

## ABSTRACT

Process industries now form an important part of the industrial and economic structure of Trinidad and Tobago. A large portion of oil-earned revenues of the 1970's and early 1980's have been used to diversify the industrial base of the economy. This revenue has been invested in petrochemical plants, urea and ammonia plants, an iron and steel plant and a methanol plant. Moreover, prior to the erection of these plants there already existed 2 large oil refineries.

The need for a study of maintenance in the local process industry was recognised for the following reasons:-

- 1) The heavy capital investment in the industry.
- 2) The amplified importance of maintenance in the process industry as compared to other industries.
- 3) The observed lack of effectiveness of the maintenance function in the researcher's own organisation - a local oil company - despite the existence of a highly skilled and experienced maintenance staff.

The observation in (3) above was monitored over a 10 year period and led to the belief and conclusion that the difficulties and problems in the maintenance function had its origins in the approach and methodologies employed. Closer examination revealed a lack of clear cut objectives, objectives in conflict with the objectives of the other departments and in some cases inconsistency with the general objectives of the firm.

This study deals with an indepth analysis of the maintenance function in the researcher's own organisation over a 10 year period. The experiences of the maintenance function in other process industries were also drawn upon but data from these sources were restricted on account of their newness and the secretive nature of state-owned enterprises.

Existing practices were analysed, defects and deficiencies were isolated and probable solutions were developed using the techniques of management science, operations research and systems analysis. The building blocks (subsystems) of the general maintenance system were analysed - their individual objectives being carefully examined.

A Model was then developed which served to synthesise and integrate subsystems' objectives into one common system objective. A procedure was developed for the testing and implementation of the Model.

It is hoped that this study would be of use to the local process industry and that if the approach outlined is implemented and tested, tangible benefits would accrue to the industry and also to the nation as a whole.