KKR&KSR Institute of Technology and Sciences

Vinjanampadu, Guntur, Andhra Pradesh-522017

Approved by AICTE, New Delhi and Permanent Affiliation from JNTUK, Kakinada

Accredited with "A" Grade by NAAC & NBA Accreditation Status for 4 UG (CSE, ECE, EEE, ME) Programs

CIVIL ENGINEERING DEPARTMENT

S.T.T.P - PROGRAM 2K20 REPORT

EVENT: Short Term Training Program (STTP)

DATE: 5 -11- 2020 To 10 -11-2020 (Phase-1)

7 -12- 2020 To 12 -12-2020 (Phase-2)

TIME: 10.30 AM to 12:00 , 02.00 PM to 03.30PM, IST.

VENUE: ZOOM ,GOOGLE MEET **(ONLINE)**

TITLE: "Advance Construction Technics In Low Cost Civil Structures For Modern Living"

ORGANISED BY: Civil Engineering Department.

CONVENOR:

Dr. M. Ravindra Krishna, Professor & HOD

Co convenors

Mrs. R. SANTHIKALA

Mr. A.Suri Babu

OBJECTIVE OF THE STTP:

The objectives of the Short Term Training Program are to

1. Enhance the knowledge of the participants in various Construction Technics which are prevalent in the industry for building low cost structures
2. Enhance the knowledge of the participants from Industry background in various construction materials for building low cost structures through interaction with Eminent persons from Academia and Industry
3. Enhance the Research capability of the participants from Academic background in various construction materials for building low cost structures through interaction with Eminent persons from Academia and Industry
4. Enhance the knowledge of the participants in Low carbon materials which are used for constructing Low Cost structures

DETAILS OF RESOURCE PERSONS:

STTP PHASE 1 SPEAKERS

Dr. Pala Gireesh Kumar

Associate Professor & HOD

Sri Vishnu Engineering College For Women.

Dr. Jagadish **Vangala**

Associate Professor of PVP Institute of Technology.

Dr. B. Ravi Kumar

Cluster Incharge Operations Ultra Tech Cements AP.

Abhilash B.L

Assiatant Professor Vidya Vardhaka College of Engineering, Mysore, Indain Green Building Counsil Acredited proffesional (IGBAP).

Dr. M. V. Seshagiri Rao

JNTUH, Former Professor, Present Professor, Dean Planning &

Co-ordination, CVR College of Engineering, Hyderabad,TS.

Dr. Maganti Janardhana Yadhav

Professor of Civil Engineering, Jntu Hyderabad

Dr. M. Swaroopa Rani

Professor & HOD JNTUK - Kakinada.

Prof. S. Suriya Prakash

Professor & HOD IIT Hyderabad.

Dr.V.Srinivasa Reddy

Professor of Civil Engineering, GRIET, Hyderabad.

Dr. M. Ravindra Krishna

Professor & HOD KKR & KSR Istitute of

Technology and Sciences

STTP PHASE 2 SPEAKERS

Dr. J. Karthikeyan

Associate Professor . - N.I.T, Trichy

Dr. Romanbabu Oinam

Assistant Professor - I.I.T, Tirupathi

Dr. A.R. Santhakumar

Formerly Dean- Anna university, Formerly Emeritus Professor - I.I.T Madras

Dr. A. Sreenivasulu

Professor, G.E.C, Gudlavalleru

Mr. P. Padmarao

Assistant Professor , Vignan University

Dr. V. Sairam

Associate Professor, V.I.T, Vellore

Mr. K. Raj Kumar

Dy. General Manager- Bridges- L&T

Dr. K. Raja Sekhar

Assistant Professor, Andhra University

Dr. M. Ravindra Krishna

Professor & HOD,KKR & KSR Istitute of Technology and Sciences

Dr. M. Ravindra Krishna

Professor & HOD,KKR & KSR Istitute of Technology and Sciences

Event Poster:

Event Description:

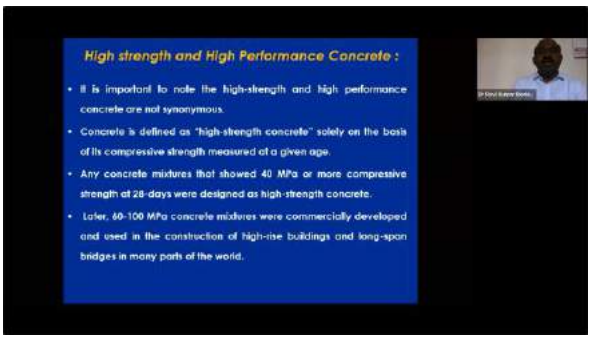
RESOURSE PERSONS OF STTP PHASE-I:

SPEAKERS DETAILS:

1. **B.Ravi kumar (Ultra tech cement Ltd)**

Bio-Data:
First session of the STTP starts with Dr.B.Ravi kumar, working as cluster in charge operations, in UltraTech cements Ltd. - Andhra Pradesh. Dr.Ravi Kumar done his doctorate in Geo Engineering, have19 years of industrial exposure in L&T, METAS Infra in wings quality assurance and quality control. Specialized in construction of National highways and high rise buildings, published 10 International papers, 12 dissertations.

