MS Thesis Defense

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Small-Unit Water Purifiers in U.S. Army Special Operations: A Multi-Attribute Evaluation

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Due to the austere and isolated locations of their missions, U.S. Army special operations forces units need to be self-sufficient in sustaining their potable water supply needs for survival. Current equipment used in the conventional Army is too heavy and operationally complex to meet size, mobility, and maintenance requirements. Therefore, special forces purchase most of their water purification equipment off-the-shelf; these systems are not designed with special forces in mind. This research applies multi-attribute decision analysis methods to identify a preferred commercial off-the-shelf water purification system for use in a special operations forces environment. Using feedback from seven public health professionals and end users in the Army, four water purification systems were identified to evaluate against nine performance criteria. The results illustrate the utility of multi-attribute decision processes in selecting technologies when there are multiple performance objectives and no single technology best meets any single objective.

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