

# Environmental Technology & Science Journal

Vol. 10 Issue 1

December 2019

## Aim and Scope

The Environmental Technology and Science Journal (ETSJ) is devoted to the publication of papers which advance knowledge of practical and theoretical issues that daily plague our society. The aim of the journal is to provide an avenue for the dissemination of academic research findings from various disciplines of the environment, engineering, pure and applied sciences, arts and social science which have materials that emphasize on environmental issues.

## ETSJ Policy

ETSJ prohibits an author from submitting the same manuscript for concurrent consideration in two or more publications. The author must ensure that when a manuscript is submitted to ETSJ, the manuscript must be an original work. The Author should check the manuscript for any possible plagiarism using any program such as TURNITIN or any other software before submitting the manuscripts to ETSJ. Authors are not permitted to add or remove any names from the authorship provided at the time of initial submission without the consent of the Journal's Editor-in-Chief.

## Guide for Authors

Please read the guidelines and follow the instructions carefully; doing so will ensure that the publication of your manuscript is as rapid and efficient as possible. The Editorial Board reserves the right to return manuscripts without review that are not prepared in accordance with these guidelines.

1. Manuscripts should not be more than 15 pages of A4 paper size (including abstracts, tables, figures, references and appendices) typed in double spacing, times new roman and font size 12. Additional fee of two thousand (N2000) Naira will be charged for every additional page in excess of 15 pages.
2. Each paper must be compiled in one column; all text should be left and right justified. The page settings to be 25cm (1 inch) each for the top, bottom, left and right margins of an A4 paper. Decimal numbering of all sections of the article is recommended (with the exception of the reference and acknowledgement sections).
3. To ensure anonymity in the peer reviewing process, articles must be structured in such a way that the title of the paper, authors' names, address, and affiliation are written on the first page, followed by abstract and the body of the paper in that order.
4. Each article should contain an abstract of not more than 300 words.
5. Each article should contain between 5 and 7 key words (avoid use of phrases).
6. Use the SI (*Système Internationale*) units and symbols, while Unusual Characters and symbols should be explained in a list of nomenclatures.
7. The journal's referencing style is the APA format.
8. Figures, Tables and Graphs are to be placed at the appropriate places in the paper and not at the end of the paper.
9. Acknowledgement is optional, except for researches being funded through research grant awards.
10. Authors should avoid using headers, footers and special page breaks within the manuscripts.
11. The manuscript is to be sent via electronic means to: [etsj@futminna.edu.ng](mailto:etsj@futminna.edu.ng) for a blind peer review, which under normal circumstance will not exceed 4 weeks, after which the status of the article will be communicated to the Author(s).
12. Author(s) with positive review will be asked to effect corrections or revisions after which the camera-ready manuscript is to be emailed to [etsj@futminna.edu.ng](mailto:etsj@futminna.edu.ng) and to be accompanied by evidence of payment of publication fee.

13. The Editorial board is not responsible for the information or views expressed by the author(s).
14. The copyright of this journal belongs exclusively to the Editorial Board of Environmental Technology and Science Journal. No part of the publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior permission of the School of Environmental Technology, Federal University of Technology, Minna-Nigeria or a licence permitting restricted copying.

## Frequency of Publication

The journal is published twice a year in June and December

## Subscription Details

The 2019 subscription rates for hardcopies of the journal including postage are:

Individual within Nigeria: N2,000 per copy and N1,000 for postage

Individual outside Nigeria including postage \$ 100

Institution within Nigeria: N5,000 per copy and N1,000 for postage

Institution outside Nigeria including postage: \$ 150

## Correspondence

All correspondence should be addressed to

The Managing Editor

Environmental Technology & Science Journal

SET, FUT, Minna, Nigeria

Email: [etsj@futminna.edu.ng](mailto:etsj@futminna.edu.ng)

Phone: +234 805 170 3663, +234 803 653 4507

## Published By

School of Environmental Technology, Federal University of Technology,  
Minna-Nigeria

## Managing Editor

**Prof R. A. Jimoh**

Department of Building,  
Federal University of Technology,  
Minna, Nigeria

## Editorial Secretary I

**Dr B. O. Ganiyu**

Department of Quantity Surveying,  
Federal University of Technology,  
Minna, Nigeria  
+234 803 626 9235

## Editorial Secretary II

**Dr E. B. Ogunbode**

Department of Building,  
Federal University of Technology,  
Minna, Nigeria  
+234 806 328 6122

## Editorial Committee

**Dr A. D. Adamu**

Department of Quantity Surveying,  
Federal University of Technology,  
Minna, Nigeria

**Dr I. C. Onuigbo**

Department of Surveying &  
Geoinformatics,  
Federal University of Technology,  
Minna, Nigeria

**Dr O. A. Kemiki**

Department of Estate Management  
and Valuation,  
Federal University of Technology,  
Minna, Nigeria

