



# AVEI NEWSLETTER

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*It has been a full year for the Auroville Earth Institute and we are happy to share the recent developments that have kept us all very engaged even during the second wave of the COVID-19 pandemic that hit India in May 2021.*

*Some of the highlights included Satprem being able to make two trips to both Syria and Mauritania to organize and initiate technology transfers of the Earth Institute's stabilized earth building techniques. Another was Radhika traveling to Lucknow in October to represent the Earth Institute at the Indian Housing Technology Mela, where her booth featured on national television when the Prime Minister of India visited it during the inauguration.*

*The Earth Institute has also continued its online training courses, as well as a limited number of on-campus sessions.*

*Please feel free to share this newsletter with your friends and colleagues as we spread the knowledge of earth architecture to the world!*

*Earthily yours,  
The AVEI Team*



## Evaluating soil resources and setting up a blockyard for AKAH in Syria



*Satprem demonstrating the preparation of hand-rammed samples in February*

Since 2020, the Earth Institute has been working with the Aga Khan Agency for Habitat (AKAH) to promote the use of compressed stabilized earth blocks in Syria. After carrying out the complete online training of 15 AKAH-sponsored Syrian building professionals (with an additional 35 finishing one or more online courses) from October 2020 to January 2021 as well as the design of a demonstration house to be built in Barri, Syria [see **Newsletter No. 47**], international travel opened up enough for Satprem to make a first visit to Syria in February. He traveled to Salamiyah, where AKAH has centered its activities for this project and met with a group of those who had attended the online training courses to analyze soil samples and visited the site where the demonstration house will be built in the nearby village of Barri. He later visited quarries in the region to do

further soil analysis and prepared samples of hand-rammed cubes. During the visit, he also had the opportunity to meet with academic and professional members of the architecture and engineering fields, giving conferences to the Syndicate of Engineering in Homs and Hama and Al Baroudi Centre for Rehabilitation in Damascus.

Satprem made a second visit to Syria in August to give on-site training on block production and to kickstart the block production for the demonstration house. As a result of the eleven-day training program, a group of 16 men and women, many of whom had never worked on a construction site before, were able to go forward with CSEB production using the mix ratios refined during the training program. The team also produced poured earth concrete samples to finalize the mix ratio to be used 🛠️



for the foundations of the demonstration house.

CSEB making continued after Satprem's departure and the block production was completed in mid-October. Satprem is supposed to travel to Syria with Venkatesh, one of the Earth Institute's master masons, at the end of January 2022. They will stay 3 months to train local masons to use nearly all the stabilized earth techniques developed by the Auroville Earth Institute, including arches, vault and domes. It is expected that the raw construction of this two-floor house of 140 m<sup>2</sup> should be finished during this period. ■



**AVEI Projects & Consultancy Abroad**



**Middle left:** Satprem with some of the online trainees  
**Bottom:** 3D rendering of the demonstration house

**Top:** Satprem giving a conference in Damascus in February  
**Middle right:** Adjusting the Auram press for block production



## Site visits and mosque design for ETR-ML in Mauritania



Testing CSEB produced by a motorized block press in Sélibaby

Satprem made two visits to Mauritania in January and at the end of February to initiate the Earth Institute's collaboration with ETR-ML (*Etablissement d'Exécution de Travaux Réalisés en Matériaux Locaux*, which can be translated as the Institution for the execution of works carried out with local materials).

The ETR-ML aims to promote the use of compressed stabilized earth blocks and other stabilized earth building technologies in the country and has asked the Earth Institute to support them in evaluating the soil resources and production of earth-based building materials, as well as to design a series of model buildings, including a mosque and a housing development.

In January, Satprem met with Mauritanian stakeholders in the Mauritanian government

and the building sector and made a series of visits to various potential sites for development to take soil samples and to evaluate the existing production of CSEB.

This trip was soon followed up by a visit at the 



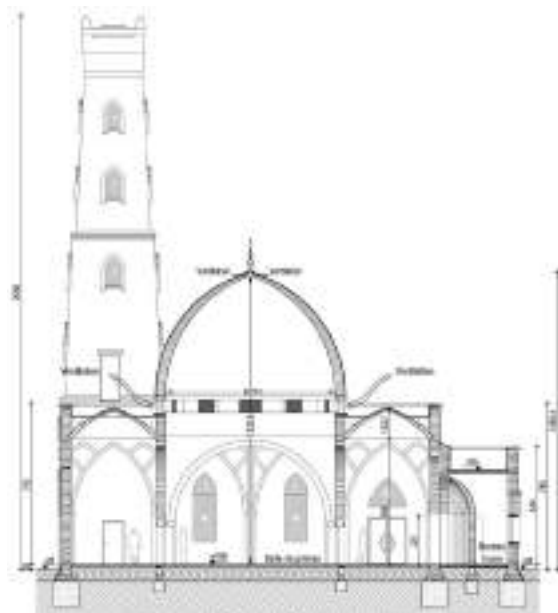
Visiting an example of earthen architecture in Kaédi



end of February, during which Satprem tested samples made during his previous visit, visited the key site selected in Ndiago for soil extraction for CSEB, and made further samples of both CSEB and poured earth. He also evaluated the block production that had already been initiated in Sélibaby for a social housing program started by ETR-ML. The blocks were being produced with a motorized machine from the Netherlands and Satprem advised on the mix ratios and the production process, and also proposed some changes in the design of the houses which had already been built.

