

## ***Interactive comment on “Combined assessment and regulation on ecological land use and water demand of the river system: a case study in Luanhe River, North China” by D. H. Yan et al.***

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Thanks for the anonymous referee’s kind comments, which are of great help to improve the manuscript. The manuscript with authors of non-English speaker has not been written in simon-pure English. The differences in expression habits lead to misunderstandings of some parts of the manuscript. We will try to solve these problems in a revised version. The specific responses to the comments are as follows: (3) The annual active accumulated temperature is the sum of daily mean temperatures  $\geq$  to the minimum biology temperature (here 10°C). The meteorological information

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comes from a series of observed data of the meteorological stations in the basin. And the value of annual active accumulated temperature changes in a range of 2250 to 4000. (4) Crucial eco-environmental functional areas mean those areas which have important ecological service function and play an important role in maintaining regional ecological safety. At the same time, they are generally of high ecological sensibility and special attention should be given in the ecological land use planning. (6) The values of water demands come from a study of the National Basic Research Program (973) of China carried out in the Haihe River basin. (7) The eco-environmental functional regionalization is carried out basing on some principles such as coordination, selectivity and operation, which are omitted for saving space in the manuscript. (8) The assessment of river ecological land use (section 3.2.5) is carried out basing on the eco-environmental functional regionalization of rivers (section 3.2.4), and the method and result are different for each type of ecological functional area. The results of assessment can be used for government policy makers in planning regional eco-hydrological regulation. Basing on this consideration, the assessment and planning are put into the same section. (9)/(10)/(16) The suitability index is defined in Section 3.2.1 (page 9238, lines 20-24). The curve of suitability index and flow velocity (water depth) is obtained by sampling data of benthic invertebrates. And the similar method was adopted in some related literatures (Thame, 2003 and Lee, 2008). (12) Table 2 refers to the ecological land use planning of all river eco-environmental functional areas. Therefore, the development and utilization areas should be included in the table. (13) The values shown in Table 3 are obtained by the method mentioned in section 3.2.5 (page 9247, lines 19-29 and page 9248, lines 1-7). (15) Though most of the natural preservation areas are distributed along the headstreams of some rivers with outstanding function of water source conservation. However, they also have other important functions, abundant gene pool resources, for example. While water source preservation area generally refers to the area with crucial function of water supply. For an actual basin, the boundary and range of these eco-environmental functional areas are definite. (17) The object of regionalization In Fig.7 is river itself, so the result is

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illustrated by lines. While in Fig.8, the distribution of ecological lands can not be seen clearly in a figure with small proportional scale, although it is illustrated by polygons. (19) The annual runoff comes from a long series of observation data of hydrological stations. The other suggestions will be adopted in the manuscript of a revised version.

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