Reply to Interactive comment given by prof. Arthur Rahman

We thank to prof. Rahman for his review to our paper and we would like also to thank him for recommended references. We will include them in the literature review of the final manuscript.

Regarding the point 2 of the Interactive comment, the relationship between catchment area and peak discharge has really quite low correlation but it must be considered that catchments included in the analysis vary a lot in other characteristic such as maximum daily precipitation which has a range from about 50 mm to more than 90 mm in case of 10 yrs return period and from about 75 mm to nearly 150 mm in case of 100 yrs return period.

The equations used for estimation of errors (point 3 of the Interactive comment) are as follows:

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n}\left(Q_{obs,i} - Q_{est,i}\right)^2}{n}} \text{ and } MAE = \frac{\sum_{i=1}^{n}\left|Q_{obs,i} - Q_{est,i}\right|}{n}$$

where $RMSE$ is root mean square error (m^3.s^{-1}), MAE is mean average error, $Q_{obs,i}$ is flood discharge in ith catchment, $Q_{est,i}$ is estimated flood discharge in ith catchment and n is the number of catchments involved for the analysis. We will include these equations in the final version as recommended by prof. Rahman.

Bias is not involved in the evaluation because its values, both absolute ($\overline{Q}_{est} - \overline{Q}_{obs}$) as well as relative ($(\overline{Q}_{est} - \overline{Q}_{obs})/\overline{Q}_{obs}$), are negligible due to optimised parameters a_0 and d_0.

The point 5 of the comment points out that there is no match between catchment shape factor and flood discharges which we agree with. This catchment characteristic was involved based on the knowledge about flood forming and references (Murthy, 2002).

The methodology was not yet validated either by leave one out method or by split-sample method (point 6 of the comment). We are going to do this validation within following research. However, simple validation has been done recently one small dataset of 10 catchments for which the data were acquired and which were not involved in the calibration. The preliminary results show slightly worse metrics than for the calibration dataset but it's still within the range of the accuracy of provided official data. We are planning to publish the results of the methodology validation in a further paper and we will include also other validation methods such as those mentioned above.

The interstation correlation (point 7 of the comment) has not yet been considered in our analysis and it is one of topics on which we are going to focus within further research.

The streamflow data (point 8 of the comment) were taken from the publication referred in the paper. These were treated in different ways which is described by referred publication. The differences consist, for example, in the fact that peak discharge values were based on the analog water level record in some cases while in other cases it needed to be estimated based on 8-hour or other point data. In case of discontinuity of measurements, the whole year was excluded from the analysis to avoid involvement of incorrect value. The length of considered discharge measurements was at least 25 yrs

but not reached 100 yrs in any case. This means that 100 years discharge values were obtained by extrapolation which of course brings further uncertainty of the results for the return period of 100 yrs.