



URBAN SUSTAINABILITY MELA

October 2021

Bhuj, Gujarat

Organising Partners:



Supported by:



Report of Urban Sustainability Mela

October 2021

Bhuj, Kutch, Gujarat

Organised by: [Homes in the City](#)

Partners: Center for Environment Education, Khamir, Mahila Housing Trust, Samuchit Enviro Tech

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CONTENTS

Executive Summary	4
Acknowledgements	5
Introduction	6
Inaugural session	8
Urban Sustainability Mela Exhibition	10
Presentations at the Mela	11
<u>DAY 1: 23rd October 2021</u>	
Theme 1: Passive Architecture, Eco-friendly building designs/ materials, Low-cost eco-friendly solutions for informal settlements, etc.	
Theme 2: Waste and Water - Recycling, Disposal and Management	
Documentary screenings by Kriti Film Club	
<u>Day 2: 24th October 2021</u>	
Theme 3: Water Conservation, Groundwater Recharge, Sustainable Use	
Theme 4: Sustainable Food and Lifestyle Practices	
Theme 5: Energy Efficient, Renewable Energy-based Appliances/ Techniques	
Reflection and Closing session	30
Annexure	33
Programme Schedule	

Executive Summary

The Urban Sustainability Mela was a one-of-its-kind participatory gathering, organised by Homes in the City, in Bhuj, Gujarat on 23-24th October 2021. The mela (fair) received 1800 footfalls over the two days, including community members from Bhuj, individuals and organisational representatives working on different issues in the broader domain of urban sustainability. The format of the mela was an interactive mix of presentations and an exhibition of models or innovations being used to make cities and the human environment habitable and sustainable for all.

The mela witnessed engaging discussions and presentations on *five broad themes*, made by representatives of 19 organisations from across India:

Theme 1: Passive Architecture, Eco-friendly building designs/materials, Low-cost eco-friendly solutions for informal settlements.

Theme 2: Waste and Wastewater Recycling, Disposal and Management

Theme 3: Water Conservation, Groundwater Recharge, Sustainable use

Theme 4: Sustainable Food and Lifestyle practices

Theme 5: Energy Efficient, Renewable Energy-based Appliances/ Techniques

Cross-cutting and recurring topics of discussion that emerged from the presentations included the importance and urgent need to take actions that protect the environment, and mitigate and adapt to climate change in urban settings. Participants agreed that these steps should be taken in line with the rich cultural legacy of the nation we live in. They looked at accommodating indigenous wisdom and local traditions that value the linkages between humans and the environment; the synergy between science and culture and emphasised upon the need for adopting low-cost solutions that are accessible, while being environmentally and economically viable in urban settings.

Sustainability footprints that can be made on a day-to-day basis, for example, using a cycle instead of a car (for short travels), switching off electricity when not needed; choosing greener energy resources, etc.; and solutions that are climate and people friendly, were discussed—through presentations and question-answer sessions, demonstrations, exhibits and documentary screenings. Some individuals also took pledges to work towards a greener future.

The two-day mela was facilitated to be solution-focused, with an emphasis on design thinking and innovation as key problem-solving approaches. The mela began with a prayer by school students who are the generation that will take forward these sustainable actions. A short reflection session at the end of the mela brought to the fore, the need for greater community engagement and ownership of urban sustainability actions. The mela concluded with an evening of folk dance and music performances by local artists from Bhuj.

The key message that participants left the Urban Sustainability Mela with, was a call-to-action that, **THE TIME TO ACT IS NOW.**

Acknowledgements

Our planet is currently witnessing the most challenging of times due to human interventions—also known as the climate crisis. Ecosystems are being destroyed gradually and this process will only aggravate if citizens don't wake up, and start practicing eco-friendly lifestyles and practices. Keeping these concerns in mind, Homes in the City (HIC) along with Centre for Environment Education (CEE); Mahila Housing Trust (MHT); and Khamir, organised an 'Urban Sustainability Mela' for two days, in Bhuj, Gujarat in October 2021.

At this mela, eco-friendly practices/ technologies were exhibited and relevant solutions were discussed among a large audience, with an aim to raise awareness and share experiences among organisations/ citizens about innovative, eco-friendly and sustainable solutions—that can be applied to adapt and mitigate against climate impacts and the unprecedented urbanisation in India.

We are grateful to all the partner organisations that helped us in spreading the word about the mela and bring together various technologies and solutions to Bhuj city. We would like to thank all the individuals and organisations who participated in person, taking time out from their busy schedule and became part of this event. Kriti Film club team for their documentation and capturing the moments of the event in print, still **photographs** and video, thank you.

Last, but not the least, we owe to our HIC team who worked relentlessly for days coordinating with participants and the venue, all of which resulted in pulling off the event smoothly.

Looking towards a greener and bluer side always!

Prachi Patel
Coordinator, Homes in the City
Bhuj, Gujarat

Introduction

The Urban Sustainability Mela was a one-of-its-kind participatory gathering, organised by ‘Homes in the City’, in Bhuj, Kutch, Gujarat on 23rd-24th October 2021. ‘Homes in the City’ is a collective of five Bhuj-based organisations working on different social, development and environment issues. The venue of the mela was the Ryan Resort, in Bhuj city - a space that has been designed with a local and environmental aesthetic.

The Urban Sustainability Mela was organised with the following agenda:

Objectives

- Exchange ideas and share experiences (best practices and challenges) on urban sustainability issues and practices.
- Initiate solution-oriented discussions on sustainable life and work practices in urban settings.
- Recognise and incorporate local and indigenous wisdom in innovations and solutions to urban environmental and infrastructural problems.
- Create an opportunity for peer level networking of individuals and organizations committed to urban sustainability.

Methodology

With individual experts and representatives of various organisations working in the domain of urban sustainability, the mela included five sessions with presentations by speakers—each sharing a case example of how they have been working on making cities habitable and sustainable. Each presentation was followed by a question-answer round with the participants.

The mela included an exhibition where selected organisations shared models and exhibits of urban sustainability innovations and solutions. The exhibition gave the mela participants a birds’ eye view of the potential use and application of the offerings¹.

Themes

Urban systems, as forms of human settlements, are inherently complex in nature. Increasing demands of a global world has meant an unexpected pressure on cities and urban spaces, causing several levels of crises—from shortage of natural and material resources to overpopulation. The mela served as a platform to discuss the relevance of short-term fixes and symptomatic solutions to urban sustainability problems; as well as the need to rethink approaches being used to fight the manifold urban environmental and sustainability crises.

