



**SDI Review Form 1.6**

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| Journal Name:            | <a href="#">Asian Journal of Environment &amp; Ecology</a>                                                                                       |
| Manuscript Number:       | Ms_AJEE_43015                                                                                                                                    |
| Title of the Manuscript: | Assessment of Water Quality of Most Polluted Area of Karnaphuli River, Bangladesh, Using Multivariate Analysis and Pollution Evaluation Indices. |
| Type of the Article      | Original Research Article                                                                                                                        |

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

**PART 1: Review Comments**

|                                     | Reviewer's comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>Compulsory</b> REVISION comments | <p>Having revised the manuscript '<i>Assessment of Water Quality of Most Polluted Area of Karnaphuli River, Bangladesh, Using Multivariate Analysis and Pollution Evaluation Indices</i>' several concerns are outlined below:</p> <ul style="list-style-type: none"> <li>Authors claim to have investigated water quality along the <u>most polluted domains</u> of Karnaphuli river and further apportion different industries such as: cement, sugar, food, ice and chemical processing industries into 5 zones in the body of the text, but these are not reflected in the map (Figure 1) apart from ice industry. Hence, it is very unclear why they only selected Fe, Mn, Ni and Zn as priority metal pollutants. Each industry should be aligned to the respective sampling stations for better understanding of the various inputs.</li> <li>In figure 1 (map of study location), river areas close to East Refinery along Patenga road should be a potentially contaminated region; however, authors did not take any sample from such location as shown in the map, why?</li> <li>Reference 19 (Kangabam <i>et al.</i>, 2017) used to cite the determination of COD, BOD, sulphate and chloride is unsuitable. Details of these methods are absent in the referred material and no further information is provided beside the name of the standard methods. No one knows the wavelength of their spectrophotometric method for sulphate, nor the chemistry of their titrimetric method for chloride. Authors should provide references containing detailed description of their methods.</li> <li>Reference number 7 (Chakraborty <i>et al.</i>, 2013) used by authors to cite the determination of heavy metals by AAS is misleading, as this article NEVER mentioned anything about AAS, authors in the referred paper (Chakraborty <i>et al.</i>, 2013) are completely silent on the instrument they used for their heavy metal analysis. Authors should correctly describe where they got their information and the preparatory stage of their digested samples prior to determination should be adequately explained, including the models of the instruments used for <i>in situ</i> physicochemical studies.</li> </ul> | <p>I have added the sampling site information in Table 1 in details. And in figure 1 I have added the sample code which is also traceable in table 1 also.</p> <p>I have selected a sample that was very close to this site. But I didn't go further downstream because in the sea estuary there have always a possibility to dilution of pollutant by sea water.</p> <p>I have updated the reference in revised manuscript. It is indicated by yellow mark in revised manuscript.</p> <p>I have updated the reference in revised manuscript. It is indicated by yellow mark in revised manuscript.</p> |



