

Thawatchai Punsook 2010: Earth-fill Dam Inspection by Risk Index Method. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Assistant Professor Suttisuk Soralump, Ph.D. 351 pages.

This research concentrated on a visual inspection of the earth-fill dam by introducing risk index method. The fault tree diagram was used to determine the causes of failure and assigned the appropriate weighting to each visual condition. 3 earthfill dams were used for testing the method: the saddle dam of Khun Dan Prakarnchon dam irrigation project, Kaeng Krachan dam irrigation project and Pranburi dam irrigation project.

The results show that the using of the fault tree analysis resulted in better improvement of the index. This is proved by condition testing to severe cases. The improved risk index model then reduce the visual inspection condition to became 9 conditions for piping, 12 conditions for sliding and 17 conditions for overtopping. Regarding the fault tree analysis, those inspected conditions are considered as a part of the causes of failure, some part can not be inspected since there is no visual condition to perform. For implementation, the levels of danger and high risk were calculated for each failure condition. The results found that the danger level and high risk level of piping has a value of 1.604 and 1.894 respectively. The danger level and high risk level of sliding are equal to 1.903 and 2.128 respectively. The danger level and high risk level of overtopping are equal to 1.924 and 2.367 respectively. As for the evaluation of 3 dams, It's found that the highest risk index of the saddle dam, Kaeng Krachan dam and Pranburi dam are 1.46 (sliding), 2.36 (sliding), 2.46 (sliding), respectively.

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Thesis Advisor's signature