

S U M M A R Y.

The title of this project is 'Comparative Techniques for the Selection of Plant and Machinery'.

The report has five sections. The first section is an Introduction which gives background information on the importance of proper equipment selection procedures.

The second section is a Literature Survey. A survey was made of the different methods and techniques used in the selection of plant and machinery. Techniques discussed are; The Subjective Approach, Analysis of Factors, Economic Analyses namely; Present Worth Analysis, Internal Rate of Return and Annual Cost Comparison and Terotechnology - Life Cycle Costing.

In the third section a selection procedure is proposed. The procedure is as follows:

Specification of requirements.

Invitation of Tenders.

Description of Alternatives.

Comparison of Alternatives.

Comparison of Alternatives is done in two stages. Stage one analyses factors related to equipment selection by assigning a rating to each factor. Appendix 3 lists these factors.

Stage two uses a Life Cycle Cost Model developed, to analyse the Life Cycle Costs of the best two alternatives selected after stage one.

The fourth section demonstrates the application of the proposed procedure to select two Diesel driven standby Generators for T and TEC Tobago Power Station.

Stage one of the comparison selected the GM and Daup alternatives from the five considered, for further consideration. The Life Cycle Cost Model was then used to select the best alternative. The Daup alternative turned out to be the best.

In the fifth section sensitivity analyses are performed on the two selected alternatives to study the variation in Net Present Value when the following parameters were varied: Discount rate, Estimated Economic Life, Rate of Increase in Operating Cost and Rate of Increase in Maintenance Cost. The results were plotted on graphs with NPV on the vertical axis. The graphs were all smooth curves and indicated that NPV was not very sensitive to changes in any of the parameters.

The ICL Prosper 1900 Program was used to do the sensitivity test with the help of the computer.