We sincerely thank you for your valuable comments on this manuscript. We have tried our best to incorporate all your suggestions. Detailed answers to the specific questions are given in the following paragraphs.

Comment 1: Page 2, the main objective of the manuscript is presented in lines 10-12. However, there are repeated detailed objectives below. I would suggest a more clear structure for the Introduction section.
Response 1: As suggested by the reviewer, we have removed lines 10 – 12 in page 2 to avoid any repeatition.

Comment 2: As for R in RUSLE, is it a rainfall and runoff erosivity factor according to the original model concept?
Response 2: Yes, R factor is used as rainfall and runoff erosivity factor according to the original model concept proposed by Wischmeier and Smith (1978). We have quantified R factor using the relationship between average annual rainfall amount (p) and rainfall & runoff erosivity factor (R) proposed by Babu et al. (1978) based on observed data over India.

Comment 3: In page 5, line 26, the discharge and sediment load records for 16 years are available at the stations. The manuscript should give more details on model calibration and validation.
Response 3: Monthly discharge and sediment load for 16 years and average sedimentation rate for 40 years are available at Husepur gauging station (HGS) & Nanak Sagar dam (NSD), respectively. We have not performed any calibration for the model but used the parameter values available in the literature. The model was validated by the available sediment yield records at both the stations (HSG & NSD), and the results for the same are given in Figure 8, page 31.

Comment 4: There is a large reservoir built in 1962, which may play an imporant role in sediment trapping. The sedimentation rate data can be used for sediment yield calibration. The SDR should also consider the effect of reservoir trapping, though the model is empirical.
Response 4:

- **(a)** Yes, our results also suggest that the NSD reservoir traps a significant portions of eroded sediment (6.4 x 10^5 tones/year; ~10% of the sediment yield at the basin outlet).
- **(b)** We have used the equation given by Sharda & Ojasvi (2016) for North Indian rivers to account for sediment trapping at the reservoir in the sediment yield estimation.
- **(c)** As rightly suggested by the reviewer, sediment yield estimate should consider the reservoir trapping. In this work, gross soil erosion for the Garra basin is estimated by extracting the area covered by the reservoir. It is called as gross soil erosion for free basin area (total basin area – reservoir basin area; Sharda and Ojasvi, 2016), which was used along with SDR to estimate sediment yield at the basin outlet. The SDR estimation, however, uses total basin area because the reservoir only traps the sediment but water always flows through it. In other words, at the reservoir outlet, this system is hydrologically connected but sediment connectivity is poor.

Comment 5: When compared the annual rainfall and rainfall erosivity, I found the R factor is much lower than the regions with similar rainfall amount, I doubt the proposed the method for R estimation. As well, the very coarse rainfall data might be the dominant factor influencing the simulation results, rather than the R factor itself.
Response 5: In this study, we selected equation proposed by Babu et al. (1978) that was developed using observed rainfall data at various meteorological stations in India (Eq. a in Table

2). This equation is based on the linear regression between annual average rainfall amounts and R factor. It is possible that this equation under-estimates the R factor due to its simplification. Also, due to unavailability of rainfall intensity data during the study period, we could not apply intensity based R factor calculation. However, Babu et al. (1978) equation has been widely used for soil erosion predictions in the Indian region (Jain et al, 2010; Kumar et al, 2014; Dutta et al, 2015). Since the aim of this study is to assess uncertainty using easily available datasets and most commonly used equations, we have selected Babu et al's approach for computing R factor and assessing corresponding uncertainties.

Comment 6: Soil map is rough too, I would suggest to do a field survey for sampling, or obtain a relative detailed soil data.
Response 6: We have used National Remote Sensing Center (NRSC) soil data (1:50,000; 25 m), described in Table 1, page 23. This is the finest resolution soil dataset available for this region and is based on extensive field validation. Given the size of the basin, independent field survey would be a bit complicated to replicate this available dataset. We have re-classified the soil map into soil textural classes namely loam, sand and sandy loam (Figure 2 (c), page 26) for visualization, which is why it looks "rough". The actual dataset has 11 soil classes (shown in Figure 1(b) below) and K factor is estimated for each class.

Comment 7: As for LS factor, the maximum value is around 2500, this is extremely high due to the high gradients. This means the LS factor may be overestimated for the steep area, since the RUSLE model was originally developed for estimating soil erosion in relative gentle arable land.
Response 7: Yes, the LS factor can not be so high. We made a mistake in plotting the LS values. Figure 1 (a) below shows the correct values of LS factor. The maximum value of LS factor in the study region is 53. Since it was a plotting error, it has no effect on the subsequent results. We have updated this figure in the revised version of the manuscript.

Comment 8: When I saw the data listed in Table 2, the resolution for different data may cause high uncertainties for modeling results. The resolution of the spatial data highly influence the data quality, such as LS factor, K-factor, C and P factor.
Response 8: The limitation of the datasets arising due to their coarser resolution are explained in the "Limitation" section, page 13. Yes, the coarse resolution datasets may induce uncertainty in modelling results.

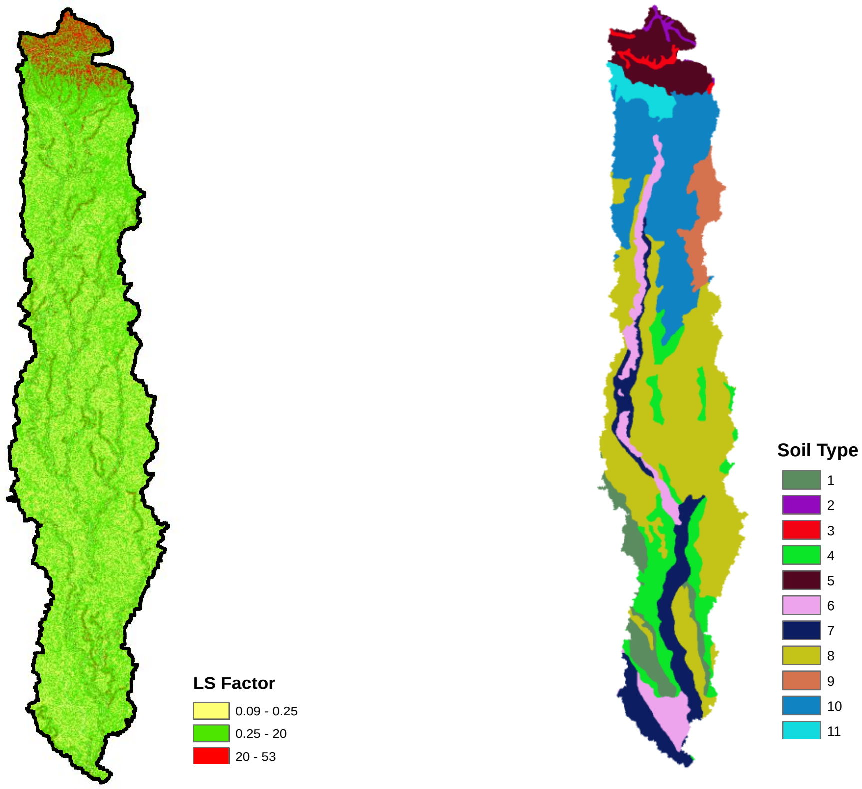

Figure 1 (a) Modified LS factor (b) Soil class map

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