As the term ‘urban sustainability’ has gained popularity in recent years, it has been defined by many scholars and organisations. The definitions² depict how the understanding of the term has evolved, over the years.

In 1995, the European Environment Agency set five goals that make a city sustainable: “minimising the consumption of space and natural resources; rationalizing and efficiently managing urban flows; protecting the health of the urban population; ensuring equal access to resources and services; maintaining cultural and social diversity”. Mega and

Pedersen (1998) explain that a sustainable city is “one that succeeds in balancing economic, environmental and socio-cultural progress through processes of active citizen

¹ See Annex for Schedule

² Huang, Lu; Jianguo, Wu and Lijiao, Yan. (2015). Defining and measuring urban sustainability: a review of indicators. Landscape Ecology. Access here

participation”. Wu (2014) defines urban sustainability as “an adaptive process of facilitating and maintaining a virtual cycle between ecosystem services and human well-being through concerted ecological, economic, and social actions in response to changes within and beyond the urban landscape”.

From a focus on effectively managing and utilising resources to contemporary definitions highlighting the importance of community participation in urban planning, the word ‘urban sustainability’ has taken on new meanings. This mela was an exciting space in which many of these definitions were seen as embedded in the work of participating organisations.

***Representation from a
Wide Range of Groups
from Across Civil Society !***



Registrations in progress

Exhibition on Urban Sustainability



Inaugural Session

The two-day mela began with an introduction by Mr. Jay Anjaria, Homes in the City, to a spirited audience. This was followed by a welcome song, the Saraswati Vandana and a very aptly titled recitation - ‘निर्मनो के युग में हम चरित्र निर्माण ना भूलें (*In this age of development, let us not forget character development*), presented by students Indirabai Girl’s High School, Bhuj.

Welcoming all participants, Mr. Aseem Mishra, Homes in the City presented the agenda and expectations wherein he emphasised the need for ‘solution-focused discussions’. He added that, communities are conscious about the current environmental challenges and the tipping point has now come, when people want to take actions to mitigate and adapt to climate change.

He introduced and invited the Chief Guest, Ridhima Pandey, a 13-year-old environmental activist from Uttarakhand to make the opening speech. When she was nine years old, Ridhimahad filed a suit against the Indian government for not taking enough steps to combat climate change. In 2020, she pleaded to the Child Rights Committee (CRC) to protect child rights by protecting the environment. According to the BBC’s website, “Ridhima is working to save her future and that of coming generations”³.

In her striking address at the Urban Sustainability Mela, Ridhima highlighted how each ***one of us has an important role to play in protecting the environment***, by asking reflective questions like, “Do you have a car at home?”, “How many of you have cycles at home?”, and questioned on “What is the reason for not using cycles daily?”. Putting forward her views, she shared how a capitalist society attached pride and status to ‘owning a car’ as opposed to ‘owning a cycle’, and thus people submit to the capitalist greed. Being born to parents who work on conservation issues, Ridhima grew up listening about environmental issues 24x7, but did not know about many climate related issues until she began her own activist journey. “I am the one who is most impacted, but not mainly responsible for this crisis”, she shared, while mentioning how important it was to differentiate between what is a necessity, and what is a luxury—to the extent that the choice is about what is beneficial for the environment. “There is no anti-dote to climate change, nor is it an antibiotic that we can take as an injection and it will go”, she added. She cautioned that, “a day will come when we will have to think about how we will survive, as climatic impacts are increasing day by day”.

Ridhima made an interesting point when she said, “We have this perception of superiority, but are animals and plants only resources for our use? Can we live without the environment, without plants and animals...actually, without a bee, we cannot sustain humanity?” “In our mind, we are thinking of life in terms of greed or dreams (clean air, water, clean streets etc.). But, I don’t want to go to Delhi wearing a mask or an oxygen cylinder to protect myself from air pollution...we have to change, if not today, it will be never”. Urging the audience to take conscious efforts at an individual level to prevent climate change, she emphasised upon the need for urgent action.

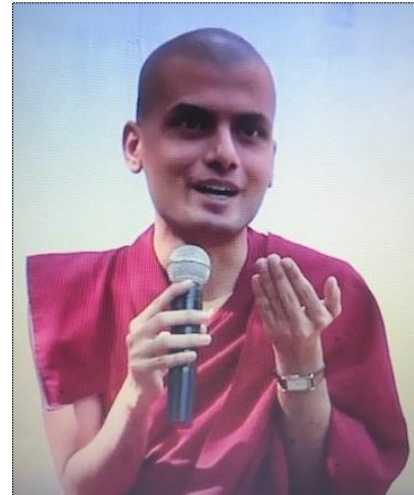


Ridhima Pandey, Environment Activist

³<https://www.bbc.com/news/world-55042935>

Summing up, Aseem Mishra emphasised the importance of ***differentiating between need and greed***; to think about disadvantaged groups; think beyond ourselves and look towards nature...take sustainable steps and action now instead of regretting in the future. He invited Tashi Choedup, special guest at the mela, for their opening remarks.

Tashi Choedup is a trans, non-binary Buddhist monastic, who began their speech with a short Buddhist prayer. In their talk, Tashi, like Ridhima brought to the fore, the urgency to address climate crisis by saying, *“This is no longer just a climate crisis, it is a Life Crisis, around me and my environment”*. Speaking about the inherent human nature to accumulate wealth for one’s own self, they questioned, *“What use is there of this wealth and assets when there would be no earth to hold them in?”* Reflecting upon how corporations do not take the responsibility of the damage they cause to the environment, Tashi remembered the Bhopal Gas Tragedy which killed thousands of people and left many disabled. Their remarks, *“Humans are creative - both in innovation and destruction”*, *“Do our desires belong to us or are*



Tashi Choedup, Environmentalist

they influenced by the outside world?”, *“Who decides the narrative of what is normal?”*, *“Thinking about the environment is equal to thinking about your family”*, prompted the audience to pause, and contemplate on their relationship with the natural environment, and ***think about the interdependency of humans and the environment***. They concluded by quoting that *“change is the only rule of the environment, and we all must focus on solutions and not problems. We must choose life”*.

Closing the inaugural session, Jay Anjaria reiterated that ***this mela is an opportunity to open the knots in the problems we are witnessing on urban sustainability issues***, and invited everyone to the opening of the exhibition. Ridhima Pandey and Tashi Choedup officially launched the exhibition with a ribbon-cutting ceremony.

