

Environmental Change in Coastal Region of West Bengal: A District Level Study

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Abstract: *The 21st century experiences a rapid pace of urbanization in the world and especially in the developing countries like- India. More than half of the world's population lives in cities and towns that symbolize the unprecedented growth of urbanization. This very urbanization is coupled with social, economic, spatial and environmental impacts and challenges. Though higher rate of urbanization seems to be positive sign for economic development and overall prosperity of the regions. Contemporary urbanization in developing regions means inadequate basic infrastructural amenities, substandard housing, overcrowding, depletion of green spaces, inadequate transport facilities, and non-compliance with building bye-laws and planning regulations. This leads to multiple and serious environmental problems in the form of pollution, deforestation, wet land destruction, erosion and flooding, urban sprawl, slums and squatter settlements, and aesthetic degradation which all have adverse impacts on human's well-being. Similar kinds of impacts are visible not only in the interior parts of the country but also in the coastal zones where urban places are facing multiple challenges and ecological crisis as well. The present study focuses on the development and environment in the coastal region (including districts East Medinipur and South 24-Parganas) of West Bengal, a state with 31.87 percent level of urbanization as per Census of India 2011. Since this study is in preliminary phase, there has been made an attempt to provide an overview on the quality of life and environmental conditions in the coastal region. Present study is based on secondary source of data and information, and tries to address the following objectives: a) to examine the urbanization- environment relationships and its consequences in the coastal areas, and b) to identify and explore the emerging issue areas and concerns in the coastal region of the state.*

Keywords: Urbanization, development, environmental, substandard, human's well-being, pollution, overcrowding, deforestation

BIBLIOGRAPHY

- [1]. Aburas, M. M., Abdullah, S. H., Ramli, M. F., & Ash'aari, Z. H. (2015). Measuring Land Cover Change in Seremban, Malaysia Using NDVI Index. *Procedia Environmental Sciences*, 30, 238–243. <https://doi.org/10.1016/j.proenv.2015.10.043>
- [2]. Basara, J. B., Basara, H. G., Illston, B. G., & Crawford, K. C. (2010). The Impact of the Urban Heat Island during an Intense Heat Wave in Oklahoma City. *Advances in Meteorology*, 2010, 1–10. <https://doi.org/10.1155/2010/230365>
- [3]. Bera, A. (2013). Impact of Tourism on Coastal Ecology in the Coastal Region of Digha (West Bengal). *International Journal of Science and Research (IJSR)*, 4 (6), ISSN (Online), 2319-7064, www.ijsr.net
- [4]. Firoozi, F., Mahmoudi, P., Jahanshahi, S. M. A., Tavousi, T., Liu, Y., & Liang, Z. (2020). Modeling changes trend of time series of land surface temperature (LST) using satellite remote sensing productions (case study: Sistan plain in east of Iran). *Arabian Journal of Geosciences*, 13(10). <https://doi.org/10.1007/s12517-020-05314-w>.
- [5]. Gandhi, G. M., Parthiban, S., Thummalu, N., & Christy, A. (2015). Ndvi: Vegetation Change Detection Using Remote Sensing and Gis - A Case Study of Vellore District. *Procedia Computer Science*, 57, 1199–1210. <https://doi.org/10.1016/j.procs.2015.07.415>

