

**LEMBAR**  
**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW**  
**KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : Comparison of Ozone Production by Difference DBD Configuration Reactor and Dissolved Ozone in Water with Micro-Nano Bubble Technology

Nama/ Jumlah Penulis : 8 Orang

Status Pengusul : ~~Penulis pertama/ Penulis ke-4/ Penulis Korespondensi \*\*~~

Identitas Jurnal Ilmiah :

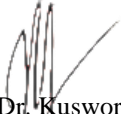
- a. Nama Jurnal : International Journal of Innovative Science and Research Technology
- b. Nomor ISSN : 2456-2165
- c. Vol, No., Bln Thn : Vol. 7, No.12, pp. 1156-1162, Desember 2022
- d. Penerbit : IJISRT
- e. DOI artikel (jika ada) : 10.5281/zenodo.7509295
- f. Alamat web jurnal : www.ijisrt.com
- Alamat Artikel : <https://zenodo.org/record/7509295#.Y7zK0XZBzIU>
- g. Terindex : Google scholar, Publons, ESJI, DRJI, NIH, I2OR, Index Copernicus, SJIF Impact Factor : 6.253

Kategori Publikasi Jurnal Ilmiah : ☒ Jurnal Ilmiah Internasional/Internasional Bereputasi  
(beri ✓ pada kategori yang tepat) ☐ Jurnal Ilmiah Nasional Terakreditasi  
☐ Jurnal Ilmiah Nasional Tidak Terakreditasi


Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	2	2	2
b. Ruang lingkup dan kedalaman pembahasan (30%)	5,25	6	5,625
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	5,25	6	5,625
d. Kelengkapan unsur dan kualitas penerbit (30%)	5,50	5	5,25
<b>Total = (100%)</b>	<b>18,00</b>	<b>19</b>	<b>18,5</b>
<b>Nilai untuk Pengusul : <math>40\% \times 1/7 \times 18,5 = 1,057</math></b>			

Reviewer 1

  
Prof. Dr. Kusworo Adi, S.Si., M.T.  
NIP. 197203171998021001  
Unit Kerja : Fisika/FSM/UNDIP  
Bidang Ilmu: Fisika Instrumentasi

Semarang, 18 Januari 2023  
Reviewer 2

  
Prof. Dr. Agus Subagio, S.Si., M.Si.  
NIP. 19710813 1995121001  
Unit Kerja : Fisika/FSM/UNDIP  
Bidang Ilmu: Fisika Material

**LEMBAR**  
**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW***  
**KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : Comparison of Ozone Production by Difference DBD Configuration Reactor and Dissolved Ozone in Water with Micro-Nano Bubble Technology

Nama/ Jumlah Penulis : 8 Orang

Status Pengusul : ~~Penulis pertama/ Penulis ke-4/ Penulis Korespondensi \*\*~~

Identitas Jurnal Ilmiah :

a. Nama Jurnal	:	International Journal of Innovative Science and Research Technology
b. Nomor ISSN	:	2456-2165
c. Vol, No., Bln Thn	:	Vol. 7, No.12, pp. 1156-1162, Desember 2022
d. Penerbit	:	IJISRT
e. DOI artikel (jika ada)	:	10.5281/zenodo.7509295
f. Alamat web jurnal	:	www.ijisrt.com
Alamat Artikel	:	https://zenodo.org/record/7509295#.Y7zK0XZBzIU
g. Terindex	:	Google scholar, Publons, ESJI, DRJI, NIH, I2OR, Index Copernicus, SJIF Impact Factor : 6.253

Kategori Publikasi Jurnal Ilmiah : ☒ Jurnal Ilmiah Internasional/Internasional Bereputasi  
 (beri ✓ pada kategori yang tepat) ☐ Jurnal Ilmiah Nasional Terakreditasi  
☐ Jurnal Ilmiah Nasional Tidak Terakreditasi

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional <input checked="" type="checkbox"/>	Nasional Terakreditasi <input type="checkbox"/>	Nasional Tidak Terakreditasi <input type="checkbox"/>	
a. Kelengkapan unsur isi jurnal (10%)	2			2,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	6			5,25
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	6			5,25
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	6			5,50
<b>Total = (100%)</b>	<b>20</b>			<b>18,00</b>
<b>Nilai Pengusul = 40% x 1/7 x 18,00 = 1,02</b>				

