

OPTIMATION OF LOGISTICS DISTRIBUTION
AT NTB SUPPORT POINTS & AMNT SITES

By

Bambang Wahyu Sugiarto
12007061

Bachelor's Degree

in

Industrial Engineering
Faculty Of Engineering and Information Technology



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera Tangerang, Banten 15143 - Indonesia

Revision after Thesis Defense on July, 23th 2022

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgment in the thesis.

Bambang Wahyu Sugiarto

Student

Date

Approved by:

Moh SaIahuddin, S.T, M.M

Thesis Advisor

Date

Ir. Triarti Saraswati, M.Eng

Thesis Co-Advisor

Date

Dr. Maulahikmah Galinium, S.Kom, M.Sc

Dean

Date

Bambang Wahyu Sugiarto

ABSTRACT

OPTIMATION OF LOGISTICS DISTRIBUTION AT NTB SUPPORT POINTS & AMNT SITES

By

Bambang Wahyu Sugiarto
Moh Salahuddin, S.T, M.M.
Ir. Triarti Saraswati, M.Eng.

SWISS GERMAN UNIVERSITY

There is no optimal distribution in the NTB Support Point area and PT United Tractors AMNT Site (Sumbawa). The purpose of this study was to optimize the distribution pattern of the NTB Support Point area and the AMNT Site using the Northwest Corner Method. The data is obtained based on secondary data, namely the company's historical data in the form of routes, vendors, types of fleets and transportation costs. The results showed that there were 4 vendors used by PT United Tractors in the NTB Support Point area and the AMNT Site, namely Surya Indah, RPX, POS, and HMU with Fuso, CDD and L300 fleets. There are three routes, namely Surabaya-Mataram, Surabaya-Sumbawa and Mataram-Sumbawa. The results showed that the optimal distribution for the Surabaya-Mataram route would be optimal if using an L300 fleet from a POS vendor, with a total transportation cost of Rp. 221,000,000 for one period with a distance of 585.47 km. Optimal distribution for the Surabaya-Sumbawa route using L300 fleets from POS vendors so that transportation costs are at least Rp. 240,000,000 for one period with a distance of 815 km. The Mataram-Sumbawa route is covered in a distance of 377 km, with optimal distribution using a CDD fleet from the RPX vendor so that the minimum cost is IDR 224,000,000 for one distribution period.

Keywords: Transportasi, Distribusi Optimal, North West Corner

ABSTRAK

OPTIMASI DISTRIBUSI LOGISTIK DI SITE NTB & AMNT

By

Bambang Wahyu Sugiarto
Moh Salahuddin, S.T, M.M.
Ir. Triarti Saraswati, M.Eng.

SWISS GERMAN UNIVERSITY

Tidak ada distribusi yang optimal di area Support Point NTB dan PT United Tractors AMNT Site (Sumbawa). Tujuan dari penelitian ini adalah untuk mengoptimalkan pola distribusi area NTB Support Point dan Situs AMNT dengan menggunakan Metode Northwest Corner. Data diperoleh berdasarkan data sekunder, yaitu data historis perusahaan berupa rute, vendor, jenis armada dan biaya transportasi. Hasil penelitian menunjukkan bahwa terdapat 4 vendor yang digunakan oleh PT United Tractors di area NTB Support Point dan Situs AMNT, yaitu Surya Indah, RPX, POS, dan HMU dengan armada Fuso, CDD dan L300. Ada tiga rute, yaitu Surabaya-Mataram, Surabaya-Sumbawa dan Mataram-Sumbawa. Hasil penelitian menunjukkan distribusi yang optimal untuk rute Surabaya-Mataram akan optimal jika menggunakan armada L300 dari vendor POS, dengan total biaya transportasi sebesar Rp. 221.000.000 untuk satu periode dengan jarak 585,47 km. Distribusi optimal untuk rute Surabaya-Sumbawa dengan menggunakan armada L300 dari vendor POS sehingga biaya transportasi minimal Rp 240.000.000 untuk satu periode dengan jarak 815 km. Rute Mataram-Sumbawa ditempuh dalam jarak 377 km, dengan distribusi optimal menggunakan armada CDD dari vendor RPX sehingga biaya minimum Rp224.000.000 untuk satu periode distribusi.

