

Interactive comment on “Virtual industrial water usage and wastewater generation in the Middle East/North African region” by S. R. Sakhel et al.

Anonymous Referee #3

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The topic of the paper by Sakhel et al is of high policy relevance for EU27/MENA relations. It ambitiously tries to contribute new knowledge on an often neglected issue that is the implications of virtual water exports from a highly water-scarce region to the European Union.

However, the paper as it stands is a confusing compilation of data that lacks structure and scientific coherence. The paper is poorly presented due to an apparent lack of English language skills. The first and foremost comment to the authors is to send the manuscript to a copy-editor to improve the standard of written English.

The methodology of the paper remains unclear throughout the paper. The authors should insert a paragraph or two to clarify their methodological approach. It also re-

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mains unclear whether the authors have liaised with the WFN group around Arjen Hoekstra. If not, it is highly recommended because of the importance of the topic.

Some of the references used in the manuscript are at best problematic. Wikipedia is NOT a useful source for information on water resource management in the MENA region. The additional use of grey literature should be decreased to a level of academic sincerity.

A simple but in my view useful way of improving the structure of the paper is to solely focus on the vw export of the oil and fertiliser industry. It would also enable the paper to stick to GCC economies. I am always very, very sceptical of academic research that tries to incorporate a large number of highly diverse economies that are in addition exposed to either warfare (Syria) or severe economic crises (Tunisia and Egypt). By including the olive oil and livestock industry, the paper also loses the initial topical strength. Processed livestock products are rather imported to the MENA region than exported to Europe. I understand the authors want to use slaughterhouses to support their wastewater argument. This should be done in an additional paper. Similar objections apply to the role of olive oil mills. The authors are touching sensitive political ground due to the importance of the olive oil industry for countries like Palestine or Lebanon. Again, olive oil is also rather imported to the MENA region than exported. Only the conclusions clarify, meat and olive oil are processed in the selected countries. To what extent this is still relevant is highly questionable. In the references, the reader can comprehend that this paper was written before the Arab Spring. This is a severe problem of this paper. A large number of industries have been closed down in countries like Egypt, Syria (!!!) and other North African countries due to the social and political turmoils. It makes the analysis of the paper meaningless.

This paper can be published if the authors focus on the GCC economies only and leave out any countries that have been affected by the Arab Spring. The authors should also focus on a main message, and this is in my view crude oil waste water usage, instead of providing a confusing analysis. It is also mandatory to mention that the

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research was carried out before January 2011. If these revisions are included, the paper is better structured and copy-edited to leave out certain unnecessary information on consumption patterns among others, the paper can be published. Again and again, it is of high importance to remind the authors that the MENA hydrological system is quite diverse and the economies are in a state of crisis. It is only safe at this stage to provide an analysis on the GCC states. At least for a few years (months).

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 999, 2013.

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