

## ABSTRACT

This study applies AHP to select a sub contractor for the King Keaw highway construction project. AHP is an effective decision-making tool solving multi criteria problems. It comprises three main principles: structuring hierarchy, setting priority, and performing synthesis.

The main criteria concerned in this research is identified into five elements. These are price offer, quality, reliability, cooperation, and planning. All of them but price offer can further be divided to other sub factors of; quality of work, service, and material; reliability to financial, deliverable time, staff, and machinery; cooperation to project owner, consultant, and main contractor; planning to scheduling and safety plan.

Judgement data are collected from three engineers working on this highway project. After AHP process, the global ranking of all criteria can be ranked as followings. Price offer (43.99%), quality of work (11.34%), quality of material (9.22%), financial reliability (8.35%), scheduling plan (4.36%), deliverable time reliability (4.34%), quality of service (4.21%), project owner (3.40%), consultant (3.40%), safety plan (2.18%), staff reliability (2.07%), main contractor (1.70%), and machinery reliability (1.45%). Lastly, the identification of global ranking of the alternatives is Kritkirk (26.04%), Chareon (22.29%), Nakarat (19.61%), Siamratch (17.68%), and V-Con (14.38%).