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Research Gate: https://www.researchgate.net/profile/Nausheen_Hashmi
Google Scholar: https://scholar.google.co.in/scholar?q=nausheen+hashmi&hl=en&as_sdt=0,5

OBJECTIVE:

To work in an academic institution where I can utilize my teaching skills and enhance my teaching and research abilities. I am highly motivated, hardworking with complete dedication towards research activities.

Current Academic Position:

Research Scholar (Ph.D.) in the Department of Statistics and Operations Research (from November 2016 till date), AMU, Aligarh, India.

Research Topic-"Studies of Mathematical Programming Model under Different Environments".
Supervisor- Dr. Shakeel Javaid (Assistant Professor, Department of Statistics and Operations Research, AMU, Aligarh, India).

Area of Interest in Research

- ➢ Transportation and logistics
- ➢ Mathematical programming formulations
- ➢ Multi-objective Optimization
- ➢ Bi-level Programming
- ➢ Supply Chain Management
- ➢ Disaster Management

ACADEMIC QUALIFICATIONS:

COURSE	YEAR	PERCENTAGE	INSTITUTION	REMARK
M.Phil (Operations Research)	2014-2016	73.2	Aligarh Muslim University	First Division
M.Sc (Operations Research)	2012-2014	67.58	Aligarh Muslim University	First Division
B.Ed	2011-2012	74.5	Integral University	First Division
B.Sc (Physics)	2008-2011	55.93	Aligarh Muslim University	Second Division
Senior Secondary School (Class XII)	2006-2008	73.6	U.P. Board	First Division
High School (Class X)	2004-2006	66.66	U.P. Board	First Division

KEY SKILLS

- Consistent and good academic record during the educational career.
- Crystal clear understanding of the underlying principles of the subject and its relative importance in real life.
- A little familiarity with the general administrative environment at educational institutes and idea about their practices.
- Perfect knowledge of the common job duties of an academician and abilities to perform them efficiently.

SOFTWARE SKILLS

- Microsoft Office, LINGO, TORA, MINITAB, SPSS, LATEX software, R software, the Basic idea of FORTRAN.

EXTRACURRICULAR ACTIVITIES

- Contributed as "Health and hygiene Proctor" of Hostel Committee at "ABDULLAH HALL" during the session 2011-2012.

PROJECTS AND DISSERTATIONS

- A project entitled "Optimum Scheduling of Nurses Duty in JNMC Hospital" under the supervision of Prof. Abdul Bari, for the partial fulfillment of the degree of M.Sc (Operations Research).

- A dissertation entitled "Mathematical Programming Problems and its Applications" under the supervision of Dr. Shakeel Javaid, for the award of M.Phil in Operations Research.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED/PRESENTED

- Vth National Conference on Statistical Inference, Sampling Techniques and Related Areas (Under DRS-(SAP-I) Program), March 14-15, 2015, Dept. of Statistics and Operations Research, Aligarh Muslim University, Aligarh, India.
- International Conference on Statistics and Related Areas for Equity, Sustainability and Development, November 28-30, 2015, Dept. of Statistics, University of Lucknow, Lucknow, India.
- Mini-Symposium on Complementarity and Game Theory Models, January 20-21, 2016, Indian Statistical Institute, Delhi Centre, New Delhi, India.

- ➢ Attended Short term course on "Advanced Optimization Techniques (AOT-2016)", November 21-25, 2016, Malviya National Institute of Technology, Jaipur, Rajasthan, India.
- ➢ Presented a research article entitled "A Fuzzy Approach for Solving Multi-Objective Solid Transportation Problem under Fuzzy Environment" at the "VIII International Symposium on Statistics and Optimization (ISSAC-2016)", December 17-19, 2016, Dept. of Statistics and Operations Research, Aligarh Muslim University, Aligarh, India.
- ➢ Presented a research article entitled "A Bi-Level Decision Planning Model for a Closed-Loop Supply Chain Network" at the "International Conference on Quality, Productivity, Reliability, Optimization and Modeling", January 5-7, 2017, Manav Rachna International University, Faridabad, Haryana, India.
- ➢ Attended a training program "Nature Inspired Optimization Techniques and Research Paper writing Using LATEX software", March 16-22, 2017, Dept. of Electrical Engineering, Aligarh Muslim University, Aligarh, India.
- ➢ Presented a research article entitled "A Decision Planning Model for Total Time Minimization Solid Transportation Problem under Uncertainty" at the "International Conference on Mathematics-2017", August 4-5, 2017, Providence College for Women, Coonoor, Tamil Nadu, India.
- ➢ Attended International Workshop on "Convex Analysis and Optimization (IWCAO-2017)", November 14-19, 2017, Department of Statistics and Operations Research, AMU, Aligarh, India.
- ➢ Presented a research article entitled "An Uncertain Model For Total Time Minimization Solid Transportation Planning Model" at the "VII National Conference on Optimization, Inference, Sampling Techniques and related Areas", March 09-10, 2019, Dept. of Statistics and Operations Research, Aligarh Muslim University, Aligarh, India.

