve.

Private and public ownership patterns of commercial forest land in Southern Appalachia have remained essentially the same over the past 35 years — 81 percent private and 19 percent public, with slight increases in state, county, and municipal holdings. Among private landholders, the acreages held by forest industry and "other corporations" have also held steady. However, between the 1970 and 1980 survey cycles there was a decline in the amount held by farmers (-34 percent) and a concurrent increase in the acreage held by nonfarming individuals (+26 percent). Probable contributing factors were a decline in commercially viable family farms and an influx of nonfarming ownership of agricultural land.

As commercial forest-land acreage increased in Southern Appalachia, so did the volume of timber — though more dramatically. Growing stock increased by 250 percent from 1935 to the early 1980s, rising from 6 to more than 20 billion cubic feet. Within this inventory, hardwood stocks grew at an increasing rate throughout the period, resulting in a 289-percent increase by the mid-1980s. Softwood stocks, while remaining relatively flat into the 1950s, increased by an additional 173 percent by 1985. As a result, the ratio of softwood to hardwood growing stocks changed from 1:2 in 1935 to 1:2.9 in 1980s. Southern Appalachia's sawtimber inventory also increased from 1950 — from 22 to 58.6 billion board feet by the mid-1980s, or more than 2 1/2 times the 1950 volume. Softwood and hardwood sawtimber inventory volumes grew at nearly the same rate during the period, with softwoods maintaining a slight edge.

During the 1980 survey cycle, annual timber removals were only about one-third of the net annual growth in Southern Appalachia; residual growth was about twice the annual removals for both growing stock and sawtimber. Too, positive increases in the spread of growth over removals has been continuous since the 1960 surveys. This was dramatically different from the situation at the time of the 1950 surveys — when the surplus of growth over removals of sawtimber was only 16 percent and changing slowly, and when the surplus of growth over removals in growing stocks actually declined between 1950 and 1960. The turnaround in growing stock surpluses occurred about 1960, with rapid increases accruing into the 1980s even though removals increased by an average of 9.2 percent per survey period.

VI. TODAY'S INDUSTRY

Improvements in Southern Appalachia's forest industry have also been significant based on data from the U.S. Department of Commerce, Bureau of the Census' Census of Manufactures industry and area series from 1957-85. For example, paper and allied products operations grew by 50 establishments (139 percent) between 1954 and 1982. The growth rate equaled the average for the four states in which the area lies, and far outdistanced the U.S. expansion rate of 28 percent. Although some growth occurred prior to 1967, the most rapid expansion took place between 1967 and 1982. Employment in the area's industry increased also, most notably since 1967. While employment in the U.S. industry decreased between 1967 and 1982, the number of pulp and paper product workers in Southern Appalachia increased by 73 percent.

Since 1954, 115 additional furniture and fixture plants have been established in Southern Appalachia. This represents an increase of 60 percent in the area compared with the four states' growth (+44 percent) and a 3-percent decrease in U.S. establishments. The number of plants grew at an increasing rate beginning about 1967 and at a pace faster than that experienced by the four states. Further, employment in the area's industry more than doubled between 1954 and 1982, and by 110 percent compared with the four-state area growth (98 percent) and that for the U.S. industry (25 percent).

Southern Appalachia's lumber and wood products plants declined substantially between 1954 and 1982, as did those in the four states and the United States. The number of plants equaled about 64 percent of those

in business in 1954 versus 70 and 80 percent in the four states and United States, respectively. It seems that most of the decline has been due to the demise or "mothballing" of small sawmills and logging firms (TVA 1960-86), due partly to the change in the general economy as well as a trend toward more mechanized medium-size and larger mills. Employment also declined to 82 percent of the 1954 level, as it did at both the four-state (85 percent) and U.S. levels (88 percent). Again, the decline in small sawmills combined with an increasing capitalization of the industry are believed to be among the principal factors causing this change (Dempsey 1986).

Prior to 1954, the growth in the number of "all manufacturing" establishments in Southern Appalachia lagged behind that of the four states in which the counties are located, as well as the United States. Since then, manufacturing as measured by plant growth has increased in both the area and states at a rate higher than that for the United States. Between 1954 and 1982, plant growth in Southern Appalachia increased by 48 percent compared with a 24-percent growth rate in the United States. Concurrent with the growth of plants, employment in manufacturing increased in the four states and Southern Appalachia at rates substantially higher than that for the United States. For example, during this 28-year period, all manufacturing employment increased by 75 and 60 percent, respectively, compared with an 18-percent rate of growth in the United States.

VII. SUMMARY

Significant and sustained advancements were made in Southern Appalachia between the early 1930s and the 1960s in land conservation, fire protection, flood control, reforestation, forest management, and timber inventory (Haynes 1985), as well as in agricultural practices, power generation, and the establishment of new industry. Still, Southern Appalachia's social and economic status lagged seriously behind that of the "outside" area as well as that of the Nation. It was this agenda that was to receive concentrated attention from numerous private and public groups, particularly the Appalachian Regional Commission .

As a result, a number of structural changes occurred in Southern Appalachia that affected the people, forests, and forests industries in positive ways, both large and small. Between 1960 and 1984, the number of counties with "poverty rates more than twice the national average" was reduced from 46 to 6.

The following are other positive changes:

- * Per-capita income has risen substantially closer to the national average.
- * A much higher percentage of the population is completing high school.
- * Infant mortality has been drastically reduced.
- * Basic health care has been extended throughout the area.
- * Vocational education has increased with schools blanketing the area.
- * Substandard housing has been reduced.
- * Modern public facilities and services are available in most of the area.
- * Appalachian Corridor Highway System roads crisscross the area and, when combined with the U.S. interstate highways and ARC sponsored access roads, provide dramatically improved transportation.
- * "Local Development Districts" have been established throughout the area to stimulate social and economic improvements.

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Numerous Federal agencies were originally involved in attempts to help solve physical, social, and economic problems that were thought to be excluding Southern Appalachia from the Nation's societal mainstream: isolation; immobility; poverty; lack of economic diversity, basic utilities, service systems, etc. But two agencies, the TVA and the ARC, were to make sustained, concentrated efforts over the long haul, working closely through local, state, and Federal entities in their efforts to make constructive changes.

Although cause and effect cannot be quantified with the data at hand, I am convinced that the roles carried out in Southern Appalachia by the Tennessee Valley Authority — and its forestry programs, in particular — and the Appalachian Regional Commission were prominent among the reasons for the advancements in the area's physical, social, and economic infrastructure that, though perhaps not optimal (Newman 1987), have made it an economically viable, competitive, and growing region.

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