**Catatan Penilaian artikel oleh Reviewer :**

**1. Kelengkapan unsur isi jurnal:**

Penulisan artikel sudah baik dan mengikuti standard penulisan artikel di jurnal, yaitu Abstrak, Introduction, Research Method, Result and Discussion, Conclusions, Acknowledgement and References. Substansi artikel sesuai bidang ilmu pengusul

**2. Ruang lingkup dan kedalaman pembahasan:**

Lingkup bahasan dari artikel ini adalah bidang fisika. Pembahasan cukup baik yaitu membandingkan efektivitas ozon produksi dari dua reaktor yang berbeda geometri yaitu reaktor yang panjang dan diameter yang besar reaktor dengan variasi debit dan frekuensi. Itu generator ozon yang digunakan adalah dielektrik barrier discharge (DBD). Kedalaman pembahasan baik.

**3. Kecukupan dan kemutakhiran data/informasi dan metodologi:**


Informasi yang disajikan cukup baru dan hasil yang diperoleh memuat substansi orisinal dengan aspek aplikasi yang penting. Sumber gagasan penulis untuk artikel ini kurang komprehensif. Dari 20 referensi yang dipakai terdapat 7 paper yang lebih dari 10 tahun terakhir (out of date). Metodologinya dan penulisannya cukup terstruktur.

**4. Kelengkapan unsur dan kualitas terbitan:**

Artikel dimuat di International Journal of Innovative Science and Research Technology, pada Vol. 7, No.12, pp. 1156-1162, Desember 2022. Diterbitkan oleh IJISRT terindeks di Index Copernicus, SJIF Impact Factor : 6.253

Semarang, 18 Januari 2023

Reviewer 1

  
 Prof. Dr. Kusworo Adi, S.Si., M.T.  
 NIP. 197203171998021001  
 Unit Kerja : Fisika/FSM/UNDIP  
 Bidang Ilmu: Fisika Instrumentasi

**LEMBAR**  
**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW**  
**KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : Comparison of Ozone Production by Difference DBD Configuration Reactor and Dissolved Ozone in Water with Micro-Nano Bubble Technology

Nama/ Jumlah Penulis : 8 Orang

Status Pengusul : ~~Penulis pertama/ Penulis ke-4/ Penulis Korespondensi \*\*~~

Identitas Jurnal Ilmiah :

- a. Nama Jurnal : International Journal of Innovative Science and Research Technology
- b. Nomor ISSN : 2456-2165
- c. Vol, No., Bln Thn : Vol. 7, No.12, pp. 1156-1162, Desember 2022
- d. Penerbit : IJSRT
- e. DOI artikel (jika ada) : 10.5281/zenodo.7509295
- f. Alamat web jurnal : www.ijisrt.com
- Alamat Artikel : https://zenodo.org/record/7509295#.Y7zK0XZBzIU
- g. Terindex : Google scholar, Publons, ESJI, DRJI, NIH, I2OR, Index Copernicus, SJIF Impact Factor : 6.253

Kategori Publikasi Jurnal Ilmiah : ☒ Jurnal Ilmiah Internasional/~~Internasional Bereputasi~~  
(beri ✓ pada kategori yang tepat) ☐ Jurnal Ilmiah Nasional Terakreditasi  
☐ Jurnal Ilmiah Nasional Tidak Terakreditasi

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional <input checked="" type="checkbox"/>	Nasional Terakreditasi <input type="checkbox"/>	Nasional Tidak Terakreditasi <input type="checkbox"/>	
a. Kelengkapan unsur isi jurnal (10%)	2			2
b. Ruang lingkup dan kedalaman pembahasan (30%)	6			6
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	6			6
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	6			5
<b>Total = (100%)</b>	<b>20</b>			<b>19</b>
<b>Nilai Pengusul = 40% x 1/7 x 19 = 1,09 (Max 20)</b>				

**Catatan Penilaian artikel oleh Reviewer :**

- Kesesuaian dan kelengkapan unsur isi jurnal:**  
Penulisan jurnal untuk artikel telah diikuti dengan lengkap, terdapat introduction, research method, result and discussion, conclusion, references.
- Ruang lingkup dan kedalaman pembahasan:**  
Pembahasan artikel terkait dengan membandingkan antara produksi ozon dari reactor konfigurasi DBD dengan dissolve ozone terlihat cukup baik dan melibatkan penelitian dari referensi yang dicantumkan.
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**  
Metode standar serta referensi yang digunakan cukup baik.
- Kelengkapan unsur dan kualitas terbitan:**  
Jurnal untuk artikel yang diterbitkan telah terindex copernicus dengan SJIF impact factor 6,253.

