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# APPLICATION OF THE PROBABILITY MATRIX METHOD

# TO THE

# LABUGAMA & KALATUWAWA RESERVOIRS

By

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This is to certify that this Dissertation has not been previously presented in whole or part, to any University or Institution foraahigher degree.

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## ABSTRACT

The research considers the application of the Probability Matrix Method to Labugama and Kalatuwawa reservoirs and storage-draft-probability of failure relationships have been derived.

The study shows that preliminary design procedures using the Mass Curve Method/Residual Mass Curve Method also give useful results which can be used in the Probability Matrix Method.

The Probability Matrix Method requires a relatively large computational effort. It has been observed that for satisfactory results a large number of zones are needed in the analysis without which the hunting effect arises.


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## LIST OF SYMBOLS

| | | |
|---|---|---|
| C | - | reservoir capacity |
| D | - | Draft |
| I | - | Inflow |
| MCM | - | million cubic metres |
| $P_i$ | - | probability of the reservoir being in state i at the beginning of time step t |
| $S_t$ | - | reservoir storage at the beginning of time step t |
| TPM | - | transition probability matrix. |
| $Z_t$ | - | reservoir state at the beginning of $t^{th}$ time step |
| $Z_{t+1}$ | - | reservoir state at the beginning of $t+1^{th}$ time step. |

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