

TABLE OF CONTENTS

DUAL DEGREE PROGRAM STATEMENT	ii
PERNYATAAN BEBAS PLAGIAT	iii
LETTER OF APPROVAL	iv
PREFACE	v
ACKNOWLEDGMENT	vi
TABLE OF CONTENTS	vii
LIST OF FIGURES	ix
LIST OF TABLES	x
LIST OF NOTATION AND ABBREVIATION	xi
ABSTRACT	xiv
INTISARI	xv
CHAPTER 1 INTRODUCTION	1
1.1 Background	1
1.2 Research Statement	5
1.3 Objectives	5
1.4 Limitations and Assumptions	6
CHAPTER 2 LITERATURE REVIEW	7
CHAPTER 3 THEORETICAL BACKGROUND	11
3.1 Collaborative Logistics	11
3.2 Two-echelon Distribution Systems	12
3.3 Location Routing Problem	13
3.4 LRP under uncertainty	16
3.5 Simulated Annealing	18

CHAPTER 4 RESEARCH METHOD	19
4.1 Problem Description	19
4.2 Research Tools	21
4.3 Research Methods	22
4.4 System Characterization	24
4.5 Problem Assumptions	25
4.6 Mathematical Model	25
4.7 Demand Scenario Generation	30
4.8 Cost Allocation Mechanism	31
4.8.1 The Shapley Value	33
4.8.2 Egalitarian Allocation Method	34
4.8.3 Proportional Repartition of Total Gains	34
4.8.4 Volume-based Allocation	34
4.8.5 Core Guaranteed Contribution-based Allocation	34
4.8.6 Equal Profit Method	35
4.8.7 Allocation based on Separable and Non-Separable Cost	36
4.9 Solution Representation	37
4.10 Initial Solution	40
4.11 Neighborhood Search Mechanism	41
4.12 Simulated Annealing	42
CHAPTER 5 RESULT AND DISCUSSION	48
5.1 Parameter Setting	48
5.2 Algorithm Testing on Benchmark Instances	52
5.3 Application: Urban Distribution in DIY, Indonesia	56
5.4 Collaboration Evaluation	60
5.5 Cost Allocation Analysis	63

CHAPTER 6 CONCLUSION AND RECOMMENDATION	66
6.1 Conclusion	66
6.2 Recommendation for Future Research	67
REFERENCES	68
APPENDIX	73