DETAILS OF PUBLICATIONS

Paper in Conference Proceeding-

- ➢ Jalil, S. A., Hashmi, N**.**, Asim, Z., Javaid, S. (2017, January). A Bi-Level Decision Planning Model for A Closed-Loop Supply Chain Network. In *International Conference on Quality, Productivity, Reliability, Optimization & Modelling* (ICQPROM 2017). IEEE International Conference.

Manuscripts (Published/Accepted)-

- ➢ Jalil, S. A., Hashmi, N., Asim, Z., Javaid, S., (2018). A De-Centralized Bi-level Multi-objective Model for Integrated Production and Transportation Problems in Closed-Loop Supply Chain Networks", *International Journal of Management Science and Engineering Management* (Taylor & Francis, Scopus, ESCI).
(https://doi.org/10.1080/17509653.2018.1545607)

- Hashmi, N., Jalil, S. A., Javaid, S., (2018). A Model for Two-Stage Fixed Charge Transportation Problem with Multiple Objectives and Fuzzy Linguistic Preferences, *Soft Computing* (Springer, Impact Factor: 2.367, SCI, Scopus).
(https://doi.org/10.1007/s00500-019-03782-1)

- S. A., Javaid, Hashmi, N., Jalil, S., "A Decision Planning Model for Total Time Minimization Solid Transportation Problem under Uncertainty", *International Journal of Agricultural and Statistical Sciences* (ESCI, Scopus).

- Hashmi, N., Jalil, S. A., Javaid, S., "Carbon Footprint Based Multi-Objective Supplier Selection Problem with Uncertain Parameters and Fuzzy Linguistic Preferences", *journal of Sustainable Operations and Computers*. (Elsevier).
(https://doi.org/10.1016/j.susoc.2021.03.001)

Manuscripts (Communicated)-

- Hashmi, N., Jalil, S. A., Javaid, S., Carbon Pricing and Carbon Trading: A Closed-loop Supply Chain Perspective Based on Two Fold uncertainty" (*Sustainable Production and Consumption,* Elsevier).

- S. A., Javaid, Hashmi, N., Jalil, S., "An Application of Gamma Type-2 Defuzzification method for selecting sustainable suppliers " (*Neural Computing and Application*, Springer).

- Jalil, S. A., Hashmi, N., Asim, Z., Javaid, S., "Development and Application of Water Resource Allocation Model in Fuzzy-Rough Environment " (*Journal of Cleaner Production,* Elsevier).

REFERENCES

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PERSONAL DETAILS

Father's Name: Khizir Hayat Hashmi

Mother's Name: Shahnaz Hashmi

Date of Birth: 16 April, 1992

Religion: Islam

Marital Status: Married

Declaration:

I hereby declare that all the above-mentioned information is true and authentic to the best of my knowledge and I bear this responsibility.

Date-   **Signature-**

Place-

Journal Pre-proof

Carbon Footprint Based Multi-Objective Supplier Selection Problem with Uncertain Parameters and Fuzzy Linguistic Preferences

Nausheen Hashmi , Syed Aqib Jalil , Shakeel Javaid

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Carbon Footprint Based Multi-Objective Supplier Selection Problem with Uncertain Parameters and Fuzzy Linguistic Preferences

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Abstract: In this paper, we have studied supplier selection Problem (SSP) with reference to carbon footprint associated with the activities of each supplier. Carbon footprint in the proposed model is considered as one of the crucial dimension for the evaluation and selection of the suppliers.. In the problem, primary objectives are minimization of the total cost, minimization of rejection, minimization of the late deliveries along with minimization of carbon footprint. These objectives are subjected to some realistic constraints concerning customers' demand, supplier's capacity, flexibility, allocated budget and accepted amount of carbon footprint. Some parameters in the proposed model are considered to be uncertain values. The proposed multi-objective supplier selection problem with uncertain parameter is solved using fuzzy concept based goal programming approach. The main focus of the proposed model is to deal with human subjectivity by applying the linguistic preference-based method and analyzed the operational effects of supplier selection in terms of environmental efficiency. We have adopted the Expected Constraint programming technique

