

**DEPARTMENT OF CIVIL ENGINEERING**

**A Report on**  
***TWO DAYS INTERNATIONAL VIRTUAL CONFERENCE***  
***ON***  
**'SUSTAINABLE CONSTRUCTION MATERIALS AND TECHNOLOGIES'**

<b>Date</b>	: 18 <sup>th</sup> & 19 <sup>th</sup> June 2020
<b>Organized by</b>	: Department of Civil Engineering
<b>Convener</b>	: <b>Dr.S.P.Sangeetha</b> , VP (Academics) <b>Dr.R.Divahar</b> , HoD/Civil Engg.
<b>Co-Convener</b>	: <b>Dr.P.S.Aravind Raj</b> , Associate Professor <b>Dr.D.S.Vijayan</b> , Assistant Professor-II
<b>Venue</b>	: <b>Online – ZOOM app</b>
<b>Chief Guest</b>	: Inauguration: Dr.Mohammed Ihtesham Faculty, Higher College of Technology, Muscat, Oman Valediction: Mr.Jaffer Sathik S A Senior Project Engineer Galfar Engg & Cont SAOG Muscat, Oman
<b>Keynote Speakers</b>	: <ol style="list-style-type: none"><li>1. Dr.A.Rajaraman Educator of Civil and Computer Science Fremont California, USA</li><li>2. Dr.Ravi Kiran Yellavajjala Faculty, North Dakota State University North Dakota, United States</li><li>3. Dr.Shifana Kaafil Faculty, Architecture Hekma School of Design and Architecture Dar Al-Hekma University</li><li>4. Dr.T.Palanisamy Department of Civil Engineering National Institute of Technology Karnataka</li><li>5. Dr.Rajinikanth Rajagopal Research Scientist Agriculture &amp; Agri-Food Canada</li><li>6. Mr. Jaffer Sathik S A Senior Project Engineer Galfar Engg &amp; Cont SAOG Muscat, Oman</li></ol>

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**Broucher of the program**

Department of Civil Engineering, Aarupadai Veedu Institute of Technology organized an International Virtual Conference on Sustainable Construction Materials and Technologies (IVCSCMT) on 18<sup>th</sup> & 19<sup>th</sup> June 2020. This International Virtual Conference is the third International conference and the first Virtual Conference organized by the Department of Civil Engineering, Aarupadai Veedu Institute of Technology, VMRF. Sustainability is one of the most challenging aspects in the field of construction. This virtual conference served as a platform for students, scientists, researchers and engineers to share their various ideas and innovations in achieving sustainability in the field of construction.

The conference had various themes namely Innovations in materials and structures, Renewable energy applications, Concrete technology, Durability study, Smart materials, Energy Efficient Buildings, Sustainability and Life cycle assessment, Monitoring and Structural assessment, Building Information Modelling, Green Building and Green Architecture. The eminent keynote speakers of the International Virtual Conference were from the various parts of the world.

The inauguration of IVCSCMT began with the welcome address by Dr.S.P.Sangeetha, Vice-Principal(Academics) & Convenor of the conference. Dr.Anuradha Ganesan, Honorable Madam Chancellor & Director, VMRF delivered the presidential address and congratulated the participants. Dr.S.A.V.Satya Murty, Director(Research), VMRF and Dr.K.L.Shunmuganathan, Principal, AVIT delivered the special address. The chief guest of the conference Dr. Mohammed Ihtesham, Faculty, Higher College of Technology, Muscat, Oman delivered the inaugural address. Dr.R.Divahar, HoD (Civil) & Convenor of the Conference deliberated about the conference. Dr.S.A.V.Satya Murty, Director(Research) released the conference proceedings softcopy. The inaugural session was concluded with a vote of thanks by Dr.P.S.Aravind Raj,