Topic on
– New trends in construction Industry and Adopting the structural Applications- An approach towards Innovative construction Techniques and next generation concrete products.



In the session Dr.Ravi kumar, introduced UltraTech concrete profile, history of concrete and revolution in construction industry. Explained about transformation of concrete and applications in building projects. And then advances in materials &

monolithic construction, QTC triangle principle. Make clear with case study on low cost housing project and problems arise due to poor workmanship and bad construction practices. Finish the session with Innovative concrete products and 10c's of concrete.

2. **Dr.Jagadish Vengala (PVP Institute of technology)**

Second session was by Dr. Jagadish Vengala, Associate professor, PVP Institute of Technology. Dr.Jagadish has doctoral degree on seismic response study on bamboo based construction. Worked 2 years as design Engineer at Torsteel Research foundation, 11 years at IPIRTI under ministry of Env. &Forests- Govt. of INDIA.Recipient of 5thCIDC Viswakarma award-2013, BOYSCAST fellowship in 2008 and Prof.Rama krishnans young scientist award in 2008 from ICI.He is the Fellow of Institute of Engineers (India), Association of Consulting Civil Engineers (ACCE) (India) and life member Bamboo Society of India, Indian Concrete Institute, Indian Academy of Wood Sciences, Indian Science Congress Association (ISCA), and Youth Hostel Association of India (YHAI).

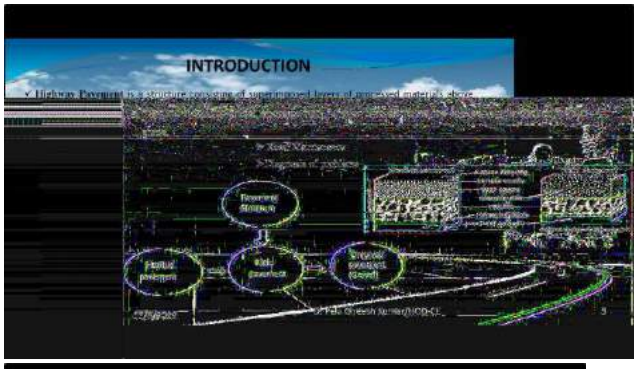
Title of the topic: Sustainable technologies for affordable housing.

In the session Dr. Jagadish start with building Industry –facts, Building LCA and linear economy. Explain about green building ratings, GRIHA classification levels and IGBC green certified projects. Describe housing shortage, break-up and conventional building materials. Explain about monolithic construction, panel building system, pre cast sandwich panel system, reinforced concrete block masonry and stabilized mud technique for load bearing masonry structures. Gave clear picture on mud concrete process, IKRA type housing system. Go in detail on dynamic behaviour of Bamboo based housing system, IPIRTI-TRADA bamboo housing system and Two storey bamboo house system .All these topics interpret about both construction aspects and performance aspects.

3. **Dr.Pala gireesh kumar (Sri Vishnu engineering college for women)**

Third session was by Dr.Pala Girish kumar, Associate Professor- Sri Vishnu college of Engineering. Ph.D from NITT, rock solid performer in the area of administration and external affairs. Prime mover and instigator of royal civil colloquium (RCC), reinstated the ICI, National award from government of Tamilnadu for best project in 2014.Best researcher award in 2020 in the area of Terra mechanics and nano materials in pavements from Idamas learning centre, Malaysia and world research council (WRC).Published twenty plus publications, monograph titled “speed detection and management-An ITS publication.

Title of the topic: Development of low cost pavement structures for better sustainability.