Semarang, 18 Januari 2023  
Reviewer 2



Prof. Dr. Agus Subagio, S.Si., M.Si.  
NIP. 19710813 1995121001  
Unit Kerja : Fisika/FSM/UNDIP  
Bidang Ilmu: Fisika Material

## IJISRT A DIGITAL LIBRARY

(<https://ijisrt.com/>)

**ISSN No.: 2456-2165**

### CALL FOR PAPERS

**Paper Submission Last Date**

31 - March - 2023

**Paper Review Notification**

In 1-2 Days

**Paper Publishing**

In 2-3 Days



# SUBMIT YOUR PAPER

(<https://ijisrt.com/submit-manuscript>)

### LATEST UPDATES

**Join as Reviewer**

Join now ([join-as-reviewer](#))

**If you getting any problem you can read FAQ**

[Click Here](#) (<https://ijisrt.com/faq>)

**IJISRT Impact Factor has been Improved (2020);**

**click here (<https://ijisrt.com/sjif-impact-factor-certificate>)**

**Now Authors can submit Video presentations for their published papers. Record a video with explanation of your IJISRT published paper and send video at [ijisrt@gmail.com](mailto:ijisrt@gmail.com) with IJISRT paper id. We will upload it at IJISRT video channel.**

### LATEST VOLUME ISSUE

**Dr.S.Saira Banu** (IJSRTREW10)

| Associate Professor | ECE Dept. | Karpagam University| Coimbatore | Tamil Nadu | **India**

---

**Balaji Velusamy** (IJSRTREW500)

| Associate Professor | Info Institute of Engineering| Coimbatore | Tamil Nadu | India

---

**Lalit Mohan Nainwal** (IJSRTREW501)

|School of Pharmaceutical Sciences and Research| Jamia Hamdard| Delhi | India

---

**Bais Nirav Kishorkumar** (IJSRTREW502)

|Assistant Professor|Ganpat University-Institute of Technology| Ahmedabad| Gujarat | India

---

**Raj Kumar Gupta** (IJSRTREW503)

|Assistant Professor|Amity University| Jaipur| Rajasthan | India

---

**Dr. Neeta Saxena** (IJSRTREW504)

|Assistant Professor|Amity University| Gwalior| Madhya Pradesh | India

---

**Dr. Nageswara Rao Moparthy** (IJSRTREW505)

|Associate Professor| Velgapudi Ramakrishna Siddhartha Engineering College| Vijayawada | Andhra Pradesh | India

---

**R. Narendran** (IJSRTREW506)

|Faculty of Marine Sciences| Annamalai University| Parangipettai | Tamil Nadu | India

---

**Mahadeva.M** (IJSRTREW507)

|Assistant Professor| Shri Pillappa College of Engineering | Bangalore| Karnataka| India

---

**Dr. Richa Mehrotra** (IJSRTREW508)

|Assistant Professor| Amity University | Bangalore| Uttar Pradesh | India

---

**Dr. Chetan. S. Patali.** (IJSRTREW509)

|Principal | Dhanush Institute of Nursing, Behind Durga Vihar | Bagalkot | India

---

**Suvarna S Pinnapati** (IJSRTREW510)

| Vice Principal | Dhanush Institute of Nursing Sciences | Bagalkot | India

---

**Nugzar Aleksidze** (IJSRTREW511)

| Professor of the Chair of Biochemistry and Biotechnology of Iv. Javakhishvili Tbilisi State University |Georgia|

---

**Dr. Abdul Rahmat** (IJSRTREW513)

| Professor at Gorontalo State University | Gorontalo | **Indonesia** |

---

**Elhadi Ibrahim Miskeen** (IJSRTREW514)

| Faculty of Medicine, University of Bisha | Bisha | **Saudi Arabia** |

---

**Dr. Ming-An Chung** (IJSRTREW515)

| MICROELECTRONICS TECHNOLOGY Inc., | **Taiwan** |

---

**Issue 2 - February** ([https://ijisrt.com/volume-8-2023\\_issue-2-february](https://ijisrt.com/volume-8-2023_issue-2-february))