While no further visits have been made, a set of Auram presses, both motorized and manual, have reached the capital of Mauritania, Nouakchott. The architecture team has also developed the concept drawings for a mosque complex to be built with CSEB in Sélibaby. The structure of the 502-m<sup>2</sup> mosque combines a hypostyle hall and a central pointed dome with a diameter of 7.81 m. The design of the hypostyle structure was created with thin CSEB columns and a series of equilateral arches which support segmental pointed vaults. The peripheral walls of the mosque are relatively thick at 49 cm to insure enough thermal mass and protection for the mosque to be built in an arid, hot and dry climate. The minaret is 25 m high, with four different levels to create a slight taper, and was inspired by the minaret of Chinguetti Mosque, a traditional mosque built with stone in the north of Mauritania. This minaret is planned to be used as a solar chimney which will allow the mosque to be used without air conditioning.

The next step will be to have a group of trainees sponsored by ETR-ML start the Earth Institute's online courses, which are being made available in French. ■



**Top:** Observing current CSEB production in Sélibaby

**Middle:** 3D rendering of the Sélibaby mosque design

**Bottom:** Section of the Sélibaby mosque design



## Starting block production for the Oshodhara Meditation Centre



AVEI Projects & Consultancy in India

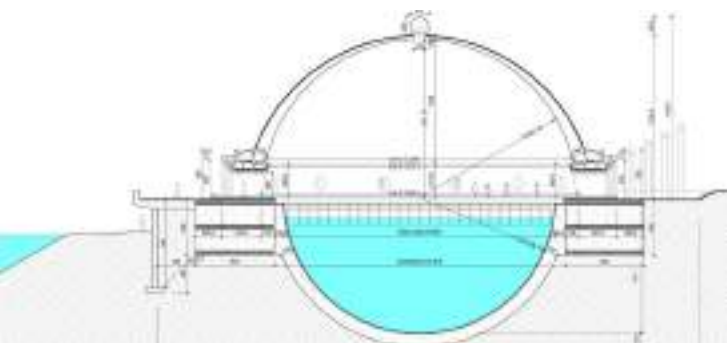
*CSEB curing on the Oshodhara Meditation Centre site*

Satprem traveled to Gujarat in July to give CSEB production training for the construction of the 33 m dome of the Oshodhara Meditation Centre [see **Newsletter No. 47** for a description of the design]. Over the course of two weeks, Satprem worked with the site supervisors to train a team of workers on how to use the Auram Press 3000 and produce the blocks types required for the construction of the dome.

The Earth Institute is serving as a consultant for the design of the dome, the training of the

manpower to build it, and the supervision of its construction. The main architect is Dinesh Suthar of "Design Work Group" from Surat, Gujarat, who is working to not only study the other parts of the structure of the building, but also to plan and design the entire ashram and major landscaping features with the building of a large dam for harvesting the rainwater flowing down from the hills to create a lake at the foot of the dome.

About 368,000 CSEB of 16 different sizes need to be produced to build the dome, which has a thickness varying from 149 cm at the base to 36.5 cm at the crown. The massive foundations of 6 m deep and 8.5 m wide will be done with poured earth concrete, using the soil from the excavation. The Earth Institute has done extensive research to optimize the use of the local soil, which is a gravelly clay. The best results were obtained with a mix of 8.9% cement, 50% soil from the site, 30% sand, and 20% 40-mm gravel. With such a ratio, the wet crushing



*Section of the dome showing the adjacent lake*



strength of the samples was 4.93 MPa after 48 hours immersion. Walls will be built with random rubble stone masonry, which will incorporate interlocking stone ring beams as well as a concrete ring beam reinforced with rods made of glass fiber-reinforced polymer.