**Dr P. Ayuba**

Department of Architecture,  
Federal University of Technology,  
Minna, Nigeria

**Dr J. E. Idiake**

Department of Quantity Surveying,  
Federal University of Technology,  
Minna, Nigeria

**Dr A. Kawu**

Department of Urban & Regional  
Planning,  
Federal University of Technology,  
Minna, Nigeria

**Dr I. B. Muhammad**

Department of Architecture,  
Federal University of Technology,  
Minna, Nigeria

## Editorial Advisers

**Prof R. E. Olagunju**

Department of Architecture,  
Federal University of Technology,  
Minna, Nigeria

**Prof (Mrs) S. N. Zubairu**

Department of Architecture,  
Federal University of Technology,  
Minna, Nigeria

**Prof A. M. Junaid**

Department of Urban & Regional  
Planning,  
Federal University of Technology,  
Minna, Nigeria

**Prof Y. A. Sanusi**

Department of Urban & Regional  
Planning,  
Federal University of Technology,  
Minna, Nigeria

**Prof D. A. Muazu**

Department of Building,  
Federal University of Technology,  
Minna, Nigeria

**Prof I. O. Aje**

Department of Quantity Surveying,  
Federal University of Technology,  
Akure, Nigeria

**Prof B. T. Aluko**

Department of Estate Management,  
Obafemi Awolowo University,  
Ile-Ife, Nigeria

**Prof P. C. Nwilo**

Department of Surveying &  
Geoinformatics,  
University of Lagos,  
Lagos, Nigeria

**Prof U. O. Nkwogu**

Department of Architecture,  
Imo State University,  
Owerri, Nigeria

## Editorial

This year's World Cities Day theme was "Changing the world: innovations and better life for future generations". The situation in Africa is gloomy; by 2050, report has shown that an estimated 2.5 billion people will be added to urban areas, and it is expected that 90% of this growth will be in Africa and Asia. If well co-ordinated, the cities in Africa are supposed to be the hub for driving the economic growth resulting in poverty reduction. However, Africa is yet to tap maximally from the benefits of rapid urbanisation experienced in developed countries. Instead we are bogged down by inadequate infrastructure, climate change, housing deficit, spiralling unemployment, myriad health challenges among other issues. Welcome to volume 10, issues 1 and 2, December 2019 edition of Environmental Technology & Science Journal (ETSJ). There are 13 articles in this issue where diverse and topical issues are interrogated by our contributors. We may not be able to shout *eureka* yet but the narrative is changing.

Adegbile *et al.* in the 1<sup>st</sup> paper on the influence of Housing Attributes on Housing Satisfaction in Selected Residential Areas of Ogun State recommended that policy makers, housing developers and the professionals should put these attributes into consideration while providing housing for the people.

In the 2<sup>nd</sup> paper by Adebisi *et al.*, it assessed the operational energy performance of three administrative office buildings in tertiary institutions in Niger State. The need for effective monitoring of energy consumption by sub-metering and auditing of buildings in tertiary institutions and orientation was advocated.

Extant studies affirmed that adequacy of hostel facilities affect the academic performance of students residing in hostel according to Adama *et al.* in the 3<sup>rd</sup> paper. Although, most Nigerian tertiary institutions are characterised by inadequate hostel facilities. This study was conducted to assess the effect of availability and serviceability of hostel facilities on students' academic performance at the Federal University of Technology Minna, Gidan Kwano Campus. The study recommended that the institution should ensure that adequate student accommodation facilities are provided in serviceable condition to further enhance student learning and good performance.

An experimental study was carried out by Anum *et al.* in the 4<sup>th</sup> paper to investigate the flexural strength characteristics of grades M25 and M50 concretes prepared using the BRE mix design method. It was concluded that there will be significant reduction of reinforcements in tension of structural members subjected to bending with the modified concrete, especially where light weight is desired.

The 5<sup>th</sup> paper by Amuda-Yusuf *et al.* identified the barriers to e-tendering adoption leaning upon Technology, Organisational, and Environment (TOE) framework and innovation diffusion theory. The authors stated that the findings will enable policy makers and other industry players to understand the barriers to the implementation of e-tendering adoption and develop strategies to overcome them.

Ali *et al.* in the 6<sup>th</sup> paper appraised the financial investment in knowledge management (KM) practices with a focus on Quantity Surveying (QS) firms. QS firms' were urged to adopt knowledge management (KM) practices because the level of financial investment on KM practices in QS firms was moderate.

Water supply to most communities in most parts of the world has suffered serious setbacks as a result of human activities. Based on this, Awaisu *et al.* in the 7<sup>th</sup> paper assessed the water quality from different water sources for domestic use during the rainy season in Nasarawa Local Government Area Nasarawa State. The paper suggested that open wells should be lined with cement with level of cover above ground level to avoid surface runoff of pollutant especially during the rains.