Volume 8 - 2023

**Issue 1 - January** ([https://ijisrt.com/volume-8-2023\\_issue-1-january](https://ijisrt.com/volume-8-2023_issue-1-january))

Volume 8 - 2023

**Issue 12 - December** ([https://ijisrt.com/volume-7-2022\\_issue-12-december](https://ijisrt.com/volume-7-2022_issue-12-december))

Volume 7 - 2022

**Issue 11 - November** ([https://ijisrt.com/volume-7-2022\\_issue-11-november](https://ijisrt.com/volume-7-2022_issue-11-november))

Volume 7 - 2022

Enter Name Of Paper



## Volume 7 - 2022, Issue 12 - December



(<https://ijisrt.com/qrattendance-system>)

**QR-Attendance System** (<https://ijisrt.com/qrattendance-system>)

**Author Name** : N.S.V.R.K Bharat; R. Drakshayani Sreya; Dr. Uttam Mande

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/QRATTENDANCE-SYSTEM](https://ijisrt.com/qrattendance-system))



(<https://ijisrt.com/a-frontline-preventive-approach-to-covid19>)

**A Front-line Preventive Approach to COVID-19** (<https://ijisrt.com/a-frontline-preventive-approach-to-covid19>)

**Author Name** : Sakshi Sharma; Ritick Sethi; Kuldeep Pandey; Perna Kakkar; Dr. Abhiruchi Passi

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/A-FRONTLINE-PREVENTIVE-APPROACH-TO-COVID19](https://ijisrt.com/a-frontline-preventive-approach-to-covid19))



(<https://ijisrt.com/academic-information-system-and-services-in-the-digital-age-and-its-future-in-librarianship-perspectives-in-21st-century>)

**Academic Information System and Services in the Digital Age and its Future in Librarianship Perspectives in 21st Century**

(<https://ijisrt.com/academic-information-system-and-services-in-the-digital-age-and-its-future-in-librarianship-perspectives-in-21st-century>)

**Author Name** : MUJITTAFA SAIDU

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/ACADEMIC-INFORMATION-SYSTEM-AND-SERVICES-IN-THE-DIGITAL-AGE-AND-ITS-FUTURE-IN-LIBRARIANSHIP-PERSPECTIVES-IN-21ST-CENTUR](https://ijisrt.com/academic-information-system-and-services-in-the-digital-age-and-its-future-in-librarianship-perspectives-in-21st-century))



(<https://ijisrt.com/the-product-approach-and-the-process-approach-to-teaching-efles-listening-a-comparative-study>)

**The Product Approach and the Process Approach to Teaching EFL/ESL Listening: A Comparative Study** (<https://ijisrt.com/the-product-approach-and-the-process-approach-to-teaching-efles-listening-a-comparative-study>)

**Author Name** : SIDI YOUSSEF EL BAGHDADI; YOUSSEF EL OUIDANI

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/THE-PRODUCT-APPROACH-AND-THE-PROCESS-APPROACH-TO-TEACHING-EFLES-LISTENING-A-COMPARATIVE-STUDY](https://ijisrt.com/the-product-approach-and-the-process-approach-to-teaching-efles-listening-a-comparative-study))



(<https://ijisrt.com/small-wind-turbine-blade-optimization-using-blade-elementary-method-theory-bemt>)

**Small Wind Turbine Blade Optimization using Blade Elementary Method Theory (BEMT)** (<https://ijisrt.com/small-wind-turbine-blade-optimization-using-blade-elementary-method-theory-bemt>)

**Author Name** : Tshepo S Sithole; Vasudeva R Veeredhi; Dr. Thembalani Sithebe



**Effectiveness of Training and Development on the Employees at Fisar Ltd** (<https://ijisrt.com/effectiveness-of-training-and-development-on-the-employees-at-fisar-ltd>)

