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**Community DECISIONS: Ranking Stakeholders' Goals for Watersheds using the Vector Analytical Hierarchy Process**

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Abstract:

Community DECISIONS (Community Decision Support for Integrated, On-the-ground Nutrient Reduction Strategies), is a decision support system in development for watershed nutrient planning and management. The goal is to assist stakeholders in selecting nutrient reduction strategies for the North Fork Shenandoah watershed of Virginia. Determination of stakeholder goals will provide input for the decision support system to select consistent strategies, and will provide an objective basis for compromise and consensus. Among alternative elicitation methods, the Vector Analytical Hierarchy Process was chosen for eliciting and ranking stakeholder goals and for evaluating the sensitivity of goal rankings across stakeholders.

Ten goals were elicited from the stakeholder group and subsequently pairwise ranked by each participant in a March 2008 workshop. An overall ranking of watershed goals was obtained by grouping stakeholders into sub-groups, obtaining the goal rankings for each subgroup, and aggregating the subgroup rankings into an overall ranking. We explored two methods for assigning stakeholders to subgroups: 1) affiliations from a participant bio-sheet; and 2) similarity of individuals' goal rankings. Subgroups based on stated affiliations included 1) environmental, 2) agriculture/ business, 3) local government/citizen groups, and 4) state government. The methods were compared based on the coherence of the rankings, where coherence is a measure of the underlying variation of goal preference within a subgroup. Coherence was measured on a 0-1 scale, with a higher value indicating less variation of rankings within subgroup. The average coherence of preferences for the 4 groups based on stated affiliations was 0.974. Groupings based on similarity of preferences improved the average coherence to 0.983 if 4 groups are defined.

Impact Statement:

In general, subgroup-based rankings will have an advantage over population-based ranking (each participant weighted equally). Stakeholder groupings based on similarity of goal preferences provide greater coherence than groupings based on stated affiliations by increasing the homogeneity of subgroups. For example, a self-described 'environmentalist' might express goal preferences more consistent with an 'agriculturalist' than with another 'environmentalist.' This supports additional discussion and analysis of the results, and it can ultimately lead to much stronger and better informed group decision making.

Category: Human Dimensions

Type of Presentation: Poster Presentation