METHODOLOGIES AND APPLICATION

A model for two-stage fixed charge transportation problem with multiple objectives and fuzzy linguistic preferences

Nausheen Hashmi[1] · Syed Aqib Jalil[1] · Shakeel Javaid[1]

Abstract

In this paper, a multi-objective model for two-stage fixed charge transportation planning problem is studied. The transportation process is considered to occur from manufacturing plants to the distributers and then from distributers to the customers. The availabilities at the manufacturing plants, capacities of the distributers and demand of the customers, all are considered to be fuzzy numbers. The proposed model is formulated with three conflicting goals or objective functions. The first objective is to minimize the total transportation cost involved in the whole transportation process. The second objective is to maximize the total quantity of the products to be transported, whereas minimizing the total deterioration that occurred during the transportation process is considered to be the third objective function. Fuzzy linguistic relations or preferences among the three objective functions are studied. A linear membership function is used to represent the fuzzy relative preferences between the objective functions. For solving the multi-objective problem, fuzzy goal programming technique is adopted with some linear and nonlinear membership functions. Finally, the proposed model is illustrated and solved for some simulated numerical data and some sensitivity analysis for the problem is also discussed. The best results for the solved numerical problem are found when hyperbolic membership functions are considered to model the aspiration levels for objective functions, whereas comparatively less significant results are found when linear membership functions are used to model the aspiration levels for objective functions.

Keywords Fixed charge · Two-stage transportation problem · Fuzzy goal programming · Fuzzy linguistic preferences

1 Introduction

The classical transportation problem was discovered by Hitchcock (1941) as a special type of LPP that involves certain constrains. The main aim of solving the transportation problem is to minimize the total transportation cost that involves in the flow of commodity from wholesalers to consumers in the presence of some restrictions in the form of constraints. The constraints are generally considered over two features: availability of the sources and requirement of the consumer. In this highly competitive era, the purpose of organizations is to forge ways for creating and delivering values to customers. It has been observed that sometimes in transportation problem (TP), an additional cost is incurred along with the variable cost; this additional cost is called set-up cost or fixed cost. The TP that involves fixed cost is often referred to as fixed charge transportation problem (FCTP).

In FCTP, the commodities can be supplied from each origin to any destination at a shipping cost (unit cost of shipping commodity from plant to consumer) plus a fixed cost or set-up cost for opening that route or distribution center. In FCTP, it is a matter of fact that the amount which can flow by a particular route bears a fixed charge for that particular route. Further, when the route is occluding, in this case it is expressed by limiting its capacity to zero. In general, the FCTP is formulated as a 0–1 integer programming problems.

A DECISION PLANNING MODEL FOR TOTAL TIME MINIMIZATION SOLID TRANSPORTATION PROBLEM UNDER UNCERTAINTY

Shakeel Javaid*, Nausheen Hashmi and Syed Aqib Jalil

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Abstract : A solid Transportation problem considers mainly three constraints dealing with demand at destinations, availability at sources and conveyance capacities. The total time minimization solid transportation problem (TTMSTP) handles the objective to minimize total time involved in transporting the commodities. The TTMSTP is different from ordinary solid transportation problem because of the involvement of some auxiliary variables. The auxiliary variables are used just to identify the active and inactive nodes in the final transportation planning decision model. The concept of uncertain programming is adopted to deal with the vagueness that generally prevails in the data. Expected constraint programming method is used to convert the uncertain model to its equivalent crisp form. A numerical illustration is also given in order to explain the applicability of the presented model.

Key words : Solid transportation, Time minimization, Uncertain theory, Uncertain variable, Inverse uncertain distribution.

1. Introduction

The Transportation Problem (TP) is a special class of network optimization problem. The problem of minimizing the total cost of transportation is broadly discussed as an optimization problem. It usually aims to minimize the total transportation cost. Practically there may arise many situations where it is more important to minimize time instead of cost. In military transportation, in times of emergency, there is a vital need for transportation of perishable goods like fruits, vegetables and milk, where a delay in transportation may lead to big losses. Minimization of time plays a vital role in real life TP and it is a requirement to find a feasible transportation schedule. That feasible transportation schedule minimizes the maximum transportation time between a source and destination provided that the distribution between two points is positive. The basic difference between time and cost minimization TP is that the cost of the transportation changes with the variation in the quantity but the time involve remains unchanged irrespective of quantity.