The block production is being carried out with three Auram presses 3000 and about one-third of the blocks required have already been produced. The block production is a little slow as most of the local labor consists of farmers who do not have experience working on construction sites of this scale. They may need about six more months to complete the production. However, the excavation of the foundations of the mediation hall have begun. ■



Stacking CSEB during Satprem's visit

## Finished and on-going projects around Auroville

**House extension in Petite Ferme:** The Earth Institute has completed the design and construction of a house extension in the Auroville community of Petite Ferme [previously reported on in **Newsletter No. 47**] in February for a small attached apartment so that the mother of the residents can live in proximity to them. It comprised almost 40 m<sup>2</sup> of new interior space, with a 15 m<sup>2</sup> covered terrace, all designed with poured earth concrete and CSEB, and vaults and ferrocement channels for roofing. ■



**Interior remodel at Realization Community:** The Earth Institute also took on a small interior remodel project for an apartment in its 2012 housing project, Realization Community. The remodel involved adding built-in cabinets and shelves in the living room and a combined cabinet and sink in the bathroom. ■



**Top:** Completed extension project in Petite Ferme  
**Bottom:** Radhika and Sucheta on site in Petite Ferme



## Research on insulation panels using natural materials



*Sample insulation panels drying*

The Earth Institute conducted a small research project to produce insulation panels from materials that can be locally sourced in Syria to be used for the walls of the model house in Barri, Syria. This is to compensate for the cold weather in winter, when temperatures are regularly close to 0°C at night and indoor heat must be preserved due to the shortages of fuel and electricity.

Fifteen different mixes were made into sample panels to analyze various blends of rice straw and/or wood shavings with binder mixes combining cement, lime, clayey soil, and water.

To make the panels, straw fibers and wood shavings were cut into small pieces and thoroughly combined with the binder mixture in a large mixing tray. The mixes were then poured into formworks and compressed with plywood and blocks to form 49.5 cm square panels, each with a thickness of 5 cm. After a

week of curing, they were put outside to sun-dry for 4 weeks before they were tested. ■



**Top:** *Cutting straw for the panels*

**Bottom:** *Mixing straw with the lime-earth binder*





## Research on hourdis flooring systems

After Satprem witnessed a simple hourdis flooring system in Mauritania that exhibited significant deflection but did not fail, he decided to revisit the hourdis flooring system design using T beams that had been developed by the Earth Institute for the demonstration house in Barri, Syria. The Earth Institute therefore tested its original T beam design, which was heavier and more materials intensive, against a simplified beam design inspired by what Satprem had observed.

Both types of beams - each measuring 5 m - were pre-cast on the Earth Institute campus and then their deflection under their own weight was measured. They were then assembled with the hourdis infill and slab covering. For the T beam, this assembly could be done with no support, but the simplified beam required support at 150 cm from each end to counteract the 45 mm of deflection in the 5 m span of the beam from self-weight. The ultimate measured deflection of the two systems were 12 mm for the unsupported T beam system after 4 weeks and 3.7 mm for the simplified beam system once the supports were removed at the 4-week mark. The outcome demonstrated that the simplified system presented the opportunity to reduce the complexity of the system and the use of materials. ■



**Top:** Precast T beam (left) and simplified beam (right)  
**Upper middle:** Measuring the deflection of the simplified beam  
**Lower middle:** Assembling the hourdis in the T beam  
**Bottom:** Completed T beam (left) and simplified beam (right)



## Research on lime-earth waterproofing for unstabilized earth



*Mason Mani working on the adobe vault*

The Earth Institute engaged in the construction of a small adobe vault on its campus to test its behavior in a monsoon climate when protected by a lime-earth waterproofing layer. During the month of March, adobe blocks were produced on-campus using local red soil and then the construction took place as soon as they were dry.

The vault gave the Earth Institute an excellent opportunity to implement a four-layer lime-based waterproofing technique, which was done progressively over several weeks to allow drying between each layer. The layers combined soil, sand, and lime in varying proportions. One quarter of the area of the vault was left exposed with these four layers; another quarter was painted with linseed oil; a third quarter was whitewashed with a two-coat limewash; and the last quarter was

whitewashed and painted with linseed oil. Now that the monsoon has arrived in Auroville, it is possible to see the effectiveness of this waterproofing for unstabilized earth.

Only a minor longitudinal hair crack developed on both sides between the vault and ▸



*Applying the lime-based waterproofing*



the rainwater gutter because of thermal movement, and the waterproofing leaked a little in three places during the first days of rain. These have been repaired.

The Earth Institute team has set up a protocol for monitoring the humidity in the vault: it is measured every day at 15 places in the vault, as well as in the CSEB wall (protected from the rain) supporting the vault, and in five adobe samples that have been placed under the vault but elevated from the ground as a reference. Thus far, the waterproofing seems to be working very well, as showed by the first round of data:

- Total rainfall over the last 5 months (on 58 days): 1,586 mm
- Relative air humidity: 99%
- Average humidity of the intrados of the vault: 4.93%
- Average humidity of the reference adobes: 4.30%
- Average humidity of the (protected) CSEB wall: 3.73%
- >No dampness anywhere

Neither the limewash nor the linseed oil adds anything to the effectiveness of the lime-earth plasters, as there was no dampness anywhere in the vault. However, after only 58 days of rain, the linseed oil became fully black with fungus, thus showing that it does not suit the tropical monsoon climate of Auroville. The monitoring of the vault will go on in the following years to see how durable this waterproofing is. ■



Ayyappan testing the humidity of the vault

## Research on the viability of red gypsum in CSEB



Combining the red gypsum with various mix ratios

A large manufacturer of titanium dioxide pigment contacted the Earth Institute to request testing to see if red gypsum, a byproduct of their effluent treatment plant, could be used as a soil replacement in compressed stabilized earth blocks. Red gypsum is a byproduct of the titanium dioxide industry.