- [6]. Gao, B.C. (1996) NDWI - a Normalized Difference Water Index for Remote Sensing of Vegetation Liquid Water from Space. *Remote Sensing of Environment*, 58, 257-266
- [7]. Ghaleb, T. A., & Mohammed, S. (2015). A Dynamic Labeling Scheme Based on Logical Operators: A Support for Order-Sensitive XML Updates. *Procedia Computer Science*, 57, 1211–1218. <https://doi.org/10.1016/j.procs.2015.07.416>.
- [8]. Hardle, W., & Vieu, P. (1992). Kernel Regression Smoothing of Time Series. *Journal of Time Series Analysis*, 13(3), 209–232. <https://doi.org/10.1111/j.1467-9892.1992.tb00103.x>
- [9]. Hemantkumar A.C., Parthasarathy, D. and Pattanaik, S. (2017). Urban development, environmental vulnerability and CRZ violations in India: impacts on fishing communities and sustainability implications in Mumbai coast. *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development*, 19 (3-12), 985.
- [10]. ICZM. (2010). Integrated Coastal Zone Management Project, West Bengal. *Institute of Environmental Studies and Wetland Management*.
- [11]. Kara, B., Esbah, H. and Deniz, B. (2013). Monitoring and Analyzing Land Use/Land Cover Changes in a Developing Coastal Town: A Case Study of Kusadasi, Turkey. *Journal of Coastal Research*, 29 (6), 1361–1372. <https://doi.org/10.2112/JCOASTRES-D-11-00140.1>
- [12]. Kayet, N., Pathak, K., Chakrabarty, A., & Sahoo, S. (2016). Spatial impact of land use/land cover change on surface temperature distribution in Saranda Forest, Jharkhand. *Modeling Earth Systems and Environment*, 2(3), 1–10. <https://doi.org/10.1007/s40808-016-0159-x>.
- [13]. Kumar, P., Husain, A., Singh, R. B., & Kumar, M. (2018). Impact of land cover change on land surface temperature: A case study of Spiti Valley. *Journal of Mountain Science*, 15(8), 1658–1670. <https://doi.org/10.1007/s11629-018-4902-9>.
- [14]. Liu, X., Yue, W., Yang, X., Hu, K., Zhang, W., & Huang, M. (2020). Mapping Urban Heat Vulnerability of Extreme Heat in Hangzhou via Comparing Two Approaches. *Complexity*, 2020. <https://doi.org/10.1155/2020/9717658>
- [15]. Malik, M. S., Shukla, J. P., & Mishra, S. (2019). Relationship of LST, NDBI and NDVI using landsat-8 data in Kandahimmat watershed, Hoshangabad, India. *Indian Journal of Geo-Marine Sciences*, 48(1), 25–31.
- [16]. Mathieu, J. E., & Zajac, D. M. (1990). A Review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, 108(2), 171–194. <https://doi.org/10.1037/0033-2909.108.2.171>
- [17]. Mavris, C. (2016). Sustainable Environmental Tourism and Insular Coastal Area Risk Management in Cyprus (ITALY). *Journal of Coastal Research*, 61, 317-327.
- [18]. Meng, X., Cheng, J., Zhao, S., Liu, S., & Yao, Y. (2019). Estimating land surface temperature from Landsat-8 data using the NOAA JPSS enterprise algorithm. *Remote Sensing*, 11(2). <https://doi.org/10.3390/rs11020155>
- [19]. Mitra, S., Santra, S.A., & Mitra, D. (2013). Change detection analysis of the shoreline using Toposheet and Satellite Image. A case study of the coastal stretch of Mandarmani-Shankarpur, West Bengal, India. *International Journal of Geomatics and Geosciences*, 3(3).
- [20]. Mohanty, P. K., Panda, U. S., Pal, S. R., & Mishra, P. (2008). Monitoring and management of environmental changes along the Orissa Coast. *Journal of Coastal Research*, 24(2 SUPPL. B), 13–27. <https://doi.org/10.2112/04-0255.1>.
- [21]. Nasser Mohamed Eid, A., Olatubara, C. O., Ewemoje, T. A., Farouk, H., & El-Hennawy, M. T. (2020). Coastal wetland vegetation features and digital Change Detection Mapping based on remotely sensed imagery: El-Burullus Lake, Egypt. *International Soil and Water Conservation Research*, 8(1), 66–79. <https://doi.org/10.1016/j.iswcr.2020.01.004>
- [22]. Ning, J., Gao, Z., Meng, R., Xu, F., & Gao, M. (2018). Analysis of relationships between land surface temperature and land use changes in the Yellow River Delta. *Frontiers of Earth Science*, 12(2), 444–456. <https://doi.org/10.1007/s11707-017-0657-9>

- [23]. Rahdary, V., Soffianian, A., Najfabdai, S. M., Khajeddin, S. J., & Pahlavanravi. (2008). Land use and land cover change detection of Mouteh Wildlife Refuge using remotely sensed data and Geographic Information System. *World Applied Sciences Journal*, 3(1), 113–118.
- [24]. Roy, M. (2020). Coastal Tourism and Environment Issues of Concern and Sustainability: A Case Study in Digha, West Bengal, India. *Journal of Water Pollution & Purification Research*, 7(3), 6-12, ISSN: 2394-7306. www.stmjournals.com
- [25]. Sarp, G. (2012). Determination of Vegetation Change Using Thematic Mapper Imagery in Afşin-Elbistan Lignite Basin; SE Turkey. *Procedia Technology*, 1, 407–411. <https://doi.org/10.1016/j.protecy.2012.02.092>
- [26]. Schober, P., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia and Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.000000000000286>
- [27]. Senthilnathan, S. (2019). Usefulness of Correlation Analysis. *SSRN Electronic Journal*, July. <https://doi.org/10.2139/ssrn.3416918>.
- [28]. Sruthi, S., & Aslam, M. A. M. (2015). Agricultural Drought Analysis Using the NDVI and Land Surface Temperature Data; a Case Study of Raichur District. *Aquatic Procedia*, 4(Icwrcoe), 1258–1264. <https://doi.org/10.1016/j.aqpro.2015.02.164>
- [29]. Tarafder, S and Jana, N.C. (2014). Tourism in Coastal West Bengal of India: Issues, Opportunities, and Challenges. *International Journal of Current Research*, 6(7), 7358-7364. Available:<http://www.journalcra.com/sites/default/files/issue-pdf/5727.pdf>
- [30]. Tzavali, A., Paravantis, J. P., Mihalakakou, G., Fotiadi, A., & Stigka, E. (2015). Urban heat island intensity: A literature review. *Fresenius Environmental Bulletin*, 24(12B), 4537–4554.
- [31]. Unger, J., Savić, S., & Gál, T. (2011). Modelling of the Annual Mean Urban Heat Island Pattern for Planning of Representative Urban Climate Station Network. *Advances in Meteorology*, 2011, 1–9. <https://doi.org/10.1155/2011/398613>
- [32]. Xue, J., & Su, B. (2017). Significant remote sensing vegetation indices: A review of developments and applications. *Journal of Sensors*, 2017. <https://doi.org/10.1155/2017/1353691>
- [33]. Yuan, F. (2008). Land-cover change and environmental impact analysis in the Greater Mankato area of Minnesota using remote sensing and GIS modelling. *International Journal of Remote Sensing*, 29(4), 1169–1184. <https://doi.org/10.1080/01431160701294703>
- [34]. Zhao, J. (2013). The impact on Personality knowledge sharing of personality traits: organizational trust as intermediary variable. *Information Studies:Theory & Application*, 36(5),34–38. <http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=6374394 &site=ehost-live>