

Interactive comment on “Potentials and limits of urban rainwater harvesting in the Middle East” by J. Lange et al.

Anonymous Referee #2

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General comments The paper gives a detailed analysis of the potential volumes of rainwater that can be harvested from rooftops in Ramallah. The small timestep of rainfall data used in this calculation is, as far as I am aware, new in the literature on RWH. – Page 10372; lines 14, 15. It is rightly mentioned that the volume of the cistern is important for the actual efficiency of a RWH system. And this is further discussed on page 10379 lines 13–18. From the text it seems that the authors see a 200 mm storage as a minimum requirement. However, what would be the economics of such a cistern? How much water could actually be saved, given the per capita daily consumption? How much would overflow once the cistern is full? Just assuming for the sake of a simple calculation that in a year with 400 mm of rainfall there would be no overflow from a cistern with a 200 mm storage capacity, it would mean that per m³ of cistern volume, 2

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m³ of water are saved. Given the price of a cubic meter of water, the construction costs of a cistern are probably prohibitive. I suggest that the authors discuss this in short based on available literature. – Page 10373; lines 9-11. 'Disinfection is required', but no suggestions are made how to do this and how it would affect the (financial) feasibility of RWH systems. – Page 10375 lines 26. 'Incomplete records were not excluded from the analysis but rather treated as independent data from low rainfall seasons.' Unclear what is meant here; what if the incomplete records were from the wet season? or should it be phrased like this: 'Incomplete records were not excluded from the analysis but rather treated in a similar way as independent data from low rainfall seasons.' – Page 10379 line 12. The question about 'good quality' posed to the inhabitants is questionable, since it is unclear to what use the 'good quality' refers. Therefore it seems one cannot draw any conclusions from this part of the questionnaire. The grouping in figure 8 based on quality therefore is questionable. Specific comments – Page 10371 line 10: 'RWH has been used in the region since more than two-thousand years by the Nabateans,...' The sentence as it is now suggests the Nabateans are still doing so, however, they are not around anymore. Rephrase into something like: 'Already two-thousand years ago the Nabateans....' – Page 10374 line 7. The exit of Lake Tiberias is not completely blocked, a certain (small) percentage of inflow into the lake is allowed to flow into the Jordan. – Page 10376 line 14 replace 'eventually' which means 'in the end' with a better word. – Page 10379 line 1 Clarify what 'buildings' mean, Ramallah has a lot of buildings with multiple apartments. A figure of 5.1 persons per apartment could be correct, but certainly not if it is per building.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 10369, 2011.

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