

## ***Interactive comment on* “The problems of overexploitation of aquifers in semi-arid areas: the Murcia Region and the Segura Basin (South-east Spain) case” by T. Rodríguez-Estrella**

### **Anonymous Referee #2**

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#### General comments

Though presenting an interesting topic, I find this article rather disappointing. Whereas the presented case could be interesting to enter into a more general debate on aquifer overexploitation, the motivation for it to be studied (stated to be the most heavily overexploited in Spain without linking it to the production model) is not well developed and generally lacks analysis in its presentation. For it to be considered of scientific added value the article would need a more thorough analysis and considerable editing.

#### Specific comments

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Detail in presentation should be balanced: the author seems to have studied the biophysical aspects of the aquifer well over time and presents an interesting set of hydrogeological and chemical data. However data on management of the water resources are poor and not analyzed. Although announced as a prime example of poor management, the management of the aquifer is not documented and doesn't allow understanding the causes or impacts of overexploitation. It is therefore impossible to link the bad status of the aquifer to poor management practices in a meaningful way and even less to project actions that could lead to sustainable management.

For example: in section 4.2 on 'Excision' (?) of the aquifer it is not clear why the author wants to enter in the flow details of the different created sub-aquifers. A link of location of boreholes (refer to maps) and pumping rates in these areas to the production model (what is the water used for, what is the sustainability of the production model?) would be desirable.

Likewise the analysis of table 1 in section 4.3 is rather poor and lacks a clear argument. Conductivity, salinity and temperature are interlinked and increase with depth. There is however no link to pumping rates and the link between cause and impact of the apparently logical depth profile is not (clearly) presented.

On the other hand the list of indirect impacts in section 3.2.2 is not documented at all and poorly edited. The same occurs in section 5, where a list of internal actions is given without any further analysis.

In the conclusions (section 7, points 5 and 6) the author highlights the recent government change towards one being more in favor of inter-basin transfers as a possible solution for the overexploitation of the aquifer presented. By presenting surface water transfers as necessary to comply with EU WFD requirements, the author completely omits referring to the debate on inter-basin transfers versus non-conventional resources (regenerated, desalinated), be it on demand management and sustainability of the production model as such.

The presentation of a government change as a possible solution to a complex and long lasting groundwater governance problem as final part of the conclusion is rather problematic. There is no analysis whatsoever whether a basin transfer (nor availability of any other additional resources) would effectively alleviate overabstraction of the studied aquifer. Several aquifers in the region suffer similar problems and the provision of additional (alternative) resources has to date not contributed to a recuperation or alleviation of pumping of the aquifers. When making such statements at least the complexity of governing the groundwater resources should be acknowledged. The author touches upon governance issues briefly when mentioning ‘legal questions’ hindering the execution of Water Use Regulation Plans in section 6, however does not give any further explanation.

Finally, and in addition to the comments on correct use of English language by referee#1: some poor translations make the text difficult to understand, some examples: Use of water from ‘rises’(?) (section 5) and use of water from ‘swellings’ (?) (section 7), referring to use of water from flashfloods; . . .the ‘grave’ (?) situation of Spain’s most overexploited aquifer (section 7)

In general the article is poorly presented. In its current state it does not provide the necessary elements to meaningfully discuss the problems of overexploitation of aquifers in semi-arid areas.

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