

EES Report

ENGINEERING EXPERIMENT STATION • GEORGIA TECH

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the Nation*

DeKalb Officials Visit Blue Three



DeKalb County officials witness a demonstration of the EES waste conversion process treating some County garbage and trash.

A demonstration of the EES Waste Converter was conducted by members of the Technology Applications Group on February 17 at the request of the DeKalb County Grand Jury.

Howard Dean, Manager, Office of Program Development, and Dr. Mack Bowen of TAG hosted a group of DeKalb County civic leaders and officials interested in the EES waste converter research and development process as a possible solution to the County's trash and garbage disposal problems.

Members of the new and old DeKalb Grand Juries, a citizens advisory committee on trash disposal, Bob Guhl, DeKalb County Commission Chairman, and county staff members were present. They saw the "Blue Three" Waste Converter in action treating some of the County's trash.

During a subsequent discussion period in the Baker Building auditorium, representatives of EES discussed the pyrolysis process of treating wastes, the capabilities of the test equipment and possibilities of the system for commercial and civic usage.

Delmar Lohouis of American Can Company explained the prospects of large scale commercial pyrolysis systems and his company's interest in waste conversion developments.

The visit was a follow-up of a request for Dr. James Knight, Dr. John Tatom and Howard Dean to appear before the Grand Jury on February 4 to present information on waste recycling and processing.

Energy Conservation Conferences

Conferences on in-plant energy conservation and management are being held for Georgia area industrial concerns during March and April throughout the state.

The conferences are being conducted by engineers and industrial management personnel of the EES as part of the energy conservation program being funded by the Economic Development Administration of the U.S. Department of Commerce.

The engineers and research people at the EES have been conducting in-plant energy audits in selected Georgia industrial concerns with the objective of assisting firms to develop programs that

will reduce the rising cost of fuel and energy that has resulted from the world fuel crisis.

The purpose of the conferences is to assist management of industrial concerns to analyze their energy usage practices, costs and supply, and to furnish guidance in establishment of in-plant energy conservation and management programs where desired.

The meetings are hosted by the Area Planning and Development Commissions, the Chambers of Commerce and other interested organizations.

Interested individuals may obtain additional information from J. W. Tatom TAG at the EES.

March, 1975

Assistance on Energy Problems Available

The primary and full time job of the Engineering Experiment Station is performing applied research and development to strengthen the economic, technological and industrial base of Georgia. The energy crisis demands that added attention be given to the new problems facing Georgia industries. The EES is accustomed to working with industry, not only through performing research and development contracts, but also where technology transfer and industrial development functions are needed.

Most research and development work at the EES is done under Federal and industrial contracts with sharp objectives, reasonable budgets and realistic time schedules. The EES has been successful in getting Federal contracts to help pay for work that benefits Georgia and its industry. Current projects already include various energy-related projects; and its broad background and capabilities make the EES one of Georgia's important resources in the energy situation that will be facing all Americans for the next several years.

For many years, the EES has provided industrial assistance to Georgia firms through the efforts of its statewide network of field offices and the large professional staff in Atlanta. A key contributor in this effort has been the Industrial Development Division with its management and technical assistance program for small industries. This work has been supported with both Federal and State funds.

The staff of the area or field offices is prepared to provide Georgia businessmen with as much individual help as possible in dealing with growing energy problems. This will include on-site visits to guide and assist industries in assessing the impact that energy shortages are having on their productivity and to help the managers formulate alternative plans for action.

As part of a broader general effort involving the Area Offices, the EES staff is working on an accelerated program to find energy problem answers that can assist Georgia businesses. Industry-wide energy profiles will be prepared on Georgia business and industry, with the profiles including existing or potential secondary efforts, such as shortages of materials and supplies. EES will analyze the information and make recommendations to the various industry segments. Information will be supplied to decision-makers at the State level to help them in their efforts to resolve energy-related problems.

On-site assistance is available to businesses in need through requests made to the Director, Engineering Experiment Station.

1974 Annual Report

The public edition of the "1974 EES Annual Report," a 24-page book with color illustrations, is available upon request to the EES Publications Office.

March, 1975

Researchers Study Cotton Gin Waste

The disposal of cotton gin waste in a manner that will meet environmental standards is important to U.S. cotton growers and ginner. Ideally, a method is needed to convert cotton gin trash into useful products, including fuels, thereby making a waste material into a resource and solving the disposal problem at the same time in a non-polluting manner.