Urban Sustainability Mela Exhibition

Following the true template of a mela, the Urban Sustainability Mela 2021 had exhibits and stalls open to public from 10 am - 8 pm on both days. The following organisations participated in the exhibition - ACWADAM, Arid Communities and Technologies, BIOME, Hunnarshala, Hydrid Energy Solutions, Khamir, Mahila Housing Trust, Samuchit Enviro Tech, SELCO Foundation, Shree Ram Krushna Trust, Sujalaam, SWaCH, The Nazareth Foundation, Urdhvam Environmental Technologies Pvt. Ltd. and Vikas Sahyog Pratishthan.

The exhibits displayed the work being done by various organisations on **solving urban environmental and climatic problems**—through brochures, standees, infographic posters, publications and model products/ innovations at display as well as through the presentations made during the two days of the mela.

Some organisations also displayed their products for sale. The stall by Khamir had traditionally printed fabric, clothing and handicrafts. The Nazareth Foundation's stall was selling bags and utility items made of reused and repurposed fabrics as well spices and condiments prepared by the women of the Warli tribe (living in the Aarey forest area of Mumbai, Maharashtra). The stall by Shree Ram Krushna Trust had products made from local cow-based organic farming. The stall by Samuchit held live demonstrations on cooking food using their biochar products and clean cooking devices, and also offered charcoal soap for sale.

The exhibition served as a platform for participating organisations to elaborate on their sustainable innovations, design and alternative solutions and share their experiences of working on issues of urban sustainability. It was also a networking opportunity to connect with individuals and organisations working on similar themes and issues.



Presentations at the Mela

The Urban Sustainability Mela brought together very rich and on-ground expertise and experiences around six themes. Some of this is captured in the following section, through the presentations made over two days of the mela.

DAY 1: 23rd October 2021

Theme 1: Passive Architecture, Eco-friendly building designs/ materials, Low-cost eco-friendly solutions for informal settlements, etc.

1.1 cBalance⁴

Presented by Vivek Gilani, Mumbai

cBalance is a Mumbai-based knowledge-centric, solutions' hub that specialises in tool building and strategy development for integration of carbon Enterprise Resource Planning (ERP) into institutional processes; while enabling measurable, reportable, and verifiable greenhouse gas (GHG) emissions, energy, water, and waste mitigation roadmaps.

This presentation focused on a solution created by cBalance, ***to provide thermal comfort in the homes of informal communities in Indian cities.***

Talking about their work in Pune, Vivek mentioned that, with rising temperatures during peak summers, the homes of local communities were rendered inhabitable. The pressures were most felt by the women whose livelihoods were dependent on working from home (e.g. tailoring and stitching), as they found it impossible to do so comfortably—thus impacting their health and finances. Emphasising on how the rich-poor divide plays out in urban settings, Vivek shared that, *“a power cut is caused by those having AC's, but it is those with a fan who suffer the most from the cut”*.

To address this problem, cBalance conceptualised a participatory design process wherein 16 workshops were conducted with the goal of providing financial sustainability to women—aiming at creating a women-centric political-economy in India.

Using design innovations like aluminum eco-board for immersivity, Tetrapack/ MLP Radiant Barrier, Night sky radiation, Alufoil radiant, Water-filled PET Bottles, and Rooftop Vegetable Garden, cBalance was successful in bringing down the temperature in the houses, thus making them livable. These efforts helped boost the local economy while maintaining and duly respecting the dignity of women workers.

The presentation was followed by a *question answer session* with the participants. One of the attendees enquired about the eco-board and tetra pack barrier. Another requested clarifications on rooftop vegetable gardening, which was explained further by the speaker with a focus on its use and relevance in these times.



⁴<https://cbalance.in>

1.2 SELCO Foundation⁵

Presented by Nirmita Chandrashekhar, Bengaluru

SELCO is a rural energy service company, with its headquarters in Bengaluru, Karnataka. The company delivers sustainable, decentralised energy solutions for the poor in a manner that not only creates value for the end user, but also ensures that the solution is a long term one. SELCO's solutions meet the needs of the poor and facilitate linkages to local financial institutions who can design customised credit solutions to enhance affordability.

SELCO views poverty at multiple levels and across various dimensions. It can be classified by income, living conditions, occupation, location and social status among others.

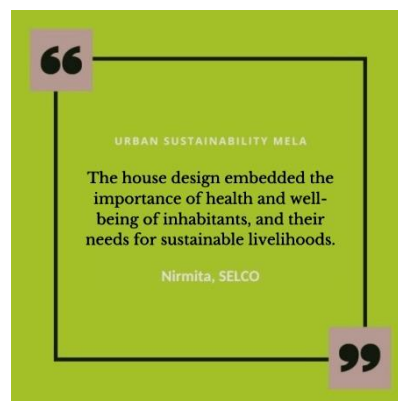
In India, not all 'centralised solutions' reach the masses and are rarely designed (technically, financially or in terms of a simple process innovation) to meet the needs of those who require it the most. According to recent studies, nearly 40% of Indian households are off-grid, and those who are connected are not assured of reliable electricity supply⁶.

This presentation provided an ***overview of situations and solutions in informal urban housing and livelihoods for productivity and well-being of local communities***. Through its initiatives, SELCO is trying to address climate change and disaster impacts, and build on sustainable energy needs and resilience at the ground level. Nirmita began with pointing out why inclusive and sustainable built environments critical for the poor—poor communities are usually at the receiving end of the worst impacts of climate change; the inefficiencies of ad-hoc built spaces with poor ventilation, natural lighting and thermal conditions, result in high operational cost of energy and comfort to end-users and costs associated with mitigation are recurring and inefficient leading families and entrepreneurs into a cycle of poverty.

She spoke about SELCO's urban sustainability solution which is using a sustainable energy approach to support workspaces, housing and institutions. As a company that creates appropriate solutions for lighting, they offer site-specific solutions with door step servicing and financing to ensure product/ service reliability and leveraging the expertise of local financial institutions, respectively. SELCO recognises that innovations need to integrate energy optimisation in the application of technologies and the environment of built spaces, with decentralised sustainable energy.

Taking the example of the houses they are building in a resettlement colony in Karnataka, she mentioned that, the company ensured that the design of the houses they were building embedded the importance of health and well-being of the inhabitants, as well as their needs for higher productivity, income increase, and aspirational livelihoods. By linking income generating activities with energy services, SELCO helped improve the quality of life for several underprivileged members by providing affordable and reliable channels to procure and use their technology.