**Author Name** : Raziur Rahman; Supervised under

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/EFFECTIVENESS-OF-TRAINING-AND-DEVELOPMENT-ON-THE-EMPLOYEES-AT-FISAR-LTD](https://ijisrt.com/effectiveness-of-training-and-development-on-the-employees-at-fisar-ltd))



(<https://ijisrt.com/the-road-map-of-tatas-corporate-social-responsibilities-towards-the-handicraft-industry>)

**The Road Map of Tata's Corporate Social Responsibilities Towards the Handicraft Industry** (<https://ijisrt.com/the-road-map-of-tatas-corporate-social-responsibilities-towards-the-handicraft-industry>)

**Author Name** : Ashish prasad

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/THE-ROAD-MAP-OF-TATAS-CORPORATE-SOCIAL-RESPONSIBILITIES-TOWARDS-THE-HANDICRAFT-INDUSTRY](https://ijisrt.com/the-road-map-of-tatas-corporate-social-responsibilities-towards-the-handicraft-industry))



(<https://ijisrt.com/study-on-different-grid-security-issues-and-challenges-for-grids-massive-reallife-applications>)

**Study on Different Grid Security Issues and Challenges for Grid's Massive Real-Life Applications** (<https://ijisrt.com/study-on-different-grid-security-issues-and-challenges-for-grids-massive-reallife-applications>)

**Author Name** : Avijit Bhowmick; Arup Kumar Nandi; Goutam Sutradhar

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/STUDY-ON-DIFFERENT-GRID-SECURITY-ISSUES-AND-CHALLENGES-FOR-GRIDS-MASSIVE-REALLIFE-APPLICATIONS](https://ijisrt.com/study-on-different-grid-security-issues-and-challenges-for-grids-massive-reallife-applications))



(<https://ijisrt.com/cryptocurrency-awareness-among-students-at-bschool>)

**Cryptocurrency Awareness among Students at B-School** (<https://ijisrt.com/cryptocurrency-awareness-among-students-at-bschool>)

**Author Name** : Rahul Kumar; Dr. S.F. Chandra Sekhar

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/CRYPTOCURRENCY-AWARENESS-AMONG-STUDENTS-AT-BSCHOOL](https://ijisrt.com/cryptocurrency-awareness-among-students-at-bschool))



(<https://ijisrt.com/financial-difficulty-as-forward-planner-of-tertiary-students-quality-of-mental-health>)

**Financial Difficulty as Forward Planner of Tertiary Students' Quality of Mental Health** (<https://ijisrt.com/financial-difficulty-as-forward-planner-of-tertiary-students-quality-of-mental-health>)

**Author Name** : Ruth Annan-Brew; Daniel Asamoah

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/FINANCIAL-DIFFICULTY-AS-FORWARD-PLANNER-OF-TERTIARY-STUDENTS-QUALITY-OF-MENTAL-HEALTH](https://ijisrt.com/financial-difficulty-as-forward-planner-of-tertiary-students-quality-of-mental-health))



(<https://ijisrt.com/monitoring-and-controlling-system-of-orchid-greenhouse-parameter-using-android-and-web-for-von-florist-in-semarang-regency>)

**Monitoring and Controlling System of Orchid Greenhouse Parameter Using Android and Web for Von Florist in Semarang Regency** (<https://ijisrt.com/monitoring-and-controlling-system-of-orchid-greenhouse-parameter-using-android-and-web-for-von-florist-in-semarang-regency>)

**Author Name** : Sindung Hadwi Widi Sasono; Helmy Iskandar; Herdiansyah Yusuf Irham; Sri Kusumastuti

CITE/EXPERT

DOWNLOAD ([HTTPS://IJISRT.COM/MONITORING-AND-CONTROLLING-SYSTEM-OF-ORCHID-GREENHOUSE-PARAMETER-USING-ANDROID-AND-WEB-FOR-VON-FLORIST-IN-SEMARANG](https://ijisrt.com/monitoring-and-controlling-system-of-orchid-greenhouse-parameter-using-android-and-web-for-von-florist-in-semarang-regency))



(<https://ijisrt.com/comparison-of-ozone-production-by-difference-dbd-configuration-reactor-and-dissolved-ozone-in-water-with-micro-nano-bubble-technology>)

**Comparison of Ozone Production by Difference DBD Configuration Reactor and Dissolved Ozone in Water with Micro-Nano Bubble Technology**

