

YOKOTA LAB.

[Life extension of civil infrastructure]

International Center for Urban Safety Engineering (ICUS)

<http://icus.iis.u-tokyo.ac.jp>

Life-Cycle Management of Urban Infrastructure

Social Infrastructure
Management division

Performance evaluation and prediction

It is strongly required to establish the Life-Cycle Management system (LCM) to ensure safety and long life for civil, urban infrastructure. We are investigating methods of performance evaluation at present and prediction of future performance degradation, which should make it easy to formulate and to update the LCM scenario. Quantification of spatial variations of deterioration progress is one of the most concerns including the effect of the variations on the prediction results. The research outputs may contribute to more efficient, strategic maintenance work.

LCM system – Coordination between design and maintenance work

LCM scenario – Life-cycle cost and net present value for decision making

Visual inspection – Aid with extreme value statistics and risk analysis

Structural performance evaluation – Quantification of variations and stochastic analysis

Prediction – Accuracy of prediction

Intervention – Determination of performance limit for intervention

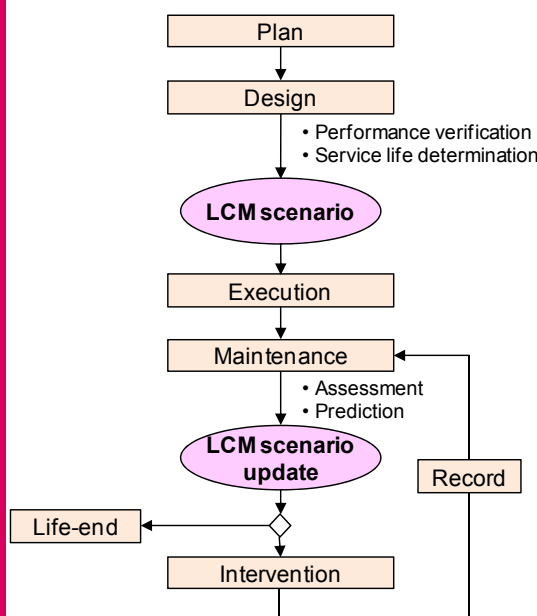


Fig. 1 Life-cycle management system



Fig. 2 Example of deterioration (Chloride-induced corrosion)



Fig. 3 Inspection of concrete coast levee

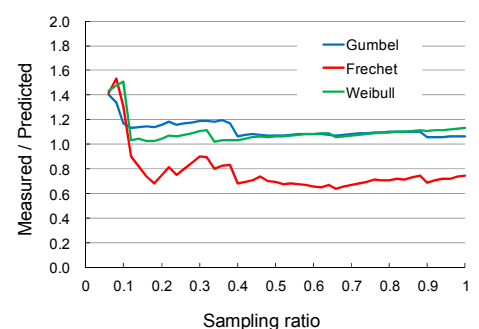


Fig. 4 Accuracy of prediction

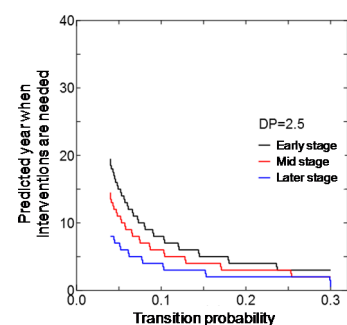


Fig. 5 Errors in prediction considering variations