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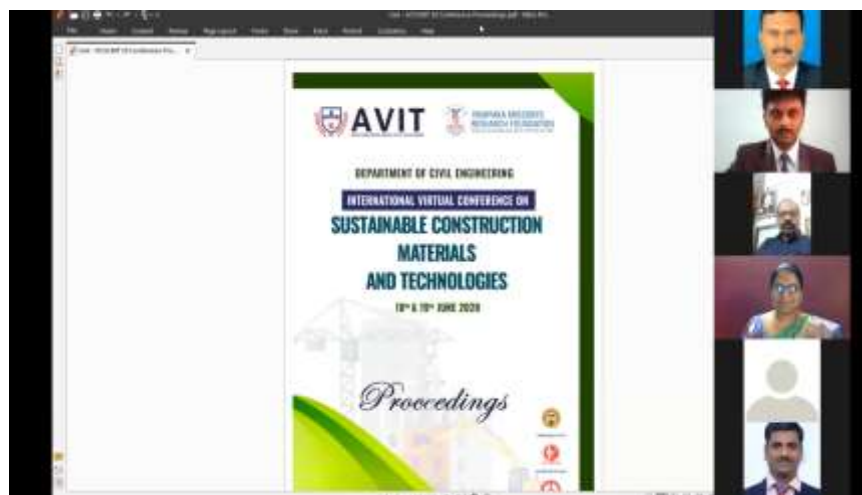
Associate Professor (Civil) which was then continued by the technical session by keynote speakers and presentation by the delegates.

The technical session of day-1 (18.6.2020) begin with the presentation by the Keynote speaker Dr.T.Palanisamy, Professor, Department of Civil Engineering, National Institute of Technology, Karnataka on the topic Fiber reinforced concrete composites and applications which was then followed by Dr.A.Rajaraman, Professor, Civil and Computer Science Fremont, California, USA who presented on the topic Sustainability in Infra-structural construction. The session was then continued with presentation by the delegates.

The technical session of day-2 (19.6.2020) was started with a presentation by Dr.Ravi Kiran Yellavajjala, Professor, North Dakota State University, North Dakota, US on the topic Prolonging the Life of Aging US Infrastructure: Preliminary Results and Future Directions which was then followed by Dr.Rajinikanth Rajagopal, Research Scientist, Agriculture and Agri-Food, Canada who presented on the topic Integrated livestock waste management and treatment strategies. Mr.Jaffer Sathik S A, Senior Project Engineer, Galfar Engg & Cont SAOG, Muscat, Oman gave a presentation on the topic Building a Green India. The session was then continued with presentation by the delegates.

More than 200 research papers were received and after a PEER review, 120 papers were selected to be published in the conference proceedings. The papers were received from various countries such as Canada, Saudi Arabia, US and many parts of India namely New Delhi, Andhrapradesh and Karnataka. Out of 120 papers, 2 best papers, International and National Best paper each were sorted out by the panel members and awarded with a cash prize of Rs.2000 each.

The valediction of the International Virtual Conference begin with the concluding remarks by the convenors Dr.S.P.Sangeetha and Dr.R.Divahar. The convenors deliberated on the two days happenings of the conference which was then followed by the valedictory address by the chief guest Mr.Jaffer Sathik S A, Senior Project Engineer, Galfar Engg & Cont SAOG, Muscat, Oman. Dr.S.A.V.Satya Murty, Director(Research) announced the best papers. Prof.P.Rajasekaran, Vice-Principal (Admin) felicitated the online gathering. Participants from various institutions delivered a very good feedback on the conference. Dr.D.S.Vijayan, Assistant Professor (Civil) delivered the vote of thanks and concluded the two days International Virtual Conference.



