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Conclusion

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6. CONCLUSION AND FUTURE ASPECTS

In the present work, characteristics of water, soil, industrial waste and their probable relationship with human health was analysed. The following conclusions were inferred from the present work.

1. High concentration of *TDS, EC* and *iron* in both surface and sub-surface was observed and the highest level was noted near the industrial estates. *pH* was within the desirable limit in the study area.
2. During pre-monsoon, the average level in both surface and sub-surface water was below desirable limit (45 mg/l) while after the rainfall the concentration was above this limit.
3. During the entire time period, higher concentration of *magnesium, calcium, sodium* and *potassium* were confined near the industrial estates.
4. *Lead, mercury* and *fluoride* in surface water were below detectable limit throughout the time period.
5. High *nitrite* concentration in soil was observed near GSFC. After the rains the level of *nitrite* in the soil reduced.
6. Significant role of rainfall was observed in the seasonal variability of the parameters of water and soil.

7. Positive correlation existed between parameters in different season.
8. Clayey soil was dominant in the study area.
9. River Mini and the industrial waste play a significant role in controlling the concentration of *iron* and *nitrite* in soil. The level of these parameters in sub-soil was higher downstream.
10. A decrease in concentration of *iron* and *nitrite* with the increase in depth was evident.
11. Negative relationship existed between sand percentage and concentration of iron. While positive correlation was observed between nitrite level and clay percentage.
12. The number of industrial waste disposal sites increased from 2007 to 2015 in the study area and the maximum was noted at *Nandesari* GIDC followed by IPCL industrial estate.
13. High concentration of *TDS, EC* and *iron* were observed nearer to the waste disposal sites.
14. 6.65% of the total area was highly suitable for industrial waste disposal and was identified in the north and south-western part.
15. More than 50% of the surveyed population was affected by one or more diseases.
16. Dental, general problems (dullness, dizziness and skeletal problems), eye and ear and hair problems were common in the study area.
17. The incidence of various diseases was higher (60%) in females than their counterpart (40%). Most of adult population suffered from dental problem whereas dominance of hair problems was noted in younger ages.
18. Lowest prevalence rate was observed in highest income group. Labourers were the most affected population than the people of other occupation. The prevalence rate of illiterate population was 93.40%. Overweight population depicted the highest prevalence rate (97.15%)
19. Comorbidity with occurrence of two diseases was common in the study area.

20. Positive correlation was noted between parameters of *TDS, magnesium, calcium, sodium* and *potassium* and the prevalence rate.
21. Socio economic factors (income, occupation, education, sources of drinking water, gender, marital status, age and BMI) influence the prevalence rate of diseases. Age, gender and sources of drinking water were the most significant factors.

The present work can be extended by:

1. Analysing more geochemical parameters which can give further information about the water and soil quality.
2. Consideration of more factors for the occurrence of diseases that can represent precise reason for the incidence of diseases.