# Towards the Development of an Optimal Long-Term Structure and Policy for Trinidad and Tobago's Petrochemical Industry
# Part 1. The Methane-based Complex

*A. Young Hoon & H.I. Furlonge*

## Abstract

In this paper, a rigorous methodology for long-term planning of industrial development involving a formal optimisation technique is presented. It is applied to finding an optimal long-term structure ad policy for development of the petrochemical industry in Trinidad and Tobago. The mathematical model for the industry captured the dynamic nature of the petrochemical market. The length of the investment time horizon is 18 years, during which economic parameters were allowed to vary. Uncertainty in the estimation of these parameters was also taken into account. Since planning on this scale involves various interest groups (e.g., government, investor and populace) which may have conflicting goals, a multiobjective analysis was performed. The results of the case study suggest that the optimal policy for development of the methane-based industry in Trinidad and Tobago should involve a shift towards the production of downstream petrochemicals. The current structure of this industry is already poised for downstream manufacturing. Continued upstream production was shown to be the least lucrative policy and incorporated the greatest risk.