**Release of Conference Virtual Proceedings**

**DEPARTMENT OF CIVIL ENGINEERING**



**AVIT**

INTERNATIONAL VIRTUAL CONFERENCE ON  
**SUSTAINABLE CONSTRUCTION  
MATERIALS AND TECHNOLOGIES**  
IVCSMT-2020

ORGANIZED BY  
**DEPARTMENT OF CIVIL ENGINEER**

18<sup>th</sup> and 19<sup>th</sup> June 2020



**Inauguration of the Conference**



AVIT  
DEPARTMENT OF CIVIL ENGINEERING  
INTERNATIONAL VIRTUAL CONFERENCE ON  
**SUSTAINABLE CONSTRUCTION  
MATERIALS  
AND TECHNOLOGIES**  
18<sup>th</sup> & 19<sup>th</sup> JUNE 2020  
*Proceedings*

Key Note Address  
Presented by  
**Dr. T. PALANISAMY**  
B Sc (Engineering), B E (Mechanical Engineering), M Sc (Mechanical Engineering), Ph D (Mechanical Engineering)  
Assistant Professor | Civil Engineering, (Structural Engineering),  
National Institute of Technology Karnataka, Surathkal (NIT K),  
Mangalore - 575 025, Karnataka, India. www.nitk.ac.in  
www.palanisamy.org

Organized by  
Department of Civil Engineering  
**AVIT**  
18<sup>th</sup> - 19<sup>th</sup> June 2020, Time: 10:00 am to 11:30 am IST



"Sustainability" word having different connotations  
the sustainability of economic growth  
"The long-term sustainability of the project"  
The ability that this lake is sustainable in the hands of tomorrow for the future days.  
Sustainability is the ability to exist constantly in the 21st century. It refers to the ability of the planet and human civilization to coexist peacefully to the capacity for the biosphere and human civilization to coexist.

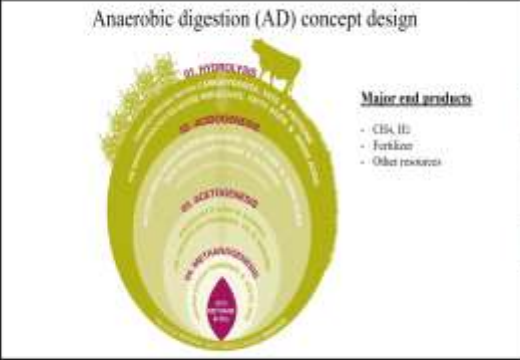
For many in the field, sustainability is defined through the following interconnected domains: economic, environmental, economic and social

**BASIC PREMISE**  
Awareness of the depletion of natural resources in order to maintain an ecological balance

**INTRODUCTION**  
**Damage in Materials and Structures Lab**  
Research Question: How can we prolong the life and functionality of new and aging infrastructure.  
Research Answer: Detection, characterization, modeling and prevention of damage in structures.  
Final Outcome: Long lasting, robust, resilient and sustainable structures.



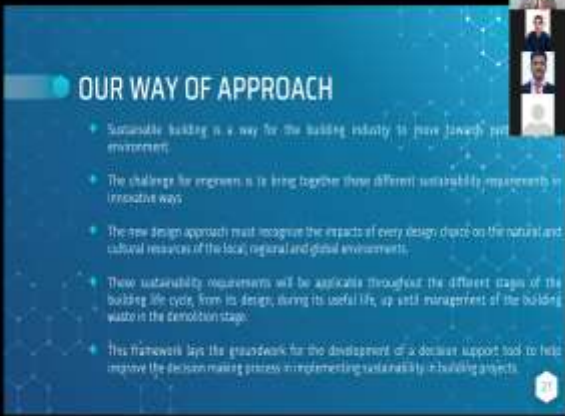
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**Anaerobic digestion (AD) concept design**

**Major end products**

- CH<sub>4</sub>, H<sub>2</sub>
- Fertilizer
- Other resources



**OUR WAY OF APPROACH**

- Sustainable building is a way for the building industry to move towards zero environment.
- The challenge for engineers is to bring together these different sustainability requirements in innovative ways.
- The new design approach must recognize the impacts of every design, direct on the natural and cultural resources of the local, regional and global environments.
- These sustainability requirements will be applicable throughout the different stages of the building life cycle, from its design, during its useful life, up until management of the building waste in the demolition stage.
- This framework lays the groundwork for the development of a decision support tool to help improve the decision making process in implementing sustainability in building projects.



