

proposed irrigation areas in Lower Moshi, Same and Korogwe districts. The importance of this facet of the project in an area of increasing population pressure on the land needs no emphasis.

The inauguration of the Hale hydro-electric project is most opportune, for an adequate supply of electricity, at a reduced effective price, is now assured to industrial enterprises which the government intends to attract during the period of the Five Year Development Plan. Besides, the Hale development has reduced U.N.E.S.C.O.'s requirements of diesel gas oil by 75 per cent, and has consequently resulted in an annual saving of foreign exchange of about £270,000 which represents the cost of the fuel oil used for electricity generation in the Coast Region.

The surge in the demand for power especially in the Dar es Salaam area is expected to necessitate the temporary operation of the diesel plant in the capital by 1967 and the installation of another hydro-electric plant on the Pangani River by 1968. This further development of the power potential of the Pangani will be achieved by the establishment of a new station either at Pangani Falls or upstream from Hale in a cascade system. The case of the Pangani clearly demonstrates the importance of a long-term plan for the development of a river basin.

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## TWO NEW PROCESSING INDUSTRIES AT DAR ES SALAAM

The significance of the establishment of two new processing industries at Dar es Salaam is two-fold: it is the first time in Tanzania's history that significant quantities of two important primary commodities, sisal and cashew, are retained for industrial processes; and, because of the limited local demand for the products, the industries will not merely displace imports but also develop a remunerative export trade.

Four principal locational factors are involved in the siting of these industries at Dar es Salaam: firstly, the availability of hydro-electric power, cheaper than thermal power because of exemption from fuel surcharge, from the Hale-Pangani system, together with the probability of the installation of another hydro-electric plant on the lower Pangani by 1968 while the diesel-powered plant in the city could be temporarily used to augment generation; secondly, the convergence of lines of communications on the capital which facilitates the conveyance of bulky agricultural raw materials; thirdly, the advantage of access to a major port for export-oriented industries; and finally, the availability of a large labour force and planned industrial sites equipped with basic facilities.

The development of a vertical pattern of economic relationships with the metropolitan countries prior to independence produced an ironical situation whereby a major exporter of sisal fibre was obliged to import sisal products. It is to eliminate such anomalies and to diversify the country's exports that processing industries are on the priority list under the Five Year Development Plan. The first sisal-spinning factory, set up by Craven and Speeding (Tanzania) Ltd., a subsidiary of British Ropes, was opened in November 1964 and the second, set up by the Tanzania Sisal-Spinning Company, a subsidiary jointly of United Rope Works of Holland and Baumhütters of West Germany, is scheduled to be opened

in mid-1965. The two factories represent a total investment of £550,000. They will give employment to some 200 people when in full production and will have an annual output of over 10,000 tons of baler twine. The decision to produce baler rather than binder twine is a reflection of the recent change in the pattern of demand for sisal twines; with the increasing use of combine harvesters in place of reaper binders in the advanced grain-producing countries during the last decade, there has been a consequent decline in the consumption of binder twine but this has been more than offset by the rapid growth of demand for baler twine. The difference between the two is based on footage of yarn per pound of sisal fibre: binder and baler twines are respectively spun to a specification usually of 600 ft. and 210 ft. of yarn per pound of fibre. The sisal-spinning industry therefore is well-founded and baler twine should readily find a market in the United States and Canada.

It is not necessary to look far for an explanation of another anomalous situation whereby the bulk of the country's cashew crop was exported to India for primary processing before its sale on world markets. The decortication of cashew nuts has hitherto been a manual operation and India had the advantage of an abundant supply of skilled, inexpensive female labour. In the new factory the kernel and shell will be separated by a machine, the first of its kind in the world. The mechanical dehulling of the nuts has solved the labour problem which bedevilled the previous hand-shelling enterprises and will minimize the disparity between labour skills and costs in Tanzania and India.

The factory, to be called Tanita, represents an investment of £350,000, and is scheduled to be opened in June 1965. It will, when it is in full production, employ a labour force of 700 to 800 and have an annual capacity of 9,000 tons of raw nuts with an annual output of 1,800 tons of kernel and in addition, an estimated 720 tons of cashew nut shell oil or liquid, a major economic source of natural phenol. The kernels are mainly used in the confectionery trade and will be exported chiefly to the United States with smaller quantities to European countries. The valuable by-product has a variety of industrial uses e.g. in plastics, underwater paints and cables, films and jet engines. The rarity and importance of this natural liquid is indicated by the fact that purchasers were found overseas a year before the opening of the plant.

The government intends to encourage the establishment of a number of sisal spinning factories at Dar es Salaam and at Tanga and cashew nut processing plants in the Mtwara and Ruvuma Regions, close to the sources of raw materials, during the period of the Five Year Development Plan. Several important economic benefits will accrue from these developments. It is not possible for a single government to check price movement in such agricultural exports as sisal but, if the commodity is processed before it is marketed, it becomes less susceptible to fluctuations in world prices. The market for unprocessed cashew was largely confined to India but shelled cashew will find several outlets and will therefore provide a measure of price insurance to local growers. The phenol liquid holds out the promise of a stimulus to secondary developments: it could form the basis of the manufacture of chemical-based products such as resins and plastics. Perhaps the most important benefit is the favourable impact on foreign exchange, as these processes will upgrade the price of primary commodities and, at the same time, reduce the outlay on imports.

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