Eight different mix ratios were tried with varying proportions of two different red soils, red gypsum, M sand, dry hydrated lime, and cement. Once cured, they were tested using the compression testing machine in a dry state and a wet state. ▽



The results of these tests, as well as visual indicators, demonstrated that the addition of red gypsum significantly reduced the cohesion and strength of the blocks. Therefore, it was determined that red gypsum should not be used as a replacement for either sand or soil in CSEB mixes. ■



Testing a CSEB with red gypsum

## Research on the potential for lime stabilization in Auroville

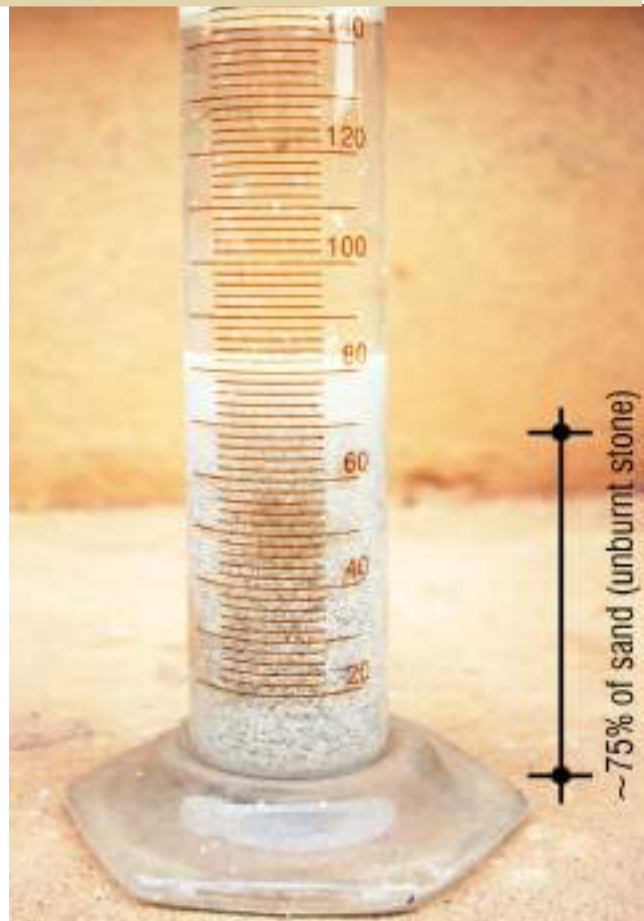


Shrinkage tests being conducted on three cube samples

The Earth Institute followed up in September on earlier research it had done on lime stabilization of CSEB for potential use in Auroville's urban development for the "Line of Progress", which would comprise buildings up to seven floors.

Four sets of CSEB were produced with 10% and 15% locally produced lime, 10% (commercial) dry hydrated lime, and 5% cement (as a control group). These blocks were then tested after one month, three months, and six months to determine their strength.

Unfortunately, because of the low clay content of the local Auroville soil, the results were not adequate. However, there are possibilities for



A simplified sedimentation test

combining additives with the dry hydrated lime and soil to create geo- or biopolymers. ■



## Testing the new Innobloc 250



*An Innobloc 250 wall assembly undergoing a shear test at Aureka*

In May, the Earth Institute collaborated on the testing of a new type of interlocking blocks under development by Aureka, manufacturer of the Auram earth construction machinery. The “Innobloc 250”, as these new blocks are called, do not require any mortar, and instead have four holes with keys, which allow them to be interlocked. While dry-stacking is possible with these blocks, it is not advisable because of the lack of a proper bond, and so the team decided to evaluate the shear stress resistance of two sample Innobloc 250 walls mortared with an earth concrete grout and two different “glues” – earth-cement glue and Fevicol polyvinyl acetate glue – and a control sample wall of plain 240 blocks with cement sand mortar. The video can be viewed [here](#).

1 x 1 m CSEB wall assemblies, the Innobloc 250 wall with earth cement glue and earth concrete grout was found to behave the best, demonstrating 31.7% greater strength than the Innobloc 250 wall assembly with Fevicol glue and 27% greater strength than the plain 240 wall assembly with cement sand mortar. ■



*All three wall assemblies to be tested*

After performing the shear test on the three



## Representing stabilized earth at the Indian Housing Technology Mela



AVEI in Conferences, Presentations & Webinars

*Radhika appearing on television with the Prime Minister of India during the opening of the Indian Housing Technology Mela*

The Indian Housing Technology Mela (IHTM), organized by the Ministry of Housing and Urban Affairs (MoHUA), Government of India, was held in Lucknow from 5 to 7 October to promote domestically developed indigenous and innovative construction technologies, as well as materials and processes for low and mid-rise (up to G+3) affordable houses.

