Article Abstract

Title:	Planning for water supply projects in Kolkata, India
Author(s):	H. Guha, B. Thakur, T.S. Konar, P.P. Biswas
Address(es):	[1]Practicing Consultant, Kolkata, INDIA [2*] Department of Civil Engineering, Meghnad Saha Institute of Technology, Kolkata, INDIA [3]Department of Civil Engineering, Camellia School of Engineering and Technology Kolkata, INDIA [4]Department of Construction Engineering, Jadavpur University, Kolkata, INDIA [*]Corresponding Author: e-mail: b2981975@yahoo.co.in, Tel +91-9830241217, Fax.+91-33-24431032
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Abstract:	Mega cities in developing countries like Kolkata in India are often dependent on international agencies for financing its civic infrastructures like water supply network. These funding agencies would require cost benefit analysis for appraisal of the projects. Such study would demand rapid cost estimation as well as the optimization of the project operations. Traditional methods namely multiple regressions and mathematical programming that are generally used for these studies seem to be relatively inefficient for cost benefit analysis of water supply projects. On the other hand, the performance of nature inspired techniques has been found to provide encouraging results mainly because of its ability to manage nonlinear, non-convex and stochastic dataset. Gene expression programming has been used in lieu of multiple regressions for developing the capacity-cost curves. Genetic algorithm has been employed in lieu of common mathematical programming for improving the optimization process. Applications of evolutionary algorithms have allowed investigating the issues to an extent that was not possible with the traditional methods. The key issues and difficulties for financing water supply projects to the southern fringe of Kolkata have been identified with the help of evolutionary algorithm even without the detail cost benefit analysis as prescribed by the funding agencies.
Keywords:	Gene expression programming, Genetic algorithm, Water supply network, Developing country.