Solid Transportation Problem (STP) is the expanded form of classical TP. Classical TP deals with two dimensional aspects of constraints while the STP deals with three dimensional aspects of constraints. Need of STP arises due to competitive environment, where industries and firms are seeking ways to deliver their products in such a manner so that they would capture good hold in the market. Even for the delivery of homogeneous products different modes of transportation are needed, which gives rise to an additional constraint in TP called conveyance constraint and such a TP is termed as STP.

It is often seen in real life that the decisions of TP namely demand, supply and conveyance are not certain (*i.e.* not fixed). This raises the need to study uncertain theory. In practice, transportation variables are presumed but in actual, costs of transportation and time of shipping are highly uncertain. To deal with uncertainty in human behavior [Liu (2007)] found uncertain theory. Liu proposed the concept of uncertain variables that are used to model uncertain quantity, and degree of belief is regarded as uncertain distribution.
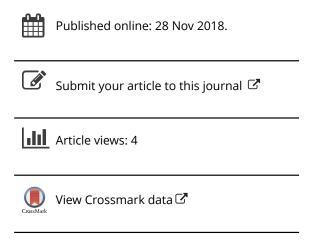
A de-centralized bi-level multi-objective model for integrated production and transportation problems in closed-loop supply chain networks

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A de-centralized bi-level multi-objective model for integrated production and transportation problems in closed-loop supply chain networks

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ABSTRACT

The increase in the development of proper channels for recycling and disposal of the manufactured products have motivated the study of closed loop supply chains. The closed loop supply chain networks can be considered as a strong tool for attaining the goals of sustainable development. The customers are not the terminating destination for the products in closed loop supply chain networks. However, after some recycling or refurbishing processes the product once again enters the supply chain networks. The involvement of forward and reverse flow of the products makes the closed loop supply chain networks very complex. As, there may be several conflicting objectives related to the closed loop supply chains, in this paper, we have proposed a bi-level multi-objective programming model for these networks. Bi-level programming problems deal with the situations where decisions are to be taken at two different hierarchical levels. We have considered three objective functions which are distributed among these two levels in such a manner that the decision makers solves for a single objective at each level. A solution procedure is also discussed for solving the proposed model.

1. Introduction

Dealing with the supply chain networks in an adequate manner is a very complex and demanding task due to the involvement of high state of vagueness in supply-demand, multiple conflicting objectives, uncertainty in data, various decision variables and restrictions. To overcome such difficulties and complexities supply chain optimization can possibly make a considerable contribution and help the decision makers to come up with some profitable supply chain plans. Various optimization problems arises that are formulated and solved as mathematical programming problems concerning with the optimal flow of products in the supply chain. Some of these are supplier selection problems, facility location problems, inventory holding problem, transportation planning problems and risk minimization problems, etc.

Now a days, organizations are facing pressure for making a balance between the market and environment performances. The problem and concern of ultimate disposal of junk trash and waste is one of the major consequence of increasing population density of metropolitan areas. Recently, supply chain management and vendor selection process have received considerable attention in maintaining the eco system. These are now the focus of industrial, commercial and consumer organization looking at the reverse logistic (RL) process or Closed loop supply chain (CLSC) as a basis for generating real-economic values. CLSC network is the combination of both forward and reverses logistics. A forward supply chain is the combination of activities to produce new products, it start with the collection of raw materials and end with the distribution of finished goods to customers. Whereas, a reverse supply chain is the combination of activities that require to retrieve used products from customers and recycle them to recover

their old market value. There are number of reasons why attention needs to be placed on the process, dynamics and structure involved in the return of goods, materials, and parts from the field at the end of direct supply chain.