Radhika participated in this three-day conference and expo on behalf of the Earth Institute, for which she organized an exhibition stall and presented about stabilized earth as a construction material and the techniques that are practiced by AVEI. Her involvement was generously sponsored by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in the context of the "Indo-German Energy Programme" (IGEN), which aims to foster

sustainability in the built environment through the use of sustainable materials for thermal comfort in order to improve environmental and climate conditions.

Over the course of the expo, more than 350 people visited the stall, amongst which were the Prime Minister of India, Shri Narendra Modi, 🇮🇳





members of MoHUA and Building Materials & Technology Promotion Council,, and many other builders, architects, engineers, and students.

In general, there was a very positive and encouraging response to the stall. Many attendees were highly appreciative and commented on how stabilized earth could be an appropriate material for low to mid-rise developments. Many visitors discovered stabilized earth technologies for the first time and were curious to know more about their potential adaptability to their own regions. ■



Radhika presenting about CSEB at the IHTM

AVEI in Conferences, Presentations & Webinars

## DHAN HOPE: Presenting on CSEB for self-building efforts



### Madurai Symposium 2021 Fostering Development Knowledge

#### Advancing Development: Community Swaraj

25-29 October 2021



Madurai Welcomes all Development Stakeholders and those interested in Development to a "Unique" Knowledge Mart in Development from October 25-29, 2021. This is the Tenth Biennial Madurai Symposium, where many stakeholders with diversity in development: Community Organizations, Civil societies/NGOs, Government, Banks, Insurance Companies, CSR Foundations, Donors, Philanthropists and Academia gather to share and learn from each others' experience and practices to serve the underprivileged and deprived communities. The previous edition of 2019 saw participation of 10,000 stakeholders and deliberated on the approaches and mechanisms for Women empowerment among the vulnerable and poor/down-trodden segments of the society.

Madurai Symposium 2021 would bring several development stakeholders together to take stock of the Community Swaraj in the national agenda of Inclusive growth and development.

To view the programme schedule agenda, please visit:  
<http://maduraisymposium.net/>

## AGENDA

### THEMES

- Community Institutions with embedded thematic programmes with purpose-focus
- Community Partnership with Mainstream Institutions
- Community & Pandemic Management
- Policy Influencing by the Community
- Community Governance
- Community Financing and Sustainability

The Madurai Symposium 2021 was organized at the end of October by the DHAN Foundation, with the theme of "Advancing Development: Community Swaraj".

Satprem presented online on 28 October as part of the workshop on "Use of Alternative Technologies in Housing the Ultra-Poor to Build Community Swaraj" hosted by DHAN HOPE, an institution under the DHAN Foundation whose acronym represents "Housing and Habitat Development of Poor for Empowerment Confederation". Satprem mainly focused his talk on the features of compressed stabilized earth blocks and their relevance in building community self-sufficiency by empowering people to manage their own resources, to produce their own building materials, and to develop social capital in implementing the construction of houses.

The symposium hosted 50 events such as workshops, seminars and conventions related to community swaraj. It passed 92 resolutions on various sectors such as water, community banking, coastal development, agriculture, sanitation, etc. ■



## Hassan Fathy and Architecture for Climate Resistance

Satprem joined an Urban Thinkers event on 29 October to exchange on the topic of "Architecture for Climate Resilience- Learning from Hassan Fathy" on the occasion of World Cities Day 2021, celebrated in Luxor, Egypt. Under the umbrella of the World Urban Campaign, this event was organized by the Hassan Fathy Center for Architecture & Sustainable Development, the International Union of Architects, and the Habitat Professionals Forum.

Born in 1900, Hassan Fathy was a pioneer of appropriate technologies for building in Egypt using vernacular architecture and design to promote local or regional construction using traditional materials and resources. This approach strengthened Egyptian heritage, while engaging communities and earning him the title of "architect of the poor". The visionary city of New Gournia is a prime example of Fathy's design and approach to architecture, putting people at the center. In this project and others, he championed cultural authenticity by using mud bricks as the main building material and designing domed ceilings borrowing from the shapes of Upper Egypt to address the

impact of weather.

In addition to the Urban Thinkers Session event on "International Perspectives on Hassan Fathy's Architecture and Climate Adaptation and Resilience" that Satprem took part in, there was also a moderated discussion that explored Hassan Fathy's legacy and how his ideas can contribute to the UN's Sustainable Development Goals, the focus being to reduce poverty by improving livelihoods through the promotion of local crafts, to support quality education, to increase the availability of health care, and to develop architectural design elements that help mitigate climate change.

