

# ***Interactive comment on “Development of a participatory Bayesian network model for integrating ecosystem services into catchment-scale water resources management” by Jie Xue et al.***

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Specific comments:

- Referencing and citations generally adequate; certain references need a suffix of a or b: Poppenorg et al.; Liu et al.
- Spelling of certain references or citations, and consistency between these: Siew and Döll; Duespohl et al. Chen & Pollino (as opposed to Chen et al. p5 line20); more efficient citing of multi-year papers by the same authors: Egoh et al. 2007-2008; Xue et al. 2016 a, b (p4, line 11).

- Lynan 2006 or 2007?
- Burgess and Chilvers (2006) not referenced
- Charnley vs. Chamley?
- Aims and methods written in current tense, rather than past tense
- I have reviewed the MS acknowledging that the MS was written by non-first language English scientists, and tried to separate content/ concepts from style. The MS would benefit from editing by a first-language English editing service (although the MS is generally well written).
- Key Bayesian network texts e.g Jensen and Nielsen; Kjaerulff and Madsen – appear to have been omitted.

#### General comments:

- The study has been undertaken within a relatively small catchment. It was not clear from the text how many stakeholders there were, what the population density and size is, and how stakeholders were identified.
- Large portions of Sections 2.2 and 3 would seem to fit better in to an introduction.
- It was not clear where the methods end, and the results and discussion begin. This needs to be clearer.
- Using the methods provided from the text, it would be difficult to replicate this study. The process of identifying nodes and nodes states is not defined, and nor was the calculation of parent node probabilities or population of conditional probabilities. This is a critical issue- at the minimum, these tables should be included as a data appendix.
- Furthermore, the Bayesian Network appears to be overly complex, such that the population of the CPTs would have also been a complex procedure. There is no indication that there has been model output verification (although admittedly this is often a failing

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of BN papers).

- The research appears to be fairly sound in terms of stakeholder participation and model sensitivity analyses, but weak in terms of BN development process, and data use. While useful within a broader IWRM perspective, the actual BN approach is not particularly innovative, and seems like another replication of the approach used by Cain (2001).

In summary, I do not believe that this research is innovative enough to warrant publication, or explained in sufficient detail to allow for replication. My recommendation would be to reject.

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