While each family aspired for 12 ft*12 ft house that would cost them approximately Rs.1.5 lakhs, this was a tall order for them as daily wage and seasonal labourers (with savings of barely Rs. 500 per week). SELCO was sensitive to the profile and needs of these families, and built the houses keeping in mind their aspirations. The process of construction allowed for the residents to have choice and exercise agency in making decisions on the houses they



⁵<https://selco-india.com>

⁶<https://selco-india.com/wp-content/uploads/2021/04/households.pdf>

were to live in. Even though SELCO faced challenges in sourcing finance for this project at the start, they finally managed to access micro-finance institutions as their funding partner in achieving the said objectives.

The **audience interaction** followed by the presentation delved into SELCO's approach to funding for such projects; along with their experience and challenges of working with micro financing units.

1.3 Mahila Housing Trust (MHT)⁷

Presented by Pranita Sinha, Ahmedabad

In its mission to organise and empower women in poor communities to improve their housing, living and working environments, Mahila Housing Trust (MHT) is working in 1034 slums in 34 cities, across eight states of India. MHT works on three focus areas—habitat management, climate resilience, and participatory governance. Over the last 25 years, 2 Million lives impacted across India, covering over 3,50,000 households in slum settlements.

MHT views habitat as a productive asset, integral to all aspects of a poor woman's life as her well-being and livelihood is closely tied to her house, and the availability of basic services like water, toilets, electricity, and paved roads. However, currently between 25% to 40% of city residents in India, live in slums in unsanitary and hazardous living conditions, deprived of adequate shelter and these basic habitat services. While working with the women, MHT recognized and defined a problem statement which stated that the women's everyday work was getting affected due to rising temperatures. Most slum dwellings are constructed with cement sheets, plastic covers and tin sheets that absorb heat, and create stuffy and hot living conditions. They require more energy to cool down, thus contributing to increased health and energy costs.

For most homes in urban slums, the front door is usually (and not always), the only major source of natural lighting and air ventilation. The focus of this presentation was on a **sustainable cooling solution**, which is Cool Roof Technology. This alternate roof ventilation system, Air Lite, brings in natural light as well as ventilation. MHT encourages slum households to embrace alternate building materials such as green roofs, thermacol roofs (false ceiling), bamboo roofs, etc., which are weather resistant and keep homes cooler. An affordable modular roof system has also been offered as a solution constructed from recycled materials. MHT organised energy audits to understand the existing house plan in the area and proposed a renewed house plan that included:

- Air Light Ventilation- 2010
- MOD Roof- 2013
- Solar Reflective White Paint- 2016 [This technology was implemented during GRP program (Global Resilience Partnership Programme)]
- Green Roof- 2016 (GRP program)
- Thermocol Roof 2016 (GRP programme)
- Bamboo Roof- 2018

Through this solution, MHT has been able to save on the total units of electricity being consumed, thus saving on total household expenses.

Promoting a community-based resilience model, Pranita from MHT described the components of this



⁷ <https://www.mahilahousingtrust.org>

model to be accessible, user-friendly, and affordable to the people in the community. The implementation process involved a number of steps. To begin with, slum selection was done with the involvement of an area leader. The idea was to build awareness and conduct training sessions in the selected slum area. MHT has trained 1604 women and youth leaders across 100 slums as *Climate Saathis* to lead action in their communities. Community-led data collection has enabled an increased understanding of climate risks facing the communities, and more than 2000 families have adopted resilient solutions to combat heat stress, deteriorating water quality and the growing threat of vector-borne diseases.

During and after the implementation of the above-mentioned energy solutions, MHT faced a lot of challenges, but these were surmounted gradually. Over time, the organisation has managed to make a significant impact on improving the lives of the urban poor. For a current policy-framework of Cool roof technology, MHT is a partner along with Amdavad Municipal Corporation (AMC); Indian Institute of Public Health, Gandhinagar (IIPHG); NRDC India. Mahila Housing Trust (MHT) received the '2021 Ashden Award for Cooling in Informal Settlements', from the President of Costa Rica at the COP 26 (31 Oct.-13 Nov.2021), held in Glasgow, Scotland, United Kingdom, for its women-led, community-based climate resilience model.

1.4 Hunnarshala⁸

Presented by Aditya Singh, Bhuj

Hunnarshala is a Kutch based organisation that promotes and demonstrates people-centric, environment-friendly, artisan-based approaches and technologies. It works around three cross-cutting themes:

- i) how people are empowered to shape their own habitats;
- ii) how habitat solutions can become more environmentally friendly, sustainable, and disaster safe;
- iii) how local artisanal knowledge and skills can deliver high-quality products.

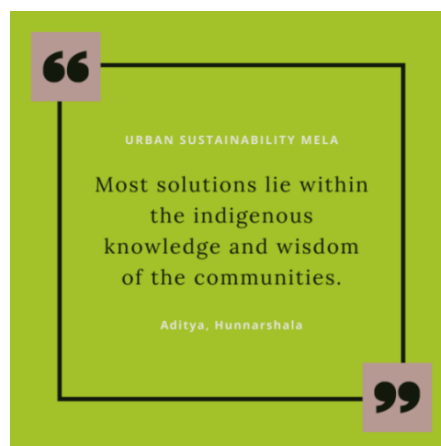
The speaker spoke about their experience of understanding how indigenous knowledge and wisdom of the Santhal tribes in Jharkhand is evident in the ***passive architecture of their mud houses, which keep them warm in winters and cool in the summers.***

He also elaborated on Hunnarshala's response to a community in Ramdev Nagar, Gujarat who often complained about the weather, the heat, the temperatures and the rain. RCC surveys revealed that 50% of the people slept outside their houses due to the unbearable heat. Design exercises were conducted with individual slum dwellers as well as groups to come up with an appropriate design. Hunnarshala offered an expandable traditional unit design called the Dwelling Unit Design, based on a traditional housing typology.

The main advantages of this typology are as follows:

- Ventilates whole house and provides light on all floors and lofts.
- Small frontage reduces the cost of services

The houses were oriented facing the south and south-west direction, as suitable for better wind direction



⁸ <http://www.hunnarshala.org>

and ventilation. Decentralisation of services like drinking water, waste-water and solid waste disposal was incorporated in the area design, as far as possible. Opting for community participation and ownership approaches to bring about sustainable and scalable change and build champions within the community was a best practice adopted by Hunnarshala.

The presentation also elaborated on Shallow Masonry Domes, which is a possible and sustainable alternative to R.C.C slabs, as they are stable and have low carbon footprints. The Hunnarshala representative shared how, in their mission to promote “artisans in architecture”, the organisation is actively exploring collaborations between practitioners, artisans, engineers and academicians.