Now the Hassan Fathy Center is launching a local campaign under the slogan "The City We Need Now!" to engage local partners in a series of activities to reflect on future directions for New Gournia. By exploring the legacy of Hassan Fathy, local partners can better envisage the immediate and longer-term future and how they can contribute towards this common future.



Invited speakers for "Architecture for Climate Change Adaptation – Learning from Hassan Fathy" will discuss Hassan Fathy's contributions to the relationship between architecture and climate through specific topics such as how to design cities, designing housing units, choosing materials, Recycling, using waste, reducing emissions and provision of public places and green areas.



**Architecture for Climate Resilience- Learning from Hassan Fathy & Hassan Fathy and Sustainable Development Goals**  
New Gournia, 29 October 2021, 14:00-17:00 Pm Cairo Time

**World cities Day, Luxor, Theme: Adapting Cities for Climate Resilience**  
<https://urbanoctober.unhabitat.org/wcd>

To register for this Event

[Architecture for Climate Resilience – Learning from Hassan Fathy & Hassan Fathy and Sustainable Development Goals](#)  
After registering, you will receive a confirmation email containing information about joining the meeting



In the next session, "Hassan Fathy and the Sustainable Development Goals," the participants will explore Hassan Fathy's contributions to what is currently known as the Sustainable Development Goals, including providing the eradication of poverty by providing job opportunities through crafts, paying attention to education, contributing to improving health, cultural development, providing services to women, and preserving the environment. The center will also launch a local campaign under the slogan "The City We Need - New Gournia" The objectives of the campaign include introducing the characteristics that will shape the features of cities and that will provide us with a better life.



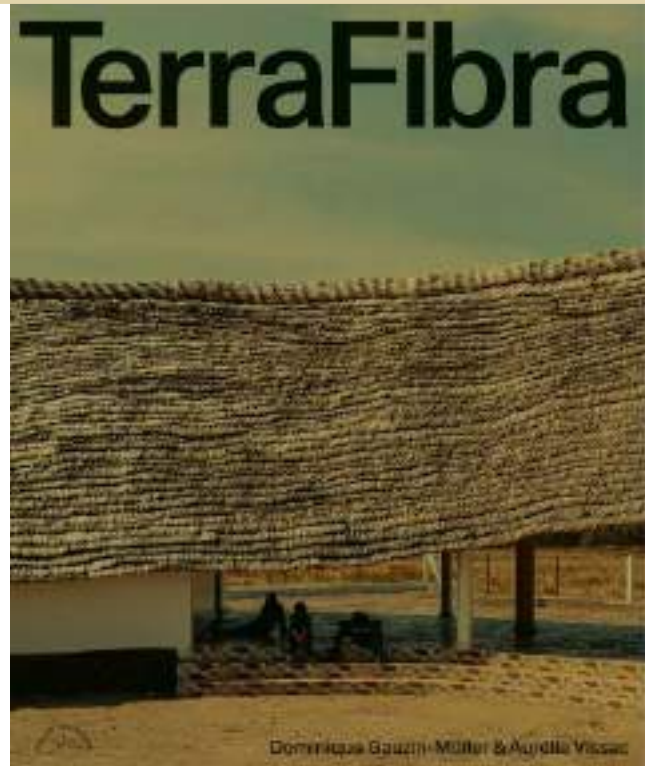




## TerraFibra: celebrating earthen and fiber-based architecture

This November, the Pavillon de l'Arsenal, Les Grands Ateliers, and amàco opened the TerraFibra exhibition as the culminating event for the TerraFibra Award cycle that recognized 40 recent building projects that primarily used geo- or bio-sourced materials in the areas of local development, cultural facilities, academic/sports facilities, social spaces, collective housing, individual housing, renovation, interior design, pedagogical projects, and art installations. The Earth Institute's Sharanam Conference Hall was among the projects selected as finalists for the award.

In addition to the exhibition at the Pavillon de l'Arsenal, a beautiful bilingual French-English publication entitled *TerraFibra* and written by Dominique Gauzin-Müller and Aurélie Vissac was unveiled, showcasing the finalist projects and exploring the current state of earthen and fiber-based construction in France and around the world. Hilary assisted with the verification



AVEI Communications & Dessimination

and proofreading of the English translations, and can thoroughly attest to the inspirational and informational nature of **this book**. ■

