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Rapid evaluation of water supply project feasibility in Kolkata, India

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Abstract. Mega cities in developing countries are mostly dependent on external funding for improving the civic infrastructures like water supply. International and sometimes national agencies stipulate financial justifications for infrastructure funding. Expansion of drinking water network with external funding therefore requires explicit economic estimates. A methodology suitable for local condition has been developed in this study. Relevant field data were collected for estimating the cost of supply. The artificial neural network technique has been used for cost estimate. The willingness to pay survey has been used for estimating the benefits. Cost and benefit have been compared with consideration of time value of money. The risk and uncertainty have been investigated by Monte Carlo's simulation and sensitivity analysis. The results in this case indicated that consumers were willing to pay for supply of drinking water. It has been also found that supply up to 20 km from the treatment plant is economical after which new plants should be considered. The study would help to plan for economically optimal improvement of water supply. It could be also used for estimating the water tariff structure for the city.

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