EES has developed a unique system for converting cellulosic agricultural wastes into useful forms. The system subjects the wastes to a pyrolysis process for decomposition into useful chars, condensable oil-like materials, and gases which can be used for heat or fuel. Additional research and development work to apply the process to cotton gin trash was sponsored by Cotton Incorporated for U.S. cotton producers.

This method provides an acceptable and non-polluting process for the disposal of troublesome cotton gin wastes while converting them into products with profit potential. The oil and the off-gases can be burned in a non-polluting manner as sources of heat for drying or for other cotton gin energy needs. The char generated by this process is of suitable quality for manufacturing commercial charcoal briquets. Briquets from cotton gin wastes have the favorable properties of easy and rapid ignition of the entire briquet.

There are 700 pounds of gin waste generated per bale of stripper-harvested cotton. Experience with commercial processing of other wastes indicates that a typical commercial version of the EES waste converter could handle 7,500 dry pounds of gin waste per hour or 90 tons per day during continuous processing. The system has a high conversion efficiency because only a small amount of the waste material is consumed in the self-sustained process.

Net profit to the ginner depends upon the current values of the char and pyrolytic oil and on the value of the non-condensable gases as a fuel at the gin. A recent economic analysis indicates the overall profit potential of the system is favorable. The primary importance and significance of the pyrolytic approach is as an acceptable, profitable and non-polluting method for using this general type of waste material.

IDD Plans for Fire Protection

The Bibb County Commissioners voted recently to negotiate an agreement with the City of Macon to provide fire protection for the entire county. The Commissioners indicated general approval of recommendations proposed by Bill Craig, director of the Central Georgia Area Office of the Industrial Extension Service.

Craig's proposal calls for five fire companies throughout the county. The City of Macon is expected to begin answering calls as soon as the contract is approved.

Equipment and construction will be financed with federal revenue sharing funds and with increased millage rates for county residents. However, fire insurance premium rates should drop because of the better protection.



Mr. Curtis Farrar, Acting Head of AID's Technical Assistance Bureau, U.S. Department of State, addressed international conferees at Tech.

Tech and EES Host International Conference

On March 10 and 11, the EES Industrial Development Division hosted an international development conference on *Techniques and Methodologies for Stimulating Small-Scale Labor-Intensive Industries in Developing Countries*. The meeting, which was supported by the U.S. Agency for International Development, and designed to present information on successful contemporary programs for the stimulation of small-scale industries in developing countries. Speakers, representing a cross section of outstanding government and private sector organizations, presented case histories of their individual experiences.

The principal goals of the conference were:

- To identify, analyze, and compare existing methodologies designed to stimulate small-scale industry.
- To disseminate knowledge about operational and linkage efforts in small-scale industry development to developing country participants and educational administrators attending the conference.
- To establish the necessary links for coordination of future efforts of both the organizations in the developing countries and international development organizations.
- To establish adequate "feedback" mechanisms for the present and future in order to enhance the design and utilization of the Small Industry Program of the U.S. Agency for International Development.

The audience consisted of public and private sector officials and educational institution administrators from developing countries, including 211(d) counterpart institutions, representatives of other organizations interested in industrialization, and U.S. public and private sector representatives. About 125 persons participated in the two-day conference.

Senate Productivity Hearings

A delegation of Georgians lead by EES personnel testified before the Senate Committee on Government Operations December 16-17. Georgia Senator Sam Nunn chaired the hearings which involved his National Productivity Act of 1974 and Senator Charles Percy's bill for a National Center for Productivity and Economic Competition Act. Both proposed bills are based in part on the EES Productivity Program.

Testifying for EES were Assistant Director R. L. Yobs and Senior Research Engineer Jerry L. Birchfield. Witnesses endorsing and supporting the bills were Vice President Alex Sessoms, Jr., Union Timber Co., Cogdell, GA., Director R. E. Ruark, Georgia Forest Research Council, Macon; Director of Technical Services Barry Torrance, Carpet and Rug Institute, Dalton; Executive Director Jack Jericho, American Institute of Industrial Engineers, Atlanta, and Assistant Dean Dr. James Miller, Georgia State University School of Business Administration, Atlanta.

The EES Productivity Program has attracted attention because of its broad definition of productivity and its state-wide Industrial Extension Service. The EES Productivity Program attempts to make more efficient use of materials, energy, management time and capital in industry, service and governmental sectors. The EES has the capability of identifying problems, backing solutions with research and distributing results through its seven field offices.