Keywords: Transportasi, Distribusi Optimal, North West Corner

© Copyright 2022
by Bambang Wahyu Sugiarto
All rights reserved

ACKNOWLEDGMENTS

Praise and gratitude pray to Allah SWT. With his blessing, was able to complete the preparation of this thesis. The title of the thesis that propose is " Optimization of Logistics Distribution at NTB Support Points & AMNT Sites "

I wish to thank my families as well as they already support me to do this research and be able to finish this step of life. Moral and mental support from them is the key to success that feel during hard times when conducting this research.

Afterwards, would like also thank to PT. United Tractors, Tbk . They support me to conduct this research as well as it could. They try to give their best for my research to have the best result and they always respect of all this research results.

The last gratitude would be for my SGU Industrial Engineering family who already support me.

DAFTAR ISI

STATEMENT BY THE AUTHOR	2
ABSTRACT	3
ABSTRAK	4
ACKNOWLEDGMENTS	6
DAFTAR ISI	8
DAFTAR TABEL	10
DAFTAR GAMBAR	11
BAB 1 – PENDAHULUAN	10
1.1. Latar Belakang	10
1.2. Rumusan Masalah Penelitian	12
1.3. Tujuan Penelitian	12
1.4. Manfaat Penelitian	12
1.5. Pertanyaan Penelitian	12
BAB 2 – TINJAUAN PUSTAKA	13
2.1. <i>Supply Chain Management (SCM)</i>	13
2.2. Transportasi	13
2.2.1. Model Transportasi	16
2.2.2. Metode Transportasi	19
2.3. Distribusi	20
2.3.1. Manajemen Persediaan Transportasi	22
2.4. Manajemen Distribusi dan Transportasi	23
2.5. Pembentukan Rute Kendaraan	25
2.6. Penelitian Terdahulu	28
BAB 3 – METODE PENELITIAN	30
3.1. Rancangan Penelitian	30
3.2. Tempat dan Waktu Penelitian	30
3.3. Sumber Data	31
3.4. Pengumpulan Data	31
3.5. Analisis Data	31
3.6. Alur Penelitian	32
BAB 4 – PAPARAN DATA DAN DISKUSI	34
4.1. Analisis Permasalahan	34

4.2. Data Demand 2021 dan Forecast 2022	34
4.3. Rute Distribusi PT. United Tractors Tbk Area TBB dan AMNT	36
4.4. Metode Transportasi North West Corner	37
4.5. Analisa Distribusi Optimal.....	42
4.6. Perbandingan Setelah <i>Improvement</i>	43
4.7. Alternatif Solusi	44
BAB 5 – KESIMPULAN DAN SARAN	45
5.1. Kesimpulan	45
5.2. Saran.....	45
LAMPIRAN.....	46
GLOSARIUM.....	47
DAFTAR PUSTAKA	49
DAFTAR RIWAYAT HIDUP.....	51

DAFTAR TABEL

Tabel 2.1 Contoh Tabel Transportasi.....	17
Tabel 2.2 Klasifikasi Vehicle Routing and Scheduling	26
Tabel 2.3 Penelitian Terdahulu	28
Tabel 4.1 Demand 2021 and Forecast 2022 Site NTB	35
Tabel 4.2 Demand 2021 and Forecast 2022 Site AMNT.....	36
Tabel 4.3 Rute Distribusi	37
Tabel 4.4 Biaya Transportasi	37
Tabel 4.5 Hasil Perhitungan Metode North West Corner Vendor Surya Indah	37
Tabel 4.6 Hasil Perhitungan Metode North West Corner Vendor RPX	39
Tabel 4.7 Hasil Perhitungan Metode North West Corner Vendor POS.....	40
Tabel 4.8 Hasil Perhitungan Metode North West Corner Vendor HMU.....	41

DAFTAR GAMBAR

Gambar 3.1 Alur Penelitian	33
Gambar 4.1 Diagram Fishbone Keterlambatan Distribusi	34
Gambar 4.2 Demand 2021 and Forecast 2022 Site NTB	35
Gambar 4.3 Demand 2021 and Forecast 2022 Site AMNT	36
Gambar 4.4 OTIF SITE AMNT	43
Gambar 4.5 OTIF Site NTB	44