The concept of enhancing the efficiency of traditional buildings using a conceptual design approach was discussed by Alao and Ogunbode with particular emphasis on redirecting load paths, moment redistribution and eliminating design flaws in the 8<sup>th</sup> paper. The paper showed that conceptual design and re-design can improve the efficiency of designs and was therefore encouraged.

Ineffective application of cost control techniques from inception through execution of infrastructural projects, especially dam projects, is a major cause of poor project delivery as stated by Madu *et al.* in the 9<sup>th</sup> paper. The paper reported the pilot study of the drivers and challenges of the use of cost control techniques in dam project delivery in Nigeria with a view to suggesting strategies for improved delivery of dam projects. Major recommendation from the study was that most severe challenges of cost control techniques application should be identified as a major threat to be addressed in order to mitigate the causes and effect of poor delivery of dam projects in Nigeria.

Dahiru and Kofarbai assessed the performance of PPP arrangement as a viable option for the procurement of infrastructural facilities in Nigeria in the 10<sup>th</sup> paper. The paper recommended that

effort should be made to create enabling environment such as security, reliable power supply, good roads, reliable source of funding and formulation of policies that will guarantee the sustainability of PPP agreement as well as protect the interest of parties to the agreement.

Fabi and Awolesi in the 11<sup>th</sup> paper assessed the factors impeding implementation of public-private-partnership highway project in Nigeria. The paper advocated that the impeding factors must confronted headlong in order to bring about desired economic growth and development.

This 12<sup>th</sup> paper by Bashir *et al.* analysed the land use/land cover change in Gusau Zamfara State, Nigeria. The paper concluded that urbanization is reducing land availability for other uses and needs to be properly planned for environmental sustainability.

The last paper by Idris *et al.* evaluated the potential risk factors associated with civil engineering projects with a view to achieving overall project objectives. The study recommended that project team should identify and quantify project related risks at the initial stage and allocate the risks to party/parties suitable to control them.

Past editions of the Journal can be found at this web address: <http://etsj.futminna.edu.ng> for download

Let us do it again, peace!

**R. A. Jimoh**  
**Managing Editor**

# Contents

1-15	Influence of Housing Attributes on Housing Satisfaction in Selected Residential Areas of Ogun State, Nigeria <i>Adegbile, M. B. O., Onifade, V. &amp; Solanke, P. A.</i>
16-27	Energy Performance of Selected Administrative Buildings in Tertiary Education Institutions in Niger State, Nigeria <i>Adebisi, G.O., Olagunju R.E., Akande, O.K., Akanmu, W.P.</i>
28-36	Influence of Availability and Serviceability of Student Accommodation Facilities on student performance in Federal University of Technology Minna <i>Adama, U. J., Ocheja, D., Ayoola, A. B., Ayuba, P. &amp; Ogunbode, E. B.</i>
37-45	Flexural Strength Characteristics of Concrete Modified with Pulverised High Density Polyethylene <i>Anum, I. Job, O. F. &amp; Dakas, A. I. I.</i>
46-55	Barriers to Electronic Tendering Adoption by Organisations in Nigerian Construction Industry <i>Amuda-Yusuf, G.; Gbadamosi, S., Adebisi, R. T.; Rasheed, A. S.; Idris, S. &amp; Eluwa, S. E.</i>
56-64	Appraisal of the financial investment in Knowledge Management practices: a case of selected Quantity Surveying firms <i>Ali, A.A., Idowu, F.A. &amp; Adamu, A.</i>
65-73	Water Quality Assessment of Domestic Water Sources in Nasarawa Town, Nasarawa State <i>Awaisu, A.H., Ishaya, K.S., Ogah, A.T. &amp; Sha'ibu, A</i>
74-83	Enhancement of the Efficiency of Building Systems through Conceptual Design <i>Alao, T. O. &amp; Ogunbode, E. B.</i>
84-95	Assessment of Drivers and Challenges of the Use of Cost Control Techniques in Dam Project Delivery in Nigeria <i>Madu, N. D., Jimoh, R. A., Shittu, A. A. &amp; Tsado, T. Y.</i>
96-108	Assessment of the Performance of Public Private Partnership Arrangement as a Viable Option for the Procurement of Infrastructural Facilities in Nigeria <i>Dahiru, D. &amp; Kofarbai, M. I.</i>
109-118	Factors Affecting Development of Public-Private-Partnership Highway Projects in Nigeria <i>Fabi, J. K. &amp; Awolesi J. A. B.</i>
119-128	Analysis of Land Use/ Land Cover Changes in Gusau, Zamfara State, Nigeria <i>Bashir Y.S, Ogah, T. A, Magaji, J.I. &amp; Abugu, N.A</i>



- 129-140      Evaluation of Risk Factors Affecting Cost and Time Performance of Civil  
Engineering Projects in Kwara State  
*Idris, S., Awodele, O. A. & Amuda-Yusuf, G.*