

This paper develops a method for water allocation between upstream and downstream users, specifically upstream irrigation users and downstream hydropower plants. The method considers two objectives – system economic efficiency and equity regarding water rights - by a two-step procedure. Step one maximizes the system net profit of water use from all users using stochastic dynamic programming and step two calculates financial compensations based on marginal water values derived from step one. Thus the method combines optimization, which is usually too optimistic and unrealistic, with equity policy, which is usually necessary given r existing water management intuition and social consideration. Overall I think this paper is good. I have some comments and suggestions, mostly on technical details. I hope these can help improve the paper but they may not be relevant due to my possible misunderstanding.

1. Please state clearly what “static” and “dynamic” mean in this paper. Does dynamic mean “change with time” or “water use share between irrigation and hydropower”?
2. The methodology description may be reorganized to focus on the central process. SDDP may not be presented as a separately section since the contribution of this paper is not much on SDDP. You may describe the two-step method in general (see my statement above) and then put SDDP and the financial compensation as two sub-section.
3. From the SDDP formulation, I could not figure out how uncertainty in reservoir inflows is represented in the model rather than a lower and upper bound. Did you mean scenarios are generated automatically by SDDP within the given bound? If so, do you assume a normal, uniform or other distribution of the climate scenarios?
4. In the introduction you mentioned the use of “the latest hydrologic information.” It will be very useful if the proposed method assimilates hydrologic forecast with time so it can provide real-time management information. However, I believe the current study is conducted for the planning purpose. You may want to clarify this and some discussion on the extension to real-time management will be interesting.
5. Page 2051, on “at-source” “at-site”, more explanation will be helpful. You state that the at site water values are larger than at-sources ones because of distribution losses, I do not quite understand this.
6. Editorial comments: Table 2 and 3 are too small and can be replaced by text. Table 4 need some notation to explain under what conditions were the numbers obtained; Figure 4 needs some notation on how the CDF is derived, i.e., how are the samples obtained?