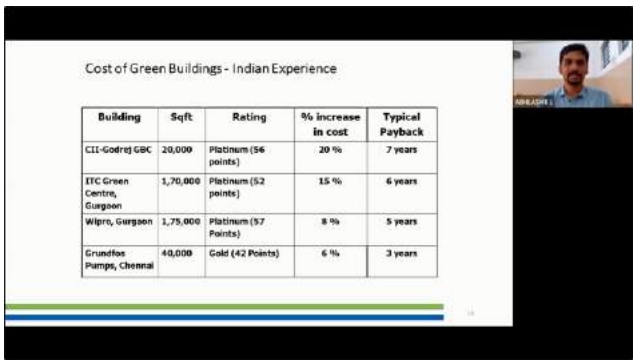


Dr.Girish kumar start session with highway pavements and, in detail about road maintenance, diagnosis of problems aspect. Describe pavement failures and causes like fatigue or alligator, corrugation, edge and transverse cracking, patching and surface defects. Explain self-healing technologies for sustainable pavements as Induction heating, Nano particles induction like Nano clay, Nano rubber, Binder healing agents and rejuvenators. And conclude the session with prospects of research work on self-healing technologies for pavements.

4. **Abhilash B.L (Vidyavardhaka college of engineering, Mysuru)**

Fourth session by Abhilash B.L, Assistant Professor Vidya Vardhaka college of Engineering, Mysore and also(IGBC) Indian green building council accredited professional-Andhra Pradesh. Thesis work on "Evaluation of passive techniques and development of design charts for varied climatic zones in India". Green building Engineer in ECO360 holistic sustainable solutions. Ongoing project –IIT-Alumni building ,Benguluru.Presented technical papers on role of energy bench marking in selection of building materials for sustainable buildings,utilization of clean energy resources with sustainable design and smart technology.

Title of the topic: Sustainable construction for modernized living with low cost Techniques.

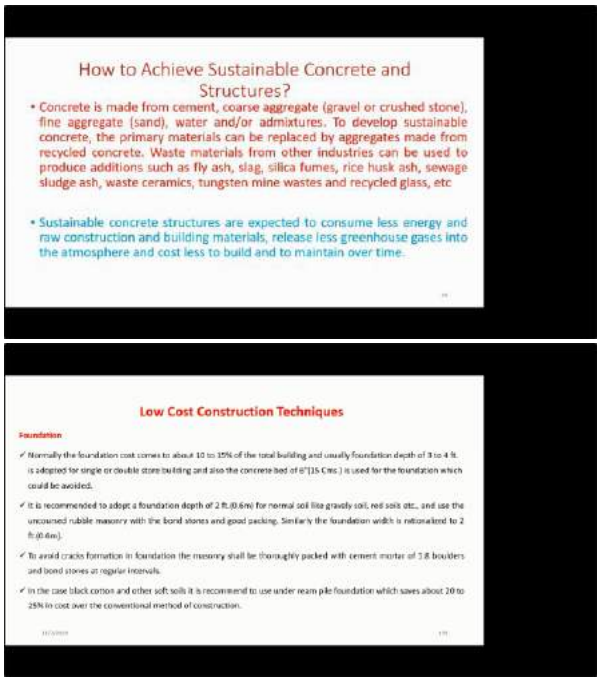


In the session Abhilash B.L begins with sustainable development, relates to Environmental, social and economy. Explain about Energy inbuildings and building materials, with Initial embodied energy and recurring embodied energy. Outline equation of figure of merit (FOM), sustainability development Index (SOI), global warming embodied energy and about construction material synergic effect interactions. Describe Carbon credits, carbon trading, carbon foot print, carbon sequestration, carbon capture and storage. Explain sustainable Architecture and design, integrated design approach, site preservation and passive architecture. Explain further about basic facilities construction work force, universal access and inter modal commuter transport. End the session with water conservation, energy conversation and SCADA system – BMS.

5. **Dr.M.V.Seshagiri rao (Professor Dean and Planning, CVR College of engineering)**

Fifth session by Dr.M.V.Seshagiri rao,JNTUH former professor, Present professor Dean planning & coordination CVR college of Engineering – Hyderabad. Double post graduate in structural and software Engineering. First seven years of his career in AP Engineering research laboratories, involved in model analysis of prestigious projects like Godavari barrage, priya darshini jurala project, third Railway Bridge near Vijayawada and gauging left and right canals of river Krishna. At JNTU,works as project officer for the UGC Academic college building, coordinator for academic and research JNTUHCEH and NBA nodal centre. Member of National program for capacity building of civil Engineers in earthquake risk management (NPCBEERM) by MHRD for training field engineers. Expert member for UGC,AICTE,UPSC and APPSC.

Title of the topic: Low cost (cost effective) sustainable housing materials and Techniques.