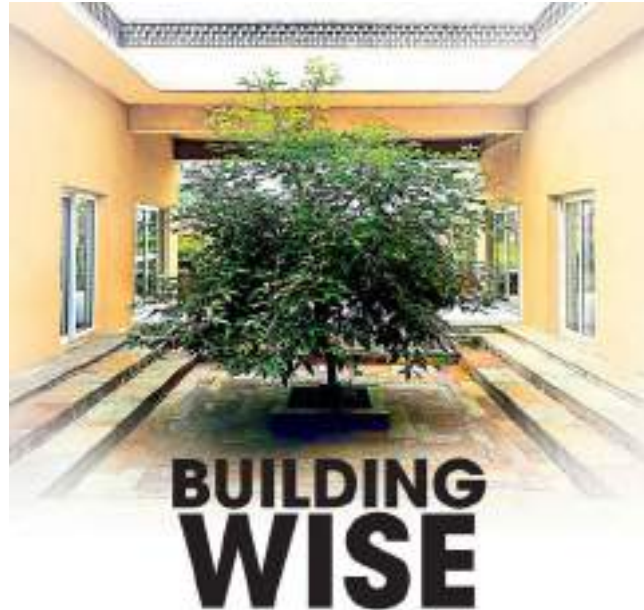


TerraFibra exhibition at the Pavillon de l'Arsenal (© Pavillon de l'Arsenal)



## CSE publication on sustainable building

The Centre for Science and Environment (CSE) in Delhi has recently published a book entitled *Building Wise*, which gives an overview of an array of sustainable building projects across India, including a case study of Vikas Community and Realization Community in Auroville, designed and built by the Auroville Earth Institute. These articles were written with content and feedback from Hilary. With its combination of detailed descriptions, photographs, and architectural drawings, this publication shall hopefully serve as an inspiration to the practitioners in the Indian building sector, which is growing to be the third largest in the world.



The Earth Institute is pleased to have added **this book** to its library. ■

**Visit of the Secretary of the Auroville Foundation:** A new Secretary was nominated in June to the Auroville Foundation, the government body that oversees the project of the Auroville international township. Dr. Jayanti Ravi, an Indian Administrative Service (IAS) officer, was previously the Principal Secretary of Health and Family Welfare for the Indian state of Gujarat, and has now taken this three-year appointment to the Auroville Foundation.

In September, Dr. Jayanti came to visit the Earth Institute to learn more about its activities and interact with the team. Impressed by the sustainable and livelihood-enhancing properties of stabilized earth technologies, she encouraged the Earth Institute to pursue additional construction initiatives for livelihood creation around India.

Dr. Jayanti has also been very active in engaging with the architect and builder community within Auroville. ■



Dr. Jayanti Ravi with the AVEI team and Auroville architects



## Saluting our colleagues in the earthen architecture network



**Earthen architecture at COP 26:** Rosie Paul, a former Earth Institute architect and current principal at Masons Ink, went to represent the field of earthen architecture at the climate conference COP26 in Glasgow. She took part in three sessions on “Relationship between the Vernacular Built Environment, Local conditions, climate”, “A focus on food and shelter: culture-based strategies to build resilience for vulnerable communities”, and “Cultural Heritage, Resilience & the Built Environment: an inter generational dialogue”, in which she capitalized on her experiences as a building professional and as a researcher to bring insight to these topics, particularly in the context of India.

During COP26, Auroville architect Suhasini Ayer also received a Green Building Solutions Award for her youth housing project “Humanscapes”, which features the poured earth concrete mix ratios that the Earth Institute has been developing over the past decade.

Congratulations to both Rosie and Suhasini for their engagement in the field to bring earth-based construction to the global stage! ■

**Aureka and the Auram Press:** With two international technology transfers underway in Syria [See p. 2] and Mauritania [See p. 4], the Earth Institute has advocated for the export of Auram Press 3000 to facilitate the use of CSEB in these two countries. However, these press

exports represent only a small percentage of the domestic and international Auram earth building equipment sales that are carried out annually by our partner Aureka, with whom we have developed a variety of manual and motorized multi-mould earth block presses. The Auram Press 3000, a manual earth block press which was the first to be commercialized in 1990, has been sold all over the world. Until now, 1,182 Auram Presses 3000 have been sold in 75 countries. This year, 65 Auram Presses 3000 were sold in ten countries: the USA, Rwanda, India, Iraq, Gambia, Mauritania, Saudi Arabia, Cameroon, Kenya, and Honduras. The motorised equipment which has been in development since 2015 has started to be commercialized by Aureka. Until now 17 motorised presses 4000 have sold in various countries, as well as 15 mixer “Auramix” and six crushers. ■



**Elementerre on France 24:** The Auram Press 3000 was featured in a recent video feature on France 24, a French news broadcasting agency that is intended for international audiences. In an August reportage called “Sénégal: des briques en terre pour remplacer le béton” (Senegal: earth bricks to replace concrete), the work of Senegalese company Elementerre was presented, prominently showing their use of the Auroville-made Auram press.

The video (in French) can be viewed [here](#). ■



## Online and on-campus courses in 2021

AVEI Training



*Trainees participating in the hands-on component of AVD Intensive in November*

The first AVEI on-campus course in a full year was held at the Earth Institute in March and brought together a small group of 16 participants for Arches, Vaults, and Domes Masonry (AVD Masonry). The group combined students and professionals from around India.