A very important *discussion that followed the presentation* was, how community participation is approached especially in terms of their decision-making roles, especially because they rarely have access to technical knowledge on the solutions being offered.

Theme 2: Waste and Waste Water Recycling, Disposal and Management

2.1 Inspiration

Presented by Latha Jaigopala, Kerala

Inspiration, a Kerala-based organisation, is engaged in creating diverse earth-friendly built environments. These cater to different sectors, including hospitality, residential and educational. The organisation has a team of architects, project management personnel, planners, infrastructure engineers, structural engineers, interior and product designers, landscape designers, horticulturists, trained artisans, and technicians, all under one roof. Speaking about the close link between architecture and land, the presenter emphasised upon the need to prioritise custom-designed ecology and cost-sensitive living spaces and environments with decentralised living systems.

As technical partners of the Alapupuzha Canal Rejuvenation project, Latha from Inspiration shared how the project took cognisance of the need to involve a wide cross-section of stakeholders. A *people-centric approach to canal restoration* was followed. Craftsmanship and artisan skills were required for developing the architecture of the land. The reconstruction was done keeping in mind gender-inclusiveness, as well as the need for post-flood and landslide structures. For Alappuzha’s Decentralised Waste Water Treatment System (DEWATS) project, the municipality received the Swachh Surukshan award in 2020, involving the integration of decentralised infrastructure systems.

Latha also elaborated on the work done by the Consortium for Dewats Dissemination (CDD) Society, whose mission is to innovate, demonstrate and disseminate decentralised nature-based solutions for the conservation, collection, treatment, and reuse of water resources and management of sanitation facilities. The organisation manages wastewater solutions through DEWATS—a wastewater treatment system that recommends a decentralised approach, i.e. building many smaller systems to treat wastewater close to the point of generation, thus enabling the effective reuse of water.



Drawing inspiration from how artists' residencies and desert lamps in Qatar reuse 'waste water' to green areas, the project also involved local artists in the beautification of the canal. Their vision is to use the right technology interventions, combined with consciously nurtured social participation.

Through a video⁹ on the Alappuzha Canal Rejuvenation, the presenter concluded the impact of this urban sustainability solution:

- Localised drainage hotspots were identified and resolved;
- Demonstrative households;
- Improved septic tank;
- Single household DEWATS system;
- Fine-tuning solid waste management;
- Good team of artist students engaged to decorate and transform the space;
- Canal committees formed and provided hand holding support;
- Community ownership approach promoted as important for success.

The *question-answer session* with the audience elaborated on the importance of community ownership. Some participants also keenly enquired about the DEWATS system explained by the speaker and were curious to understand more about its functioning.

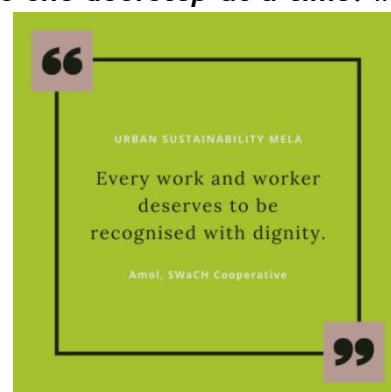
2.2 SWaCH Cooperative¹⁰

Presented by Amogh Bhongale and Virat Rajput, Pune

SWaCH envisions a society that is socially just, economically equitable, culturally plural, politically democratic, environmentally sustainable, peaceful, and humane. Their mission is to engage an entrepreneurial workforce of waste pickers into an efficient, responsive and accountable organisation, and work in partnership with the municipal Solid Waste Management (SWM) system to transform the SWM situation in Pune.

Back in 1990, a group of young social work graduates helping to implement the National Adult Education Programme (NAEP) through the SNDT Women's University, and met with child waste-pickers at an education centre. Despite there being a school for the children of waste pickers to go to, they were not going to school. Since waste picking is the only source of income for their families, every hand was important and the children accompany their parents to work. Over the years, discussions, reflections and mobilisational efforts by SWaCH helped the waste pickers of Pune realise that even though they are important for the smooth functioning of the city's waste management system, they were not given equal rights and dignity like other fellow citizens. They realised that they had no identity and needed to claim it from the state.

The focus of this effort has been towards *transforming lives one doorstep at a time*. In 1996, the waste pickers were issued ID cards by the government. Kagad Kach Patra Kashtakari Panchayat (KKPKP), a local collective of waste pickers seized this opportunity to improve their working conditions. In 2005, KKPKP launched a pilot programme in collaboration with the Pune Municipal Corporation (PMC), where waste pickers were integrated into door-to-door waste collection work. In 2008, the doorstep collection work was institutionalised under the aegis of SWaCH, which was specifically registered for this purpose and the focus was on enabling segregation, recycling and dignity of the waste pickers as part of this



⁹https://www.youtube.com/watch?v=6lZgLQ1_SmE

¹⁰<https://swachcoop.com>

process. Between the years 2016 to 2020, the organisation was able to expand the door-to-door waste collection services to 8.79 lakh doorsteps. Beyond 2020, the organisation has the motto, from Zero to Hero and making Pune a 100% zero waste city.

Ninety-five percent of the waste segregation takes place at the source. Approximately, 70,000 metric tonnes of total waste collected by SWaCH is recycled per year.

The administrative structure of programme is as follows, ensuring that the 3500+ waste pickers (with 70% women members) are represented both, at the top and the bottom of the chain:

- Waste Picker Board
- Admin, Finance, Outreach, Operations
- Zonal coordinators
- Ward coordinators
- Prabharg coordinator

A decentralised management approach is followed in order to manage the waste flow, and make its treatment easier. The project has also aimed to reduce the stigma around collecting sanitary pads, wrappers, condoms, and diapers as part of the waste. This required a lot of effort to build awareness both, among the residential communities and the wastepickers.

In another initiative called 'V-collect', SWaCH collects pre-loved and old electronic/electrical items, furniture, bicycles, kitchen utensils, etc. and repairs and re-uses 60%-70% of it; dismantles and recycles 32%-42% and 3%-4% is rejected as waste. By organising V-Collect events, SWaCH channelises most of these items towards recycling and re-use, and away from the dumps. Through its 'Red Dot Campaign', SWaCH waste pickers handle upto 50 MT of sanitary waste every day. The 'Recyclole' programme of SWaCH has the waste pickers collecting 45 MT of Thermacol every month.

