Implementation of algorithm for Vogel's approximation and the modified distribution methods using MATLAB

J. S. K. C. Priyangika*

Department of Physical Sciences, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

In the field of operations research, modelling of transportation problems is fundamental in solving most real life problems as far optimization is concerned. It is clear that a lot more effort has been put in by many researchers in seek of appropriate solution methods to such problems. Vogel's Approximation Method (VAM), among the class of algorithms provided to solve the Initial Basic Feasible Solution (IBFS) proved to be the best. Likewise, Modified Distribution Method is testing the optimality of the IBFS. However, for some time now, manual calculations and LINDO are the tools used by most researchers in the application of these efficient proposed techniques.

No MATLAB function has been written to handle this problem, although is now obvious that more scientist in the scientific world are into the usage of MATLAB environment. In this study, a MATLAB function, that is, vogelModi.m was developed to implement the Vogel Approximation Method, which helps get the IBFS and Modified Distribution Method, which also test for the optimality of the IBFS based on the assumption that the problem is balanced.

It was observed that this program will aid most Operation Researchers modeling large transportation problem and wish to use Vogel's Approximation method and the Modified distribution method as its solution techniques for arriving at an optimal solution with less effort.

Keywords: Cost Matrix, MATLAB, Modified Distribution, Transportation Model, Vogel's Approximation

*cham1981@gmail.com