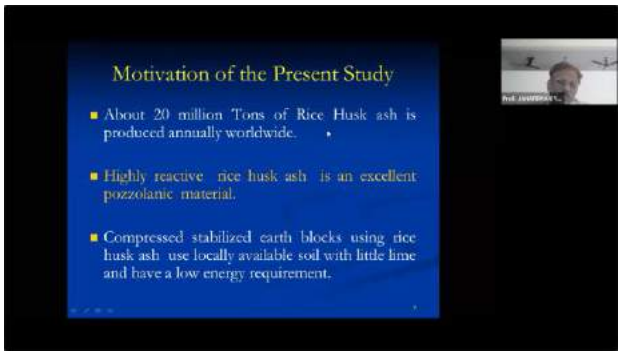
Dr.M.V. Seshagiri rao commence session with areas from where cost can be reduced, by thinner wall concept, energy efficient materials and environmentally friendly materials. Outline on value engineering, sustainable development, traditional engineering and sustainable engineering. Describe future of sustainable engineering, durability, longevity and green beyond longevity. Effects of unsustainable aspects of concrete production. Explain how to achieve sustainable concrete and structures. Describe in detail about ,high value concretes like bacterial concrete, reactive powder concrete, fiber reinforced self-compacting concrete, quaternary blended concrete, high strength high volume fly ash concrete, geo-polymer concrete and STEP cement. Concludes the session with acceptance of low cost housing concept and low cost construction techniques

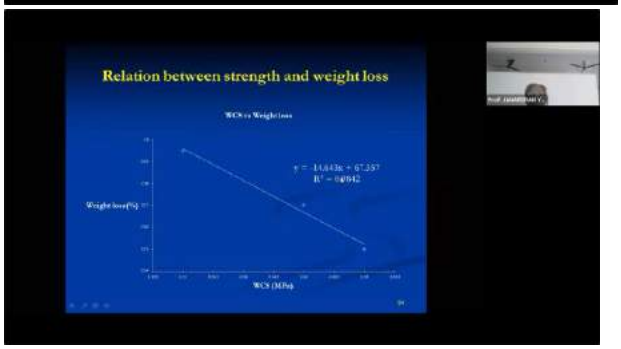
6. **Dr.S.Suriya Prakash (IIT Hyderabad)**

Sixth session by Dr.M.Janardhan yadav, Professor JNTU college of Engineering, Hyderabad. Ph.D from IIT-Madras, published 33 papers in International journals, four of his research papers at conferences held in USA, Australia, Portugal and Japan.Co-authored three text

books, Co-receipent of "Brij mohan lal memorial medal"in 2000 from Institute of Engineers. Best paper on construction technology award in 2015 from ICI.Actively participated in structural Engineering consultancy at JNTUH.

Title of the topic: Sustainable construction – A case study on stabilized compressed earth blocks using rice husk ash and their applications to load bearing walls.



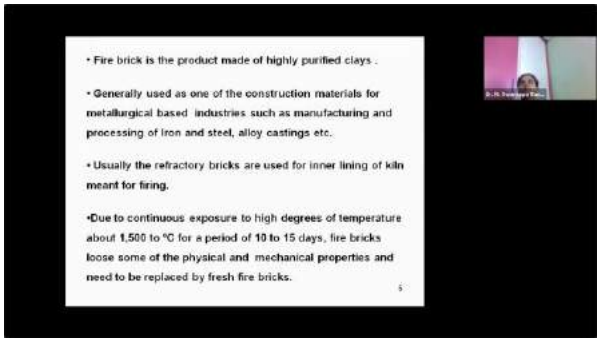


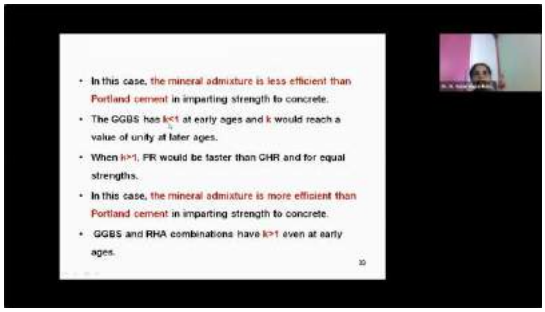
Dr.M.Janardhan commencessession by introduction with bricks, stabilized soil blocks and wall materials. Outline methodology of investigation from soil to testing blocks, material tests for soil, lime and rice husk ash. Describe process of reconstituting soil, properties of reconstituted soil, lime and RHA.Going through mix proportion of stabilizers, typical mix of a CSEB specimen, block manufacturing process, processing and curing and then evaluation of blocks. Explain about boiling water method of water absorption by ASTMC-67, aging characteristics of block specimen, absorption characteristics and expansion on saturation test.Compared loss of weight, effect of varying curing conditions, block masonry characteristics by masonry prism test, masonry wall panel test, long term durability test and weathering spray test to know CSEB erosion rate. Concluded the session with analytical modelling and simulation, regression analysis by cost analysis and carbon emission.

