**Abstract**

In the present paper, we propose the use of the Integrated Characteristic Interaction Model (ICIM) and Analytical Hierarchy Process (AHP) to build an evaluation framework for the risk factors of the Wildland Urban Interface (WUI) fire from code and safety guide. The ultimate goal of our research is to aid the government decision-making on the prevention of and protection of WUI fire, with a focus on life safety performance and property safety performance. While ICIM and AHP have been utilized in the evaluation of fire safety performance, seldom research can be found in WUI fire.

So the conceptual framework will be built based on the ICIM derived from code and safety code through grounded theory and content analysis, followed by the AHP which builds quantitative relationships. While ICIM and AHP have been used in the assessment of fire safety performance, its application on WUI fire research is rare. So the conceptual framework will be built based on the ICIM derived from code and safety code through grounded theory and content analysis, followed by the AHP which builds quantitative relationships. With the framework, a quantitative model utilizing the conditional probability and Bayesian network, which are frequently used in AHP, will be provided as a tool to assist in the development of national fire safety design solutions for WUI fire and to help with decision-making at the government levels.