From 1947 until 1973, U.S. productivity grew at a rate of 3.1 percent per year. In 1973 and 1974, the rate has steadily declined until it is now almost zero. According to Senator Nunn, "A healthy rate of productivity growth means that our economy can support a steadily rising rate of wages without necessarily forcing a major increase in prices. The absence of productivity growth during this past year has intensified inflationary pressures throughout the economy and decreased our competitive edge with exports in a crucial balance-of-trade area."

His proposed legislation provides for a strong federal stance, a national center for gathering and disseminating productivity information, a grant program for research and development, state and local productivity centers and an effort to increase governmental productivity.

New Reports

IDD recently printed 1,000 copies of the third edition of its perennial best-seller, *Directory of Metalworking Job Shop Capabilities in Georgia*. The directory includes most of the companies in Georgia which are interested in contract metalworking. The capabilities of 140 firms are outlined in the 1975 edition.

Another new report is an industrial engineering analysis of a fishing pole factory in South Korea entitled *Improving the Productivity of a Small Industry in Rural Korea*.

IDD's International Development Data Center has issued *An International Compilation of Small-Scale Industry Definitions* which contains the definitions of small industry supplied by 72 countries which responded to requests for this information.

U.S. Army Missile Command Appoints Dr. Johnson

The U.S. Army Missile Command at Redstone Arsenal, Alabama, recently notified Dr. Richard C. Johnson, Manager of the Systems and Techniques Department, that he had been appointed to the Command's Scientific Advisory Group and approved by the Secretary of the Army for a two year period.

The Advisory Group advises the Commanding General of the Missile Command on scientific and technological matters, reviews the Command's operations and reports its recommendations to the General.

The March, 1975, meeting of the Advisory Group will consider the Missile Command's High Acceleration Guided Projectile Technology Program. Specific discussion topics include sensor and control system technology, microelectronics, aerodynamic and simulation studies, soft recovery systems, advanced concepts and future plans.



EES in Film Production

The U.S. Department of Agriculture's Forest Service is sponsoring the production of video tapes to instruct its staff in how to use their computer network. The computer itself is in Ft. Collins, Col. and is used via phone lines by regional offices and ranger stations to obtain necessary information about the National Forests. The video tapes will explain what the different computer programs do and what their capabilities are. The preliminary taping took place at the Tech Office of Computing Services, and the final color taping will be done in the University of Georgia Journalism School's television studio. Project Director Mr. Ron Pearl said the contract calls for three or four such tapes.

Mr. Pearl said this contract is an example of the Productivity Program's developing expertise in communications techniques to deliver research results in an interesting manner. The video tape is one method to present such information and can be augmented by slides, film, artwork and lectures. EES is seeking more contracts for similar work.

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Contract Developments At IDD

After a one-year pilot program in Georgia, the Farmers Home Administration is expanding its contract with IDD to cover three more states—Alabama, Florida and Mississippi. IDD evaluates business loan applications under the Rural Development Act program of the FmHA. The State FmHA Directors of the four states met at IDD March 6 to plan the expanded program.

The Coastal Plains Regional Commission (CPRC) has awarded IDD a \$61,000, one-year contract to conduct a pulp and paper mill feasibility study. Dr. Tze I. Chiang will be project director. The study will cover four major areas of investigation: (1) analysis of wood residue volume and quality and availability of small-diameter timber in likely site areas; (2) recommendation of a plant location in southeastern Georgia; (3) determination of the type and size of pulp mill or pulp and paper mill to be built in Georgia, as well as investment requirements and potential returns; and (4) investigation of markets and marketing strategy.

The Southeast Lumber Manufacturers Association, which is contributing another \$2,500 to the project, has indicated that if the proposed venture is determined to be feasible it will secure funding and establish a plant in Georgia. Results of the study can be adapted for evaluation of one potential location area in each of the other two CPRC states—North and South Carolina.

IDD Training Program

Mr. Bob Cassell, IDD, was in charge of a two-day industrial development training program held February 24-26 for about 35 dealers in the Metal Products Div. of Armco Steel Corp. IDD lecturers, besides Cassell, were David Clifton, Bob Collier, George Dodson, Bill Howard and Don Lodge. The course was sponsored by the Armco Dealers Development Group.

The Eighth Annual Basic Industrial Development Course will be held in the Continuing Education facilities on the Tech campus April 13-18. The American Industrial Development Council-accredited course is offered each year by IDD with Mr. Cassell as its director. Mr. Ross Hammond and Mr. Bill Howard are the other personnel on the faculty, which is drawn from academe and the development profession nationwide.

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