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Interactive comment on "Establishment and maintenance of regulating ecosystem services in a dryland area of Central Asia: the Kökyar Protection Forest, Aksu, NW China, as an example" *by* S. Missall et al.

Anonymous Referee #1

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Dear Editor,

This article describes a success story for a huge human effort dealing with difficult environmental problems on one of the most challenging contexts for urban settlements on Earth. The paper presents the case for dust storms, a severe environmental problem limiting environmental quality in urban settlements in NW China, and the potential of urban protection forests to improve environmental services. The article explains the process of creation of the urban protection forest and its management with sufficient detail. A very brief survey and a superficial cost-benefit analysis are used, and results

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Interactive Discussion
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presented on their basis. The social and economic procedures are visibly weak; this might be justified by the limitations of the socio-political context in relation to lack of transparency and some additional difficulties, however, I consider the information presented is valuable material for the understanding of sustainability. In my opinion as a reviewer, the authors need to make many changes in the article to reach an acceptable academic standards, I would kindly suggest the author to rewrite the paper on the light of these comments, because the topic is extremely relevant. The list of suggestions below, including changes on the structure of the article, justify in my opinion the need of a MAJOR REVISION.

General comments The paper is grammatically well written but some sections are superfluous, I suggest the authors to remove the section “Synthesis” and potentially relocate any point found relevant on it and absent in other sections. The authors spend too much sentences talking about what they could have done with better data or what they have not done because of its lack. This should be totally transformed, the case and information they provide is relevant enough. Please take all this “could” and “do not” and limit them to one (long) paragraph in the discussion section, compiling the most relevant points and relate them to potential uncertainties in the outcome. There is a general lack of mathematical language for the calculations used; I suggest you use 4-6 equations to complement the text describing how the values in tables are obtained, and especially describing the cost-benefit analysis (sic). This would clarify the paper. I think an interesting point to add would be a discussion in the decision of the species included in the artificial forest. Poplar consumes so much water, which you know how scarce it is in the area, and I would like to see a comparison with other species with lower water consumptions and similar potential for success, you could use modern academic studies with a biologic focus on transpiration for certain species and also contrast them with studies about traditional gardening in desert areas. The article approaches economically the topic with a superficial cost-benefit analysis, and present results that might be slightly optimistic due to a potential underestimation of what would be the labour and true water costs in a “free” economy. I am aware water

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prices almost never reflect their costs, but you could improve the paper elaborating on this and its interaction with the current results, could they change sign if these costs were properly accounted?

Particular comments Page 1676, line 16: The term pure seems too sensitive, if not inadequate, please change it. Page 1676, line 8: Rumbaur et al. does not appear in the reference list, please check all for consistency. Page 1676, line 26: “there” should be “their”? Page 1678, line 14: “Other persons” should come with an explanation or rational for their selection, it opens too much the possibilities and it is part of a weak aspect of this contribution, please clarify it. Page 1678, line 20: See my comment above for could and don’t. It also applies for “but without”. Page 1679, line 14: You seem to use inconsistently spaces for figures, indicating thousands or millions? Please use commas for it, or be consistent with the selected format. Page 1682, line 14: Tremendous and astonishingly are literary words, avoid such terms, your numbers make the point. Page 1683, line 21: I seriously doubt there is a rational for your comment on “inferior work quality”; change it or provide rational and 2 citations of other works arguing similarly. Page 1684, line 4: What does “apparently satisfactory” means in economic terms? Define or clarify. Page 1685, line 4: “Presently unknown” by the authors, somebody knows it in NW China, please clarify. Page 1688 , last sentence : The words organisation and organisational do not match very well in the same sentence. Pages 1690, line 18: Mentioning an estimation of how much people work on the forest-orchard would help to understand your point about being a “prospering branch”. Pages 1691, line 1-2: This dangerous assumption does not hold, many developing and transition countries keep farming labour as an additional source of income and in kind income, so you cannot really assume that other activities substitute the labour spent on the farm, rather than complementing it. Please modify and justify it in a proper way.

Interactive comment on Earth Syst. Dynam. Discuss., 5, 1673, 2014.