(<https://ijisrt.com/comparison-of-ozone-production-by-difference-dbd-configuration-reactor-and-dissolved-ozone-in-water-with-micro-nano-bubble-technology>)

**Author Name** : Ahmad Faruq Abdurrahmana; Yudhistira Yossa Adirajasaa; Eko Yulianto; Sumariyah Sumariyah; Asep Yoyo Wardayab Agus Sudarmantof; Sera Budid; Muhammad Nur

CITE/EXPERT

# A Front-line Preventive Approach to COVID-19

Sakshi Sharma

ECE, FET

MRIIRS

Faridabad, Haryana, India

Kuldeep Pandey

ECE, FET

MRIIRS

Faridabad, Haryana, India

Ritick Sethi

ECE, FET

MRIIRS

Faridabad, Haryana, India

Perna Kakkar

ECE, FET

MRIIRS

Faridabad, Haryana, India

Dr. Abhiruchi Passi

ECE, FET

MRIIRS

Faridabad, Haryana, India

**Abstract:-** The coronavirus has created an international pandemic that was started in late 2019 and is currently ongoing. The effect of covid-19 is very detrimental and seen in every sector and the fright of covid is seen in every human being. The virus has changed the world drastically. The current study is aimed to investigate the causes, precautions, preventive measures, clinical symptoms, the boom of technology in the time of the pandemic, and different projects, models, and apps made to help people in the pandemic. The technology has played an outstanding role in maintaining social distancing, detection of face masks, and thermal screening to check body temperature. We have the right type of innovation and we have executed it to an extraordinary broaden. The systems that have been made with the help of sensors and microcontrollers can be very serviceable in the current scenario and upcoming wave of the virus.

**Keywords:-** Covid-19, Microcontrollers, Innovation, Face Mask, Social Distancing, Technology.

## I. INTRODUCTION

Today the world is suffering from the Coronavirus which is also known as covid-19. It is an acute respiratory illness. It all started in Wuhan (China) on 31<sup>st</sup> December 2019, and then the virus opens out very rapidly and has driven its way to every part of the world by early 2020. On 30<sup>th</sup> January 2020, an outbreak was declared in the entire world by the World Health Organization (WHO) and by march 2020 every country started taking precautions and imposing complete or partial lockdown in their country, to cut down the human interaction and outspread the coronavirus.

According to several researches, general public can get contaminated from this virus in many ways, mainly from person to person contact via the spread of contaminated droplets, originating from the oral and nasal passages. When the infected person coughs or sneezes, the droplets containing strains of the virus come into contact with the environment, and when a normal healthy person inhales the infected droplets then he also becomes infected and in this way, the

cycle goes on and the virus spreads from one person to another. The other ways of getting the virus are by getting in contact with the infected plane, etc. As few theories were being proved by the scientist that, this germ is active for different time on different surfaces like plastic three days, copper four hours, and as long as twenty-four hours on papery surfaces.

Coronavirus was declared as a life-threatening virus and unfortunately, there was no medication for this virus in the starting, which terrified human beings, but now there are some medications and vaccines that can help in building people's immunity and help in fighting the virus but that does not mean that we are completely safe from virus and we can roam around freely without any protection.

When the government-imposed lockdown in different parts of the country, then many people have become homeless and jobless as they didn't have any form of work to do, their daily wages have stopped and many small businesses and shops came to an end. People are living a life, full of fear in their hearts of spreading the coronavirus amongst them and their loved ones. The hunger aspect of human beings has put the people in the situation to come out of their homes and work to earn for survival for their families.

Keeping in mind the outcomes of lockdown, the government put some relaxation but the relaxation in the lockdown leads to a greater number of people coming out from their shelter and getting in contact with such surfaces where there is the presence of coronavirus. Although accidentally, but this has increased their chances of coming in touch with the covid19 patients, which has led to a tremendous increase in the number of covid19 patients.

The contamination rate during this outbreak may increase due to lack of sanitation and sterile procedures.

Right now Total cases worldwide are 21.9 Cr of which total deaths are 45.5L and in India, the total cases are 3.31Cr and total deaths 4.22L. Although the mortality rate is comparatively very low in comparison to the recovery rate.



