

SUMMARY OF MASTER'S DISSERTATION

Student Identification Number		Name	Akio Iguchi
Title: A Maintenance Strategy for Bridges Considering Budget Constraint			
Abstract <p>According to the Ministry of Land, Infrastructure, Transport and Tourism, social infrastructures in Japan has been rapidly aging as most of the infrastructures and related systems were built about 30 years to 50 years. The United States, facing a similar problem, experienced the deterioration and collapse of many of it's bridges. This suggests that Japan may have a similar problem in the near future. In this paper we aim to evaluate the long-term collapse risk of bridges located in a ward of Tokyo, so that local policy makers can consider the collapse risk of bridges under budget constraints. First, we calculate the future maintenance costs which existing bridges requires, using the deterioration prediction equation extracted from the past maintenance data in the target area. Second, we formulate the collapse probability of bridges based on a reliability index which is used for load and resistance factor design. In addition, the paper calculates the collapse risk of bridges by estimating the entire loss amount which physical, human and business entities will incur in the event of a collapse. Finally, we compare the collapse risks of bridges considering three budget constraint scenarios. As a result, we obtained quantitative findings that can be used for budget setting by policy makers while reducing the collapse risk of bridges.</p>			
Key Words : bridge maintenance, risk management, budget constraint			