7. **Dr.M.Swaroopa rani, Professor JNTUK**

Seventh session by Dr.M.Swaroopa rani, Professor JNTUK, Kakinada.Executive councilmember of JNTUK,building committee member for IIT Nuzividu.Participating in department consultancy works,ICS and works entrusted by director BICS,JNTUK.Published 15 National and 10 International papers.

Title of the topic: Study on low cost material and efficiency factor.





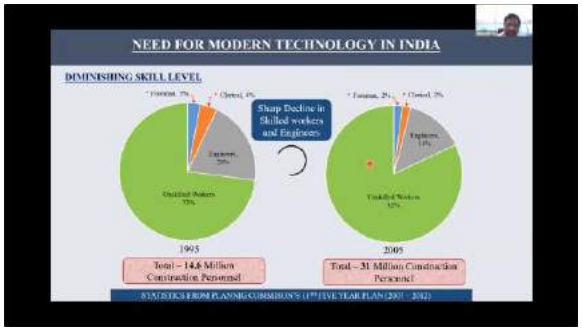
Dr.M.Swaroopa rani begins session with supplementary cementatious materials fly ash, GGBS, silica fume, metakoline, fibres, RHA, saw dust and crushed spent fire brick (CSFB).Explain about spent fire bricks, sand – crushed gradation curves, physic-chemical properties and quantity of materials.Indetail on efficiency factor, strength efficiency factor, cementing efficiency factor, self-compacting concrete mix design, modification as per EFNARC.Study on experimental results of optimized GGBS and RHA combined mixes, fresh and hard properties. Describe evaluation of efficiency factor by depending on age, percentage of replacement, mineral admixtures ability. Outline computation of Bolomey's coefficient from Bolomey's strength equation, comparision of strength efficiency factor of

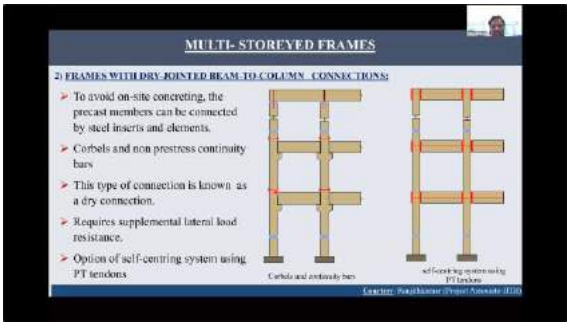
GGBS-RHA-SCC and GGBS-SCC at optimum percentage of replacement.End the session with efficiency of GGBS-RHA in self-compacting concrete.

8. **Dr.Maganti Janardhana Yadav (JNTUH)**

Eighth session by Dr.S.Surya prakash, Professor& HOD, IIT-Hyderabad. Recipient of prestigious Ramanjun fellowship from Government of India. Worked as a design engineer at structural group Inc., Baltimore, USA.Ph.D from Missouri University of science and Technology, USA in 2009.Research interests include advanced composite materials, precast systems and repair and rehabilitation of structures. Published 70 research papers, serving as the Associate editor for ASCE journal of bridge engineering and member of ACI, ASCE, ICI and ASTR.Also executive member of Institution of bridge engineers.

Title of the topic: Precast construction for sustainable construction opportunities and challenges.





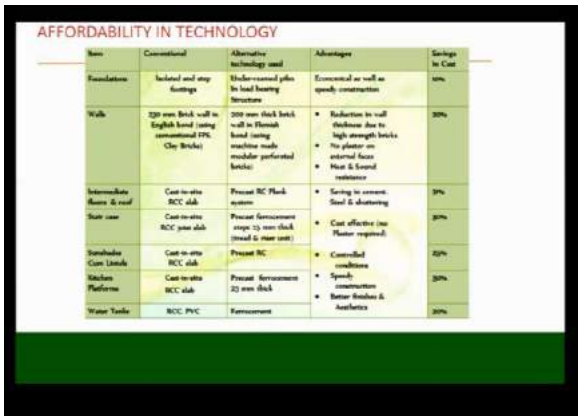
Dr.S.Surya prakash starts session with introduction in to industrialized building systems ,concrete pre-fabricated pre-finished volume construction(PPVC),steel PPVC.Describe need for pre-cast system in India, housing scenario in Mumbai today and about Indian pioneers, need for modern technology in India. Explain challenges in implementing precast concrete construction, available resources and agents, types of precasting like total precast, partial precast and mixed construction. Outline Classification of precast systems as skeletal frame system, large panel system, cell (or) box system, hollow block systems for low rise portal frames, multi storied frames and sub-column system for shear walls. Look in to connections

for frames with rigid beam to column, dry jointed connections, pre cast structural elements beams, columns, walls like façade units, textured panels and insulated walls, foundations. Then brief on basic load transfer mechanism, encasing, lapped reinforcing bars, dowel action, bond, friction and shear inter locking. Pre cast construction, column-footing, column-column, column-beam, beam-slab processes described. Conclude the session with research aspects like light weight hollow core slabs and then way far ward to promote pre cast technologies.