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|  | <ul style="list-style-type: none"> <li>Authors have not stated how they determined hardness, total suspended solids (TSS) and turbidity in the river. Besides, the results of total suspended solids displayed a strange trend with turbidity. It is generally known that highly turbid water is caused by increased suspended solids. However, in the reported data, water location (station 4) with the highest turbidity (58.54 ±0.02 NTU had the lowest suspended solids), what explanation does the authors have to give to this?</li> <li>Lines 58 and 59 contain the following inconclusive statement that leaves readers hanging '<i>Beside WQI, Comprehensive Pollution Index (CPI) is also used to evaluate the water quality which is also</i>' this statement should be double checked for completeness.</li> <li>Besides the two models WQI and CPI, authors should compare all data in table 2 with international standards and/or any other standard for surface water in their country to check whether they agree with the results of the models, as they reported that '<i>all metal levels were found to be below the harmful level</i>' the standard used for this assessment should be reported.</li> <li>The basis utilized for the assessment of WQI should be consistent with the overall assessment of the water quality. In lines 133 and 134, the bases were outlined as: <i>0-0.20 (excellent); 0.21-0.4 (good); 0.41-1.00 (slightly polluted); 1.01-2 (moderately polluted) and ≥2.01 (severely polluted)</i> but the authors description of the overall results '<i>(...40% of the 187 sampling area of Karrnaphuli River had <u>bad quality water</u> and 40% sampling area had <u>low quality water</u>.)</i>' are different from the outlined basis, which leaves one wondering what the WQI range of bad quality and low quality are.</li> <li>The statement made in lines 205-207, ('<i>From the correlation data it is very clear that, both BOD and Cod had strong positive correlation (0.957) but both BOD and COD had a strong negative correlation (-0.827 &amp; -0.724 respectively)</i>') is misleading. Both parameters cannot be positively and negatively correlated with each other at the same time. Authors should double check.</li> <li>Source apportionment discussed in this study mainly focuses on the physicochemical parameters. Nothing is discussed about the metal levels in relation to the industries. Which of the industries is suspected to be a major contributor to metal contamination? Why? and which of the metals? If none, then why did the authors suspect metal contamination?</li> <li>Referencing style is inconsistent with the journal's format. Authors should download recent articles of this journal and strictly adhere to the formatting guidelines, taking note of punctuations, spacings, abbreviation pattern and where the year of publication is inserted as these are very inconsistent with the guideline at its present state.</li> <li>Table style is inconsistent with the journal's format (authors please check recently published articles of this journal).</li> <li>There is no satisfactory discussion on the correlation of the physicochemical parameters with respect to the aligned industrial locations. For example, In the discussion, authors said that '<i>The positive correlation of pH with Fe and Ni indicates that their availability in water is somehow controlled by pH whereas negative correlation pH with Mn and Zn indicates that there are some other factors responsible for their accumulation in water body</i>' Authors should consider re-phrasing this statement. For instance, It is established that at low pH, metals will highly be solubilized making it more bioavailable</li> </ul> | <p>I have made the correction. In case of Turbidity result there was a mistake in value. I have made the correction in revised manuscript.</p> <p>I have made the correction. It is indicated by yellow mark in revised manuscript.</p> <p>I have added the both the national and international standard data in Table 2.</p> <p>The basis you mentioned is for CPI not for WQI. There have a difference between WQI and CPI range. I think this is right.</p> <p>I have made the correction. It is indicated by yellow mark in revised manuscript.</p> <p>Actually heavy metals concentrations re very much lower in amount that's why it may completely from natural activities. I have added in the manuscript.</p> <p>I have made the correction.</p> <p>I have redrawn the Table according to journal format.</p> |
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|                                  | <p>for uptake by organisms such as fishes in the water. Therefore, <b>negative</b> correlation of pH with Mn and Zn implies that at low pH, more of the metals will be solubilized and becomes readily available for uptake by the organisms than with iron and nickel having <b>low positive</b> correlation with pH. Therefore, fishes along station 3 -5 having acidic pH should be at higher risk of manganese and zinc contamination than those at stations 1 and 2. This should be discussed in relation to the fish processing zone which the author indicated.</p> <p>Also, strong negative correlation of BOD and COD with DO could indicate significant microbial activity which restricts the availability of oxygen within this location. Zinc and manganese have significant positive correlation with chloride indicating increased tendency of forming soluble salts which may have significant influence on pH, TDS as well as salinity.</p> <p>In the results, sulphate has significant negative correlation with temperature, this plays significant role during microbial degradation of such compounds (see Dahunsi et al., 2014 at <a href="https://prog.lmu.edu.ng/colleges_CMS/document/books/Dahunsi%2021.pdf">https://prog.lmu.edu.ng/colleges_CMS/document/books/Dahunsi%2021.pdf</a></p> <p>Besides provision of adequate references utilized in the methodology which may have been an oversight.</p> | I have update the required information. It is indicated by yellow mark in revised manuscript. |
| <b>Minor</b> REVISION comments   | <p>Line 160, authors used <b>Do</b> instead of DO</p> <p>Line 188 authors used <b>sapling</b> instead of sampling, please re-check.</p> <p>Line 206, authors used <b>Cod</b> instead of COD, please re-check.</p> <p>Line 207, authors used <b>OCD</b> instead of COD. Please double check.</p> <p>Line 172 contain the statement '<b>Men with different letters in rows (a, b, c, d, e) are significantly different (P&lt;0.05)</b>' I think authors intended saying <b>Mean values with different letters...</b>, authors please re-check.</p> <p>Lines 44-45 containing the statement '<b>The effluents of different industries contain organic matter along with pathogens which <u>occurs</u> life <u>killing</u> diseases</b>'.</p> <p><b>Occurs</b> should be replaced with <b>cause</b> and <b>killing</b> with <b>threatening</b></p> <p>There are several other grammatical errors in the manuscript. Authors can make use of English language tools online to aid them in checking some of these errors, without sacrificing the scientific integrity of the work.</p>                                                                                                                                                                                                                                                                                                                                                 | I have made the correction. It is indicated by yellow mark in revised manuscript.             |
| <b>Optional/General</b> comments | <p>This study contains useful information for assessing the quality status of the said river. However, at its present state, it is highly unacceptable, but with proper revision including map restructuring, re-assessment of methodology with proper referencing, strict adherence to the journal's formatting guidelines and proper discussion of some of the outlined points in relation to the industries, it will be very useful for further investigations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | I have update the necessary information and made the required change.                         |

**PART 2:**

|                                              | Reviewer's comment                                                    | Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here) |
|----------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Are there ethical issues in this manuscript? | (If yes, Kindly please write down the ethical issues here in details) |                                                                                                                                                                               |