The positive impact of five years of SwaCH recycling has been as follows:

- 23 lakh trees saved by paper recycling
- 8 lakh Mt Co2 Emission avoided
- 34 crore liters of petrol consumption avoided
- 90 crores saved through reuse

Post the presentation, *participants asked for clarifications* on the practicality of a decentralised management system actually works at the local level. There were also questions on the nature and scope of support given by the Pune municipality to this initiative.

2.3 KHAMIR

Presented by Dipesh Buch and Ranjan, Bhuj

Khamir is a platform for the crafts, heritage and cultural ecology of the Kutch region of Gujarat. Instituted after the earthquake of 2001, it is a space for engagement and development of Kutch's rich creative industries.

This presentation focussed on Khamir's work in **Waste and Waste Water Recycling Management**. During the years 2016-17, Khamir conducted a water mapping of traditional textile units in Kutch District. The findings revealed that the water utilisation in urban areas was primarily dominated by artisans to earn their livelihoods. They weaved Bandhani and printed Batik fabric, both of which were heavily dependent on water usage. In an effort to conserve water, the organisation introduced rainwater harvesting and recharging

of bore wells. This demonstration and pilot have now been adopted by the Government of India.

Khamir's Recycled Plastic project repurposes urban waste materials, while supporting traditional weaving skills and methods. The process of recycled plastic weaving involves different stages:

- i. Firstly, plastic waste is collected from waste sources.
- ii. It is graded and further, cleaning is carried out.
- iii. The waste is cut into strips and set for warping.
- iv. Finally, the plastic strips are woven into sheets.

Khamir conducted awareness campaigns to introduce the new technologies and build weaver capacities to follow these methods. Decentralised facilities and design interventions were planned and developed and these involved weaver participation in events and trade fairs. The Recycled Plastic project was conceived as one that would target the urban waste problem, while simultaneously supporting traditional weaving skills and methods. Today, it provides incomes to waste collectors, weavers, and tailors around Bhuj in Gujarat. It also serves to educate the public about the environmental hazards of plastic waste.

Khamir also initiated an engagement with the Palara community, as a pilot project supported by NABARD. This includes skill training of inmates in Palara Jail on plastic weaving.

The organisation has also conducted awareness programmes on plastic waste in schools, wherein children were asked to collect plastic waste from their homes, taught waste segregation and explained the properties of different kinds of waste. Khamir is advocating for educational curriculum to be made craft-based so that this thought process is internalised by the children at a young age.



2.4 Hunnarshala¹¹

Presented by Jignesh Bhatt, Bhuj

In this presentation, the Hunnarshala representative spoke about their work on creating buildings that are almost exclusively made from **recycling construction waste in cities**.

This includes construction of walls with industrial waste (levigated clays/silts from china clay and tile factories); stone dust from cutters where the aggregate is made for roads or where building stone is cut.

Hunnarshala is now also working on the concept of recycling waste from construction demolition.

¹¹<http://www.hunnarshala.org>

Documentary screenings by Kriti Film Club¹²

At the end of Day 1, two short, Hindi language documentaries were screened on the themes of *climate change and environmental damage in urban settings*; the importance of sustainable thinking and practices in climate action and ideas on saving the urban environment. The screenings were conducted by the [Kriti Film Club](#), which is a two-decade old initiative committed to films for social change and has recently also started an online screening portal, [Doculive](#).

'Tomorrow' is a computer animated Bangladeshi short film directed by Mohammad Shihab Uddin. Made in 2019, this animation is about a young boy named Ratul in Bangladesh, who is magically shown two very different visions of the future. In the first scenario, Bangladesh has been inundated by rising sea levels, causing great suffering. In the second scenario, fossil fuels have been replaced by renewable energy and Bangladesh is prosperous. In *'Saving Mr Green'* (2018), by Shivani Monga and Ankush Gupta, a young Piyali is determined to save her best friend, Mr. Green—the Saptaparni tree that grows outside her house in a small residential colony in a city.

The screening was followed by a discussion on the messages shared in the documentaries, which the audience found very inspiring and important as takeaways. The facilitator, Aanchal Kapur, Founder of Kriti Film Club also requested participants to think about and take individual pledges for positive actions on urban sustainability by the end of the Urban Sustainability Mela.



Tomorrow



Saving Mr Green

¹² <https://krititeam.blogspot.com/p/kriti-film-club.html>

Day 2: 24th October 2021

The second day of the Urban Sustainability Mela began with a lot of energy among the participants who were seen talking and networking with each other on the takeaways from the previous day. Participants interacted with different organisational representatives at the exhibition area, to understand the solutions and alternatives being offered and explored collaborations.

Theme 3: Water Conservation, Groundwater Recharge, Sustainable Use

This theme session was moderated by Yogesh Jadeja from ACT, with presentations by Siddhu Bhai from Sujalaam; Anurag and Shubha from BIOME; and Vineet from Urdhvam.

3.1 BIOME¹³

Presented by Shubha and Anurag, Bengaluru

In the year 2000, Bengaluru observed approximately 1m of rainfall. With an overall trend of declining water availability per capita, an urgent need to make use of this rainwater was felt. This led to the formation of a rainwater club, led by Mr. Vishwanath. Members joined as volunteers and started implementing various activities, while increasing their knowledge base on critical water issues. The key challenges that needed to be addressed were the encroachment of lakes in the city along and access to the invisible groundwater.

Soon after, another activist group, called Biome Environmental Trust was set up with the aim to conduct research, public education, practice-to-policy bridging, and policy advocacy in the areas of land-use and land-use planning; energy; water management and sanitation. The organisation's motto is that ***one should practice what one preaches and create an ecosystem for the same.***

The presenters shared the solutions that BIOME has created and worked upon, through a comic story on 'Drying Borewells'. Titled "Neera and Jalaj", the story is based on real events and efforts of communities based in south-east Bengaluru. The story begins with identifying the problem of drying bore wells and unfolds with the different initiatives taken to solve this problem including, metering consumption, a new pricing policy for water, and rainwater harvesting. The story speaks about a biological sewage treatment plant that was installed with the main aim to maintain the flow of fresh air. This is done by aerating the sewage chamber with fresh air. The chamber is fed with raw sewage, which is grounded to form small particles. The aerobic bacteria survive on this fresh air and decomposed raw sewage. A *Paani Sabhaor Adaalat* (Water Jury) was also set up to respond to water-related issues; and all these efforts led to a successful solution for the city. The comic book is currently available in [English](#)¹⁴ and [Kannada](#)¹⁵.

