



emergency maintenance or environmental projects. Several major construction projects were actually delayed during design engineering or actual construction and have only recently been reactivated. Traditionally, the demand for paper products recovers more quickly than the general economy and the pent-up demand for plant improvements has accelerated capital spending at this time for all types of projects.

It is also possible to forecast future technical requirements and trends in the pulp and paper industry by considering some of the following general conditions:

Energy Supply and Consumption. Even though the pulp and paper industry as a whole generates almost fifty percent of its own energy requirements, the industry still is one of the highest industrial energy consumers. Utility companies maintain there will be an adequate source of energy for industry expansions, but at increased costs. Mills, particularly the integrated pulp and paper mills, will, therefore, attempt to become more energy self-sufficient to minimize future energy costs.

Water Supply. The present water supplies are adequate to support the current pulp and paper industry. Future growth, however, will be pressured both for water supply and quality by population growth requirements. The industry will be forced to increase capital expenditures for reuse of water and to research methods of higher consistency pulping, etc.

Fiber Supplies. Because of the rapid regeneration rates of the southern species of trees on which the pulp and paper industry is dependent, it can be assumed that there will be an adequate fiber source in years to come. The cost of this fiber will increase significantly due to competition for land use and higher labor and transportation costs. The trend, therefore, will be to consider less desirable species and make more efficient use of the wood resources such as whole tree chipping. Wood will remain the dominant fiber source in the pulp and paper industry and there is not expected to be any significant growth in non-wood fiber sources such as bagasse or kanef.

Chemicals. Chemicals to support the pulp and paper industry will be available but at increasing costs. Mills will install equipment to produce some of their own chemical requirements to minimize this cost spiral. Research will be ongoing to consider less expensive chemicals and modified pulping processes.

Environmental. Air and water quality restrictions will become even more stringent in the future, forcing the mills to initiate environmental projects and process changes to reduce emissions. Reducing water consumption and closing up the mills will be a major trend.

Product Changes. The industry will be responsive to consumption trends, but industry management can be expected to react to continued competitive pressures by converting current product lines to higher return items.