9. **Dr.V.Srinivasa reddy, Professor GRIET**

Ninth session by Dr.V.Srinivasa reddy, Professor GRIET. Received Ph.D. from JNTUH, ten years of industry and 12 years of teaching experience. Actively involved in research activities from 10 years. University topper in structural engineering master's degree. Additionally has post graduate diploma in management. Published 120 papers in various journals and conferences. Actively involved in consultancy and research projects.

Title of the topic: Low cost housing projects in India-case studies.



Dr.V.Srinivasa reddy begins session with activities of low cost housing by NHO.Describe value engineering with low cost construction technology including pre-cast RC plank roofing, prefab brick panel and joist roofing, soil cement block technology, concrete block walling, fibre cement composites. Outline process of RC planks laid over partially precast joists, pre cast RClintel cum sunshades. Explain about choosing building materials and under lying principle, commonly used building materials hollow concrete blocks, bamboo, extruded clay bricks, compressed earth bricks, concrete panels, polymers and recycled composite blocks. Then about selection of low cost building materials, manufacturing low cost building material, recycled waste as building material, natural low cost building material land local building materials and factors to be considered for economic housing. Outline case studies of house of Bhoosan family at Mysore, farmhouse, realization community ,brick kiln house, bamboo rut house, beach house , Mallikarjun residency ,house of five elements, Marianna's house,Arati-3,Bamboo symphony and vikas community. Explain growing towards India, technology specifications ,IIT –Chennai and about tata blue steel. Describe mass housing walls 2010 with examples at Delhi, Chennai,vapi. Concludes session with affordability in technology case study.

RESOURSE PERSONS OF STTP PHASE-II:

1. **Name of the Person:** Dr. J. Karthikeyan,
Associate Professor. - N.I.T, Trichy

Topic Delivered:
Semi-Light Weight Concrete for Low Cost Housing

Day of STTP Phase-II: Day-1; 07-12-2020.

The resource person has delivered lecture about various materials which are locally available. The materials when added to concrete will reduce the weight and ultimately results in low cost.

2. **Name of the Person:** Dr. Roman babu Oinam
Assistant Professor - I.I.T, Tirupathi

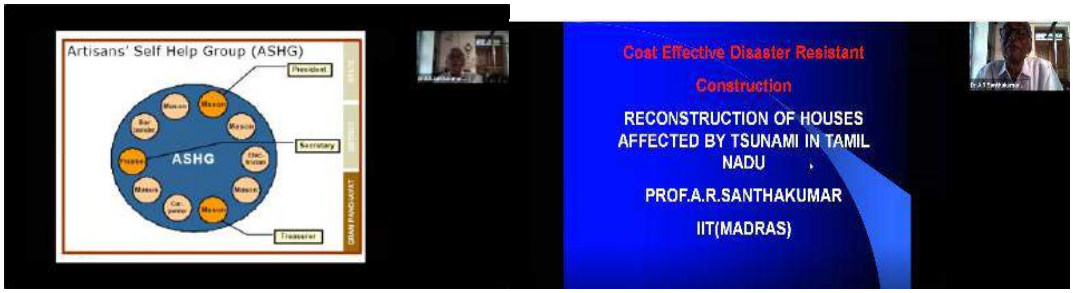
Topic Delivered: "Resilient and Sustainable low-cost housing construction"

Day of STTP Phase-II: Day-2/Morning session; 08-12-2020.

3. **Name of the Person:** Dr. A.R. Santhakumar,
Formerly Dean- Anna university,
Formerly Emeritus Professor- I.I.T Madras.

Topic Delivered: "Cost effective construction and disaster resistance"

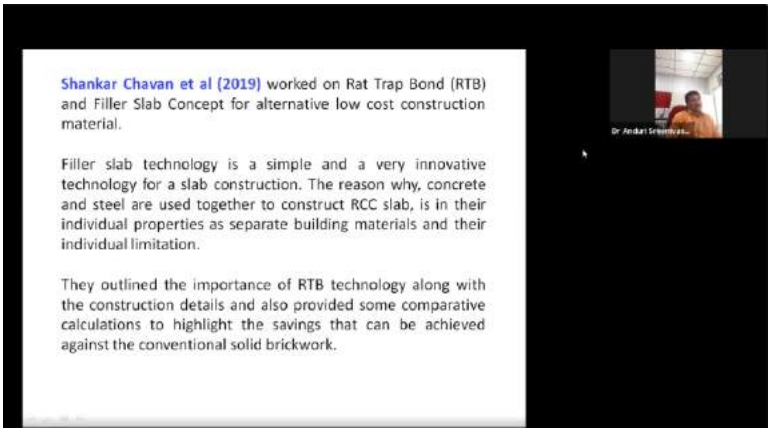
Day of STTP Phase-II: Day-2/Afternoon session; 08-12-2020.



