

**DAILY PROFIT MAXIMIZATION
USING LINEAR PROGRAMMING TECHNIQUES:
SAPUGASKANDA OIL REFINERY STATION**

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DECLARATION OF THE CANDIDATE

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any universities or other institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in this text.

Signature:

Date:

DECLARATION OF THE SUPERVISOR

I have supervised and accepted this thesis for the submission of the degree.

Signature of the Supervisor:

Date:

DEDICATION

I dedicate this research work to my family members
for their endless support and encouragement.

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ABSTRACT

The petroleum industry plays one of the most significant role in the energy market in Sri Lanka. The actual use of this source is limited by economical, technological and political reasons. Crude oil refining is an extremely complex and dynamic activity since the refinery itself works to maximize its profitability under the frame work of the organization.

To model the LP Problem to the Crude Oil Refinery station in Sapugaskanda, Sri Lanka, the primary data was collected. The data was modeled and the Linear Programming (LP) method was used to get the optimum solution. The refinery produces 12 major petroleum products together with 24 intermediate streams. The commonly used and most profitable products are Gasoline, SBP and Diesel. For above 36 streams, the flow rates in Metric Ton (MT) per day were considered as decision variables. To maximize the profit, the product values were considered as positive and the raw material costs and operating costs were considered as negative. The TORA software was used to generate the optimum solution. The optimum result obtained showed a notable profit compared to the existing situation in the Oil Refinery Station, Sapugaskanda. The operational difficulties, assumptions, suggestions and further recommendations were discussed.

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LIST OF ABBREVIATIONS

Abbreviation	Description
bbbl	Barrels
b.p.s.d.	Barrels Per Stream Day
CEB	Ceylon Electricity Board
CEYPETCO	Ceylon Petroleum Cooperation
Codo	company owned dealer operated
CPSTL	Ceylon Petroleum Storage Terminals Limited
Cts.	cents
Dodo	dealer owned dealer operated
Kg	kilograms
LAUGFS	Lanka Auto Gas Filling Stations
LIOC	Lanka Indian Oil Company
LKR	Sri Lanka Rupees
LP	Linear Programming
LPG	Liquefied Petroleum Gas
LPP	Linear Programming Problem
Max	Maximum
Min	Minimum
MT	Metric Tones
R.H.S.	Right Hand Side
Rs.	Rupees
SBP	Special Boiling Point
sec.	Redwood Seconds
SOREM	Sapugaskanda Oil Refinery Expansion and Modernization
SPBM	Single Point Buoy Mooring