CLSC problems often deal with more than one objective function, which is referred to as multi-objective optimization problems. However, generally most of the enterprises run within a hierarchical pattern, where the non-hierarchical multi-objective optimization concept sounds inappropriate. Multi-level programming techniques are used to model such hierarchical situations. Multi-level programming is characterized as mathematical programming to solve decentralized planning problems. The bi-level programming problems are special case of multi-level programming problems, in which there exist only two hierarchical levels. In bi-level programming involved agents are considered at two levels: some of the individuals collectively called the leader the remaining agents called the followers. In these problems the leaders are assumed to anticipate the reaction of the followers; this allows the leader to choose best optimal strategies accordingly. Simply, the goal of leader is to optimize his own objective function but incorporating within the optimizing scheme of the follower to his course of action. There are many situations in real life where it can be seen that the decisions are bi-level in nature, because of their autonomic and conflicting impact on objective.

In this paper, we have studied integrated production and transportation operations for a CLSC network with hierarchical considerations. A bi-level multi-objective programming model is constructed for the presented CLSC network. We have constructed three objective functions for the proposed model namely, minimizing the total cost involved, minimizing the storage cost of raw materials and minimizing the total defects. The proposed model is considered to

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A Bi-Level Decision Planning Model for A Closed-Loop Supply Chain Network

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Abstract— In recent years the increase in the stress on production of environment-friendly products have encouraged the need to study closed-loop supply chains. In closed-loop supply chains, the flow of the product does not terminate as it reaches the customers. After some recycling or refurbishing processes the product once again enters the supply chain networks. Closed-loop supply chain networks are playing a very important role in attaining the goal of sustainable development. Due to the involvement of forward and reverse flow of the products simultaneously, the closed-loop supply chain networks become more complex. Hence, this paper presents a bi-level model for a multi-echelon closed-loop supply chain network. Bi-level programming deals with the situations where decisions are to be taken at two different hierarchical levels. We have considered three objective functions which are distributed among the upper and lower levels in such a manner that the upper level decision maker solves for a single objective and the lower level decision maker optimize the other two objectives. A solution procedure is also discussed for solving the proposed model. Finally, a numerical example is also given to illustrate the applicability of the model.

Keywords—closed-loop supply chains; reverse logistics; bi-level programming; decision making

I. INTRODUCTION

Increasing attention has been given to reverse logistic (RL) and close loop supply chain (CLSC) markets and business models over the last decades. The problem and concern of ultimate disposal of junk trash and waste has been an issue as a function of globalization, an increasing population density of metropolitan areas.

However, the last 20 to 30 years have resulted in creation of an entirely new array of products and goods at the end of the traditional direct supply chain. These products, parts, subassemblies and materials represent rapidly growing values and economic opportunities at the end of direct supply chain. These are now the focus of industrial commercial and consumer organization looking at the reverse logic process or CLSS as a basis for generating real economic values. There are number of reasons why attention needs to be placed on the process, dynamics and structure involved in the return of goods, material, parts from the field at the end of direct supply chain. The focus and scope of environmental care has been extended over the past few decades. It is believed that there is an optimized break-even point where more goods and services are created with less number of resources, with less waste and pollution. Now a days, organizations are facing pressure of balancing market and environment performance. A closed loop supply chain can be considered as a system with no waste. Traditional supply chain has open ends while close loop supply chain put all outputs back to the system. CLSC completely reuses and recycles all the materials and transform waste to energy.

Beamon [3] defined a closed loop supply chain model with major focus of handling wastes. Sheu et al. [14] proposed a comprehensive conceptual frame work based on forward and reverse material flow and their interrelationships, but their model neither includes waste treatment nor energy supply. Recently, Saman and Guoging [2] proposed an integrated model of multi objective approach for closed loop supply chain configuration. Majid et al. [10] applied forward/reverse logistic network design in multi objective stochastic model with responsiveness and quality level. Aman and Gerald [8] used Goal Programming for operational closed loop supply chain model.

The term Bi-level and multi-level programming is introduced by Candler and Norton [5] before that these problems are known as mathematical programs with optimization problems in the constraints. Bi-level programming differs from original or basic optimization, as it has two levels of optimization tasks, the upper level is known as outer optimization task and the lower level is known as inner optimization task. The important feature of Bi-level programs- is the hierarchical relationship between two autonomous, and possibility conflict, decision makers, with the since it is related to stackelberg (leader-follower) games in economics.

Bi-level programming theory rapidly becomes very important branch in mathematical programming field because of its hierarchical decision-making method that includes Stackelberg Game. Bi-level programming is very different from ordinary mathematical programming. Bi-level optimization problems are complex and often belong to a higher complexity class than their corresponding single-level relaxations by Sakawa et al. [11]. Bi-level programming is