4. **Name of the Person:** Dr. A. Srinivasulu,
Professor, G.E.C, Gudlavalleru.

Topic Delivered:

Day of STTP Phase-II: Day-3/Morning session; 09-12-2020.



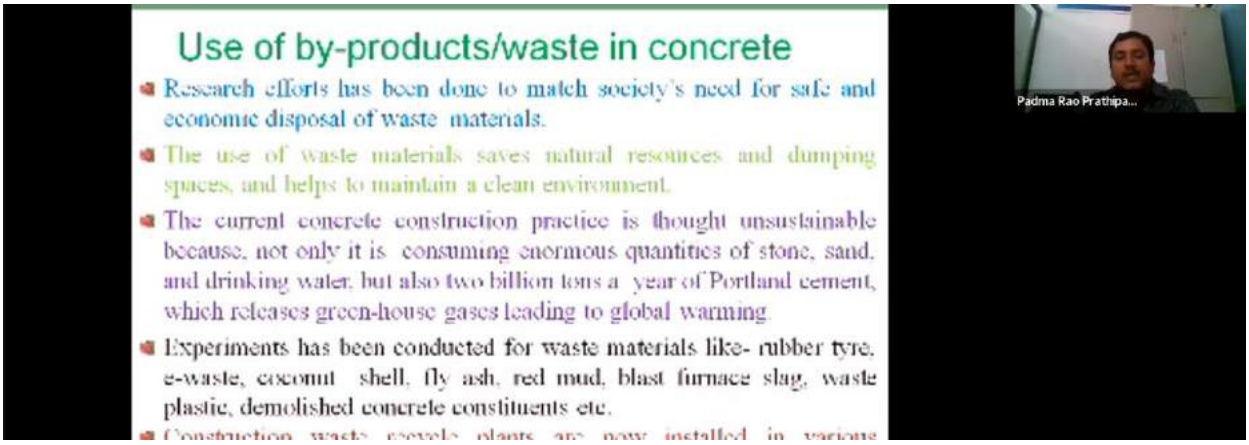
A study on the impact of reinforced natural fibers on mud bricks while coating of sulphur improves the water resistant of the above all other types of fiber bricks are made with cereal straw construct and rises which are combined with cement to make them corrosion resistant and strong

Disscued about straw reinforced mud bricks, baggas rainforest mud bricks cornstarch rainforest mud bricks mixture designations low cost building materials example bamboo compressor red bricks, fly ash hallow bricks.

5. **Name of the Person:** Mr. P. Padma Rao,
Assistant Professor, Vignan University.

Topic Delivered: "Sustainable utilization of industrial by-products in the development of infrastructure needs"

Day of STTP Phase-II: Day-3/Afternoon session; 09-12-2020.

