

## ***Interactive comment on “Relating trends in streamflow to anthropogenic influences: a case study of Himayat Sagar catchment, India” by R. Nune et al.***

### **Anonymous Referee #2**

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The authors have made a good attempt to quantify the impacts of anthropogenic change on stream flow trends in their study area.

The manuscript quality can be improve if the following suggestions are implemented :

1. Discussion about the data should be reduce (3-3.3 one paragraph, 3.4-3.5 in second and 3.6 in third paragraph )
2. What does GL refer to in equation 1 ?
3. Page no 9308 line 5- what is prime factor for the reduced runoff even though C4950

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- rainfall in years from 1995-99 being high?
4. Page no 9309 - I did not see storage in fig.7. What is dm in fig.7 – decimetres? Why the abnormal change in groundwater abstraction between well census data and as per irrigation any reason? Please check fig.7 and the related text.
  5. Page no 9312, line 20 – It is not clear how a reduction in base flows to the river can help to increase the recharge ?
  6. Page no 9312 through to 9314 – the authors claim on page no 9312 that WSD contributes negligibly to recharge and on page 9314 that application of water for irrigation is also a negligible contribution to recharge. If it is true what is benefit of WSD ? Previous studies in India generally suggest that river flows are reduced due to WSD and have reported significant irrigation return flows as well. Hence, if there is no significant trend in rainfall but stream flows are reduced due to WSD (anthropogenic) then what is happening with stored water/applied water? Some explanation of these apparent contradictions is required.
  7. Page no 9309 - groundwater storage is declining at the rate of 6.1mm/yr and in page no 9314 the change in storage is contradictory to this. Please explain?
  8. Were there any significant temperature trends in relation to ET ?
  9. Equation 6 to 11 should be discussed in the methodology section rather than being included in the discussion
  10. The discussion could be improved by examining the interactions and interlinkages of the different water fluxes in discussion and results since the discussion is too constrained to individual components.
  11. Too many figures and tables are used which are not necessary:
    - Tables 3 and 4 can be combined into one table

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- Table 2 could be removed and the observation wells shown in the location map
- Remove Tables 8 and 10 and discuss the main points from these tables within the text at the appropriate place

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 9295, 2012.

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