The speakers also shared about the 'Million Wells for Bengaluru' campaign that was initiated by Biome Environmental Trust in July 2015, and is expected to run until 2025. The explicit objective of this intervention is to increase the groundwater table in Bengaluru city, while



¹³<http://biometrtrust.org>

¹⁴<http://bengaluru.urbanwaters.in/neera-and-jalaj-the-case-of-the-drying-borewells-english-410/>

¹⁵<http://bengaluru.urbanwaters.in/neera-and-jalaj-the-case-of-the-drying-borewells-kannada-967/>

providing livelihoods to the local community of traditional well-diggers (called Mannu Vaddars) in Karnataka. Infact, the Bhovi community of well-diggers played a great role in helping map the city's aquifers and spread awareness about the aquifers.

Speaking about the best practices in 'Lake Conservation', the speakers mentioned the efforts made by BIOME towards flood control, groundwater recharge, and biodiversity conservation, grass cutting, and, fishing in and around a city lake. These efforts are significant in maintaining the urban environment and its access for the habitants. For example, the lakes are used for different purposes—diving in the water by local children; a *Dhobi ghat* (a pier for washer folk); and have religious uses for others. Shubha and Anurag added that, the number of lakes in the city has reduced considerably over the years from about 300 lakes, and this effort is aimed at conserving and protecting the remaining lakes in Bengaluru.

With an approach focusing on “*Samaaj, Sarkaar, Bazaar*” (society, government and markets), the organisation has included multiple stakeholders in the process, to develop a collective vision for the city lakes and this has been successful in achieving the expected impacts.

BIOME's website www.urbanwaters.in brings together the knowledge, experience, and practice of many individuals, communities, practitioners, citizen activists, and researchers. It seeks to inform, guide, and provide any and all resources aimed at making citizens water-literate, community-oriented problem solvers, who can act responsibly to protect the common urban water resources. The organisation is committed to enable citizens become part of the solution rather than remain part of the problem.

3.2 ACWADAM¹⁶

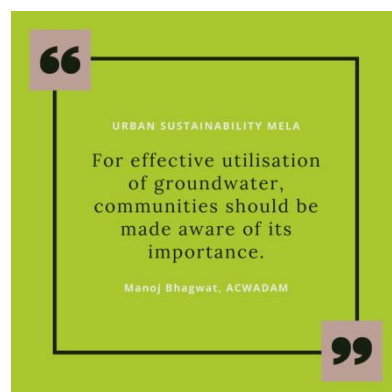
Presented by Manoj Bhagwat, Pune

Through this presentation, on the Urban Aquifers Recharge Initiative (UARI), Manoj informed participants about the importance and use of groundwater and the need to conserve it. More than half the world's population depends on groundwater and 70-80% irrigation is done with groundwater use. Explaining the science of groundwater, aquifer-based groundwater management system and its applications to societal development, he gave the participants much “*water for thought*”.

Managed Aquifer Recharge (MAR) is a promising adaptation measure introduced by ACWADAM to reduce the vulnerability to climate change and hydrological variability. MAR can play an important role as a measure to control over-abstraction and restore groundwater balance. It can be used to recharge aquifers subject to declining yields, control saltwater intrusion, and prevent land subsidence. MAR may also be applied to sustain or improve the functioning of ecosystems and the quality of groundwater.

Manoj emphasised upon connectivity, accessibility, climate and weather, water availability, social dynamics, economic opportunities, educational facilities, infrastructural, political equations as important factors in determining development linkages. He also pointed at a number of challenges:

- Survey-wise ward map and information not available



¹⁶<http://www.acwadam.org>

- Limitations in communication
- Private sources maintained
- Ownership issues
- Difficulty in accessing the source
- No water quality testing on private sources

The presentation also highlighted the importance of groundwater literacy. The need to have reliable and accurate information regarding groundwater availability and realising its importance was stressed upon.

The *interaction session* after the presentation had participants' wanting to know more details on groundwater and its effective management.

3.3 Sujalaam¹⁷

Presented by Setu Shah, Ahmedabad

Sujalaam is a group of water managers, working on water sustainability by preserving water in a dynamic state, and bridging various gaps within nature's hydrological cycle to balance water elements on Earth. The very concept of Sujalaam is based on the philosophy of being self-reliant for our daily water needs. Adopting a methodological 360-degree assessment, this Ahmedabad based organisation offers the following services:

1. Studying an area and need of the client and suggesting scientific methods to be implemented.
2. Development of Nature-based Water Conservation Systems.
3. Monitoring and maintaining Water Conservation Systems.

During the presentation, the speaker quoted statistics reported by NITI Aayog on how, by 2030, 40% of people in India will not have access to drinking water. He further added that by 2050, India faces a risk of losing 6% of Gross Domestic Product (GDP) if adequate mitigation measures are not adopted urgently.

The speaker emphasised that a 360-degree assessment that combines traditional values with science should be integrated to fight such challenges. He also spoke about the GIZ Water Supply Improvement Programme (WSIP) in Afghanistan, which aims at rendering the water sector institutions in the country to become capable of improving water resources management, water supply and sanitation services, particularly for the urban poor. Through collection of Precipitation data, Surface data, Geographical data, and Water needs assessment, the programme is innovative in solving the water challenges faced in Afghanistan.

Advocating the need to practice rooftop rainwater harvesting, Manoj presented Sujalaam's innovation—**Varshajal Takas**, an application specific and technologically integrated solution suitable to local conditions. **Varshajal Takas** is a mineralised concrete tank that can hold drinkable water for more than five years—making it a perfect container to harvest round-the-year drinking water. With a life of over 30+ Years, the *takas* are used for carrying potable water, rainwater harvesting, grease tops and effluent holding.

Discussing why there is so much flooding in urban India, Manoj shared that it is because the growth of cities is at



¹⁷<https://www.sujalaam.com>

the cost of wetlands. The solution to this challenge is a decentralised and nature-based way to overcome water logging, through groundwater recharge.

The speaker shared a comparison between conventional vs. scientific methods to recharge groundwater as presented in the table below:

Conventional method to recharge groundwater	Scientific method to recharge groundwater
Horizontal	Vertical
Easy to maintain	Difficult to manage
Reusing wastewater	Reusing sewage wastewater

Manoj also spoke about the Soil Scape Filter (SSF) technology, which is a vertical filtration process in which the pollutant is absorbed when the wastewater is made to pass through different layers of biologically activated mediums. It is believed to be a self-rejuvenating and sustainable treatment process. The technology implementation requires minimal space. The septic tank/ collection tank is installed with a vertical eco-filtration system that uses zero electricity to treat water. Additionally, the treated water can also be used for secondary activities.