**BEST PAPER - INTERNATIONAL**

**Khadega Al-Kaf, Shatha Abulfaraj and Shifana Kaafil**  
Department of Architecture, Helms School of Design and Architecture  
Dar Al Helms University, Jeddah, Kingdom of Saudi Arabia

PAPER ID - AVIT\_IVCS CMT\_300  
PAPER TITLE : Sustainable Architectural strategies in the design of preschool in Mozambique Khadega Al-Kaf Helms school of Design and Architecture



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**Presentation by the keynote speakers, feedback from participants & announcement of best papers**



**NEED FOR STUDY**

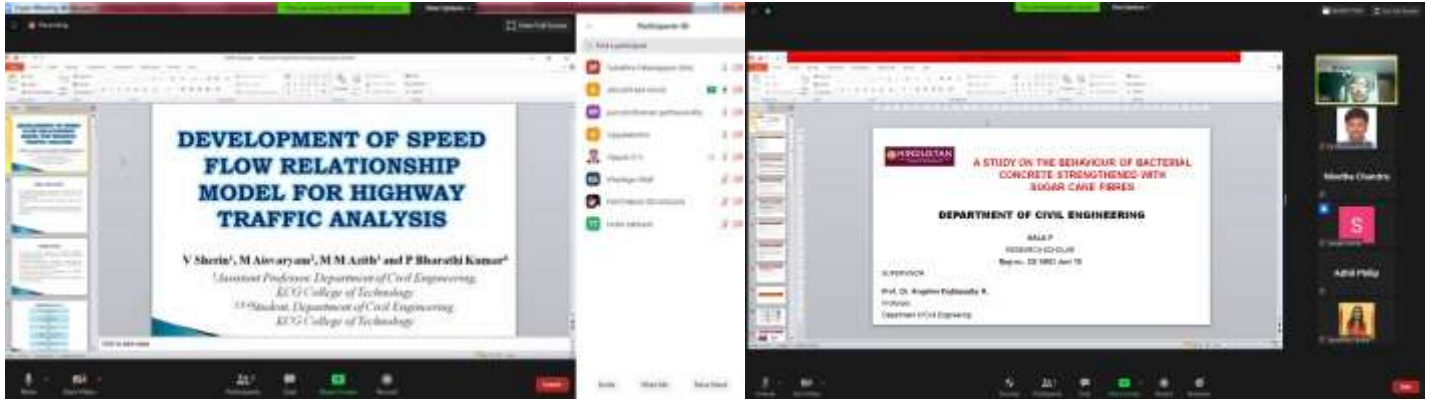
- Effects of cement production on the environment necessitates usage of waste product like Fly ash as partial replacement to reduce the utilization of cement.
- Nanomaterials owing to its fine size, large surface area and effective filler effect are effective partial replacement for cement which also improve durability and strength characteristics of concrete.
- Although there are several studies on utilization of nanomaterials in concrete and a few in epoxy coatings on rebars, studies on its application in cementitious coating is scarce.
- This work is an attempt to bridge the gap and develop a novel nanoparticles admixed cementitious coatings on reinforcement steel bars.



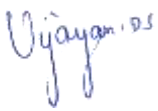
**Smart windows!**

- The population has increased from approximately one billion in 1950 and is presently (2020) about 7.8 billion
- Comfortable living has become a prerequisite
  - Good lighting
  - Good comfortable room temperature ~25 °C (irrespective you are in Sahara desert or Adama)
- As much as 40-50% of the primary energy in the world is spent in buildings, for heating, cooling, lighting, ventilation and appliances, and the richer countries lie at the top of this basket.

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**Presentation by the participants**



**Dr.D.S.Vijayan**  
Associate Professor

**Co-Convenor**



**Dr.P.S.Aravind Raj**  
Associate Professor

**Co-Convenor**



**Dr.R.Divahar**  
HoD/Civil Engg.

**Convenor**



**Dr. S.P.Sangeetha**  
Vice Principal  
(Academics)

**Convenor**