A month and a half before in early February, the Earth Institute also conducted the earth building components of the Earth & Bamboo course that it teaches in collaboration with the Auroville Bamboo Centre and Auroville Consulting.

While the Earth Institute had to shift back to online-only courses during the second wave of Covid-19 in India, four additional training courses have since been able to take place: CSEB

Production and CSEB Masonry in October and CSEB Intensive and AVD Intensive in November.

Over the course of the year, the online courses – AVD Theory, CSEB Design, and CSEB



*Trainees learning sensitive analysis in CSEB Intensive*



Theory – have continued to have a national and international reach, with 20 completions by individually enrolled participants, in addition to those who have taken part as sponsored participants. While the majority of the online trainees have been from India, there have also been several trainees from Canada and the United States, as well as from Saudi Arabia, Uganda, Hong Kong, and Lebanon. ■

Our computer technician Daniel and his colleague Alex revised entirely our process of recording and entering data for the trainees that we have trained. Hereafter is a brief summary of 31 years of training activities, which started in 1990: **13,711 people from 92 countries**, comprising 9,975 Indian trainees and 3,736 foreign trainees from 91 other countries, have been trained during courses ranging from short awareness courses to one-week courses, long-term internships, “on-the-job training” in various countries, and more recently online courses.

## New team members

The Earth Institute has welcomed three new team members this year!

**Neema:** I believe that sustainability should no longer be an individual’s choice but the norm for everyone. I love working hands-on where I can touch, feel and know the natural material better. My name is Neema Biju Jose and I graduated in architecture from NCA Palakkad, Kerala. Early in my internship in Auroville, I developed a taste for sustainability, and then working with wallmakers helped me in channelizing my interests towards natural building. My fascination for natural buildings brought me here and I am very grateful to be a part of the team who is striving to make a difference in the world. ■

**Bikalpa:** I am from Guwahati, Assam and doing my bachelors in Architecture from NEHU, Meghalaya. I am working in AVEI as an intern and it has been a wonderful experience for me. The hands-on experience I have had with different building techniques like rammed earth, CSEB, arches, and vaults has been amazing. Young architects like me are in debt for the work and research AVEI is doing in the field of earth architecture. In the office, the way they treat

each other as a family and the urge to teach and share knowledge without any hesitation is very admirable.

In working on the designs for the Mauritanian mosque, the remodel at Realization, and the social housing project for SAF, I have had a unique opportunity to see how the environment and the people working on the construction site can be prioritized from the beginning. I am blessed to be a part of the AVEI family. ■

**Kalaivani:** My name is Kalaivani and I live nearby to Auroville, having graduated with a degree in Corporate Secretariatship. I consider myself a lover of “Mother Earth” and realize that all things are driven by divine energy. Having searched for a job in an eco-friendly environment, I believe I have finally arrived at the right place. I shall utilize my professional skills wisely and sensitively with the aim of learning from and contributing to the team at the Earth Institute. On a personal level, I practice meditation regularly and believe in the importance of mutual respect in my working and personal life. I am very interested in animal welfare and frequently provide food for street dogs and cats, and also for birds. ■



## AVEI on-campus training course schedule for 2022

### January

17th to 22nd: CSEB Intensive

### March

7th to 12th: Ferrocement

14th to 19th: Wind Generator

### April

25th to 30th: CSEB Design

### May

2nd to 7th: CSEB Intensive

9th to 14th: AVD Intensive

23rd to 6th (Jun): Bioclimatic Earth

### June

13th to 18th: Ferrocement

20th to 25th: AVD Theory

27th to 2nd (Jul): AVD Masonry

### July

25th to 30th: CSEB Design

### August

1st to 6th: CSEB Intensive

15th to 29th: Bioclimatic Earth

### September

5th to 10th: CSEB Production

12th to 17th: CSEB Masonry

19th to 24th: AVD Theory

26th to 1st (Oct): AVD Masonry

### October

10th to 15th: Ferrocement

17th to 22nd: Wind Generator

### November

21st to 26th: CSEB Design

28th to 3rd (Dec): CSEB Intensive

### December

5th to 10th: AVD Intensive

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## AVEI online training course schedule for 2022

### First Session

3rd to 29th January: AVD Theory

31st Jan to 26th Feb: CSEB Design

28th Feb to 12th March: CSEB Theory

### Second Session

6th Jun to 2nd Jul: AVD Theory

4th to 30th July: CSEB Design

1st to 13th August: CSEB Theory

### Third Session

3rd to 29th October: AVD Theory

31st Oct to 26th Nov: CSEB Design

28th Nov to 10th Dec: CSEB Theory

Register at:  
[registration.earth-auroville.com](http://registration.earth-auroville.com)