# Application of GIS in Spatial Analysis of Demographic Determinants of Rentals Housing Quality in Nigerian Settings

Prof. Bibi Mohammed Umar<sup>1</sup>, Sani Ajuji Mohammed<sup>2</sup>, Marafa Umar Gidado<sup>3</sup> and Mahmoud Bapetel Tugga<sup>2</sup>

<sup>1</sup> Professor Dept. of Geography, Federal University Kashere, Gombe State Nigeria.

<sup>2</sup> Lecturer Dept. of Architectural Technology, Adamawa State Polytechnic, Yola.

<sup>3</sup> Lecturer Dept. of Architectural Technology, Federal Polytechnic, Mubi, Adamawa State, **Nigeria.**

**Abstract:-** Housing is one of the essential human needs of life. House is needed by man to protect him against elements of weather. The provision of good housing therefore, has a profound effect and influence on the wellbeing, health and efficiency of any community. The study assesses the geo-spatial analysis of demographic determinants of rentals housing quality in traditional Nigerian settings with a view to determining the pattern of housing quality and its distribution in the area. Housing quality in the context of type, facilities and amenities available were examined; also the quality of residential environment was examined, especially to determine if the two meet the desire and satisfaction of the respondent's tenants. Majority of the respondents are not satisfied with their present houses and residential environment, perception of neighbourhoods is largely determined by safety, availability of facilities, quality of residential environment, residential preference is solely determined by socio-economic variables. Lastly, the study identified the relevance of income level in determining the quality of a house and mostly earn below minimum wage per month, most of the people living in the study area are low and medium income earners. Those residents were distributed based on their income levels and is closely link with their occupational status, and that the study has both theoretical and practical implications. The theoretical implication rests on the need for the development of sense of place of study while the practical implication exposes the need for preference studies before planning housing and residential areas. Finally, there is the need for involvement of housing and environment consumers in issues relating to housing policy and environmental planning so as to achieve optimality in planning.

**Keywords:-** Geo-Spatial Analysis, Housing Quality, Demographic, Neighbourhood.

## I. INTRODUCTION

Housing does not mean an individual's dwelling unit only. It is a composite of the overall physical and social components that makeup the housing system (Mohit & Raja, 2014). Furthermore, housing is a multidimensional phenomenon, including structural type (e.g., single family home), tenure (own or rent), location and political jurisdiction (Scanlone, 1998).

Quality housing has been defined as the general standard, characteristics, attributes or degree of excellence of housing (Microsoft Encarta, 2020; Merriam-Webster Dictionary, 2020). According to Lawrence (1995), quality of housing can be perceived in several dimensions, depending on the perspectives and intentions of researchers or the sponsor(s) and those who formulate policies. Housing quality is viewed as theoretical or an abstract hence may not have real or specific concept/definition; and therefore it is not directly assessable, but has many observable indicators (Gandil, 1995; Goodman, 1978; Babalola, 2016). For instance, a study in USA (HUD, 2011b) identified 13 variables that can be used to describe or measure housing quality standards (HQS). These are "sanitary facilities; food preparation and refuse disposal; space and security; thermal environment; illumination and electricity; structure and materials; interior air quality; lead-based paint; access; site and neighbourhood; sanitary condition; water supply; and smoke detectors".

Corporation for Supportive Housing (CSH, 2009) in U.S. in their study, conceived housing quality using seven dimensions of "administration, management, and coordination; physical environment; access to housing and services; supportive services design and delivery; tenant rights, property management and asset management; input, and leader-ship; data, documentation, and evaluation". From the foregoing, it is evident that housing quality is determined by a number of parameters, namely: (i) management and related issues; (ii) physical aspect of the housing and housing environment; (iii) social-cultural and psychological aspects; (iv) rights, rules and regulations and (v) location and study contexts.

There are several reasons for which housing quality may be assessed and defined. They include aesthetic value and use value; identifying housing targets for upgrade or those requiring replacement; to attempt to match household income with quality scale; and as part of assessment of wellbeing and health of the residents with respect to their housing (Lawrence, 1995). There has also been a lack of agreement on definition and assessment of housing quality.

The Engineers, Economists, Sociologists and the Architects are interested in studying the various aspect of housing. The Architects and the urban planners are interested in studies on housing policy-oriented research that covers many spectrums which include Housing Policy and Finance