A Shoot-out Procedure for Time Minimizing Transportation Problem with Mixed Constraints

Swati Agarwal[1] and Shambhu Sharma[2]

1,2Department of Mathematics, Dayalbagh Educational Institute, Dayalbagh, Agra, India
E-mail: [1]swatiagarwal.dei@gmail.com, [2]ssdei61@gmail.com[2]

Abstract—*The time minimizing transportation problem with mixed constraints (TMTP-MC) also referred as bottleneck transportation problem with mixed constraints (BTP-MC) consists to determine the least total delay or minimum traverse duration when some goods are forwarded from m origins to n destinations under mixed type supply and demand constraints. Keeping this in view, a shoot-out procedure has been developed to determine an optimal solution for TMTP-MC in which some cells with maximum time have been shot during which we may get any row and/or column having a single non-zero live cell. Now allocating that single non-zero live cell with maximum possible allotment, the active transportation table has been modified and the procedure of shooting the cells will continue until we reach to optimality. The intent of this work is to provide an optimal solution without going through the initial basic feasible solution. The proposed procedure is conceptually simple and it will provide the necessary decision support to decision makers while they are handling time oriented logistic problems. Moreover, a numerical example is presented to test the efficiency of the proposed process.*