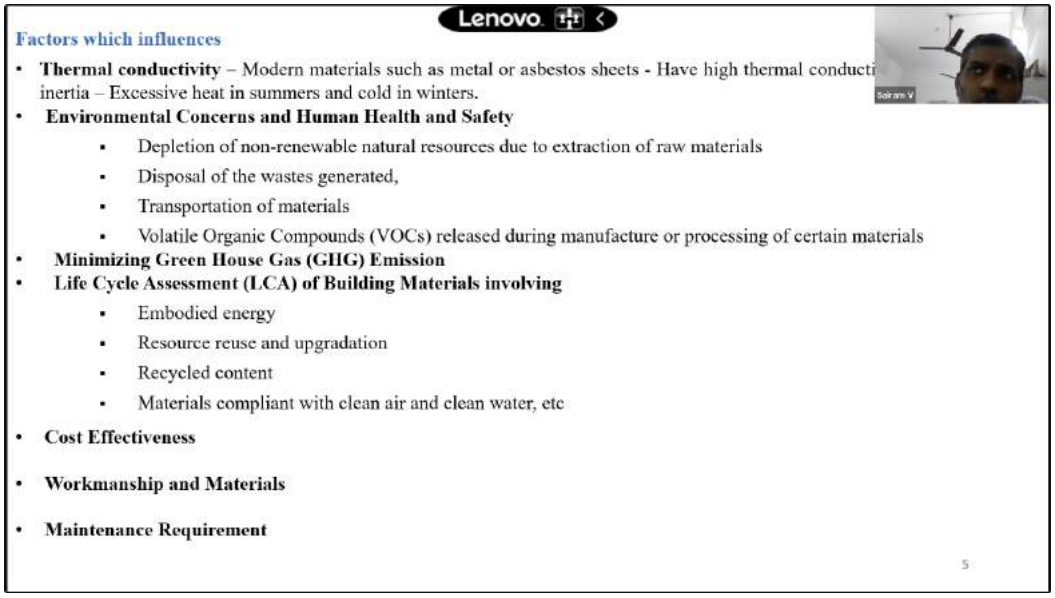


Sustainable utilization of industrial by products in the development of infrastructure needs and also explained about use of by products in concrete what are the materials used in concrete explain about fly ash red mud silica fuma rice husk Ash principles conclusion and about sustainable development

6. **Name of the Person:** Dr. V. Sai Ram,
Associate Professor, V.I.T, Vellore.

Topic Delivered: "Construction techniques for low-income housing"

Day of STTP Phase-II: Day-4/Morning session; 10-12-2020.



7. **Name of the Person:** Mr. K. Raj Kumar,
Dy. General Manager- Bridges- L&T.

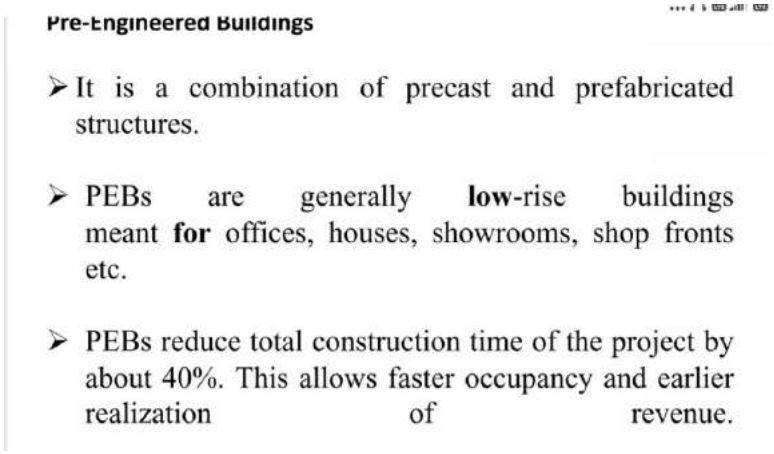
Topic Delivered: "Recent trends in infrastructure, iconic bridges-lean principles"

Day of STTP Phase-II: Day-4/Afternoon session; 10-12-2020.

8. **Name of the Person:** Dr. K. Raja Sekhar
Assistant Professor, Andhra University

Topic Delivered: "Low Cost construction with industrial waste"

Day of STTP Phase-II: Day-5/Morning session; 11-12-2020.



9. **Name of the Person:** Dr. M. Ravindra Krishna
Professor & HOD KKR & KSR Institute of Technology and Sciences.

Topic Delivered: "Advance construction techniques in low-cost civil structures"

Day of STTP Phase-II: Day-5/Afternoon session; 11-12-2020.

10. **Name of the Person:** Dr. M. Ravindra Krishna
Professor & HOD KKR & KSR Institute of Technology and Sciences.

Topic Delivered:

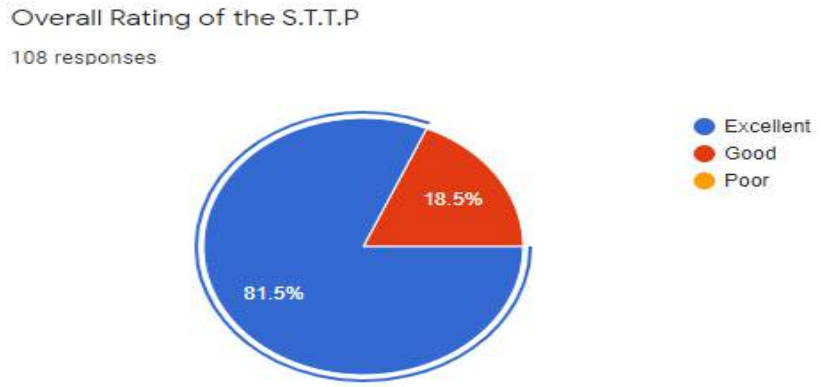
Day of STTP Phase-II: Day-6; 11-12-2020.

Event Registrations:

Phase-I 178,

Phase-II 265.

Overall Rating of the S.T.T.P Phase - I



Overall rating of the S.T.T.P Phase - II