3.4 Urdhvam¹⁸

Presented by Vinit Phadnis, Pune

Based in Pune, Urdhvam is a company that provides integrated, sustainable environment solutions. The company was set up as a response to the problems of massive urbanisation, changes inland-use patterns and unsustainable consumption. Highlighting the role played by advertising and mass media in promoting capitalist consumption with messages like “*Dil mange more, bada hai toh kehta hai*” (*The heart wants more, big is the way*) etc., the speaker explained how our desires are created and influenced in the modern world.

Urdhvam’s vision is to become the most valuable technology company by developing disruptive and innovative products for environmental sustainability. Urdhvam’s offerings include IT support, IoT, robotics, mobile for natural resources, awareness and education, supply augmentation and demand management.

Looking at the ignorance regarding ground-water sources and the unending greed for *clean potable water*, the team launched ‘*Bore charger*’¹⁹. The main aim of the bore charger is to make the bore wells highly sustainable.

A bore charger can be recharged about four to twenty



¹⁸<https://www.linkedin.com/company/urdhvam-environmental-technologies-pvt-ltd/?originalSubdomain=in>

¹⁹<http://www.borecharger.com>

times more as compared to a natural recharge. The bore charger does not have a direct competitor in the market as it occupies less space, time and money. The impact of using bore chargers has been the following:

- Improved irrigation & drinking water quantity and quality;
- Reduction in salination of soil due to dissolved salts;
- Improvement in soil health;
- Improved farm output productivity, production and farm income;
- Lesser vulnerability of farmers due to weather shocks;
- Reduced cost of tanker water supply and water treatment for urban population;
- Improved health of water consumers due to lesser dissolved salts, fluorides, etc. and,
- Reduced pumping energy costs and competition for water.

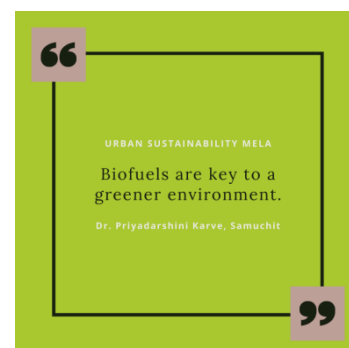
Theme 4: Sustainable Food and Lifestyle Practices

4.1 Samuchit Enviro Tech²⁰

Presented by Pournima Agarkar, Pune

Samuchit Enviro Tech is a social enterprise, working in India, since 2005. It focuses on enabling individuals, households, institutions and small businesses to embrace sustainability in their daily activities. Its rural work is primarily focused on technology consultancy and training in the areas of decentralised renewable energy, for household energy services, and climate-aligned agriculture. On the other hand, its urban work is primarily focused on organic waste management technologies, capacity building, policy advocacy on climate aligned and sustainable urbanisation.

The focus of this presentation was on **creating a climate friendly lifestyle**. Pournima shared one of their innovations—the Carbon Footprint Calculator²¹, developed by Samuchit and introduced online by ‘Climate Collective Pune’. The carbon footprint calculator can be used to measure personal (individual and family) carbon footprint by estimating the overall energy use during various activities. The calculator is specifically designed for urban Indians and helps assess their climate vulnerability. It identifies the areas of energy usage that one needs to work or to live more sustainably.



4.2 The Nazareth Foundation²²

Presented by Cassandra Nazareth, Mumbai

Since 2016, Cassandra Nazareth has been working with Warli women deep inside the forest of Aarey Milk Colony and Sanjay Gandhi National Park (SGNP) in Mumbai. The Nazareth Foundation’s core expertise is in entrepreneurship training for women. #TRiBalLunch, #TRiBalTAdka, #MadelnAarey are the three projects currently being executed by the foundation, as part of a Women Empowerment programme.

The journey with the women of Aarey Forest began in January 2016 when Cassandra went to a “Save Aarey” meeting in Aarey Forest. Seeing the potential of working with women

²⁰<https://www.samuchit.com>

²¹<https://www.climatecollectivepune.org/CPC/>

²²<http://thenazarethfoundation.org/about/>

through **‘food’ as an instrument of effecting change**, the concept of the ‘TRibal Lunch’ was born. The women were mobilised and their cooking skills tapped and strengthened to serve Mumbaikars with nutritious local food. This interaction helped Mumbaikars to understand the importance of Aarey Forest [under threat from urbanised development (read greed)] and its inhabitants, while creating livelihood benefits for these tribal communities.

The TRibal Tadka flea market was the next project initiated to help the women earn better incomes, open their own bank accounts and also get PAN cards. Leveraging the digital market, online sales were made of repurposed fabric bags and quilts handmade by the tribal women. Cassandra says, *“Using my privilege to help others”*, became the motivation for these projects.

Several Mumbai based participants **expressed interest in joining these initiatives** and volunteering their time and efforts to empower the tribal community that Nazareth Foundation is working with.



4.2 Vikas Sahyog Pratishthan²³

Presented by Vijay Kadam, Mumbai

Vikas Sahyog Pratishthan (VSP) is an alliance for Social Justice and Sustainable Development. It is a Mumbai-based voluntary organisation that works with deprived communities in rural Maharashtra. VSP enables communities to have sustainable livelihoods, education and dignity. It has been providing financial, technical and institutional support to the rural poor, landless or marginal farmers, distressed farmers and women through strategically designed interventions. In terms of services, the expertise of VSP is in information dissemination, training, lobbying, policy advocacy, etc. VSP has been working with various support organisations and is part of different networks operating at local, national, and international levels.

Sharing a success story, the presenter spoke about the **Parisar Poshan Baug (organic nutritional garden)**, which is a model evolved by VSP to fight the issue of Climate Change and Anaemia, while also providing additional income to citizens in drought prone villages of Maharashtra. Parisar Poshan Baug uses fallow land in the vicinity of the house and waste water from the house for the cultivation of nutritional vegetables. The aim of creating such a model is to enable good health and well-being of women, infants, pregnant women and nursing mothers in their home areas.

In the regions of Vidarbha, Amrauli, Khandesh and Konkan, 5949 *Parisar Poshan Baugs* have been developed for 4476 families. The cultivation techniques followed include, underground, up-ground and on-ground cultivation and different nutritional crops are grown in the summer, winter and rainy season. VSP aims to bring land under proper irrigation and increase the production for generation of income along with fulfillment of basic nutritional needs. As there were low external inputs for sustainable agriculture, biomers and vermi-compost farming practices were also adopted at the village level.



Key outcomes:

²³ <https://www.vspindia.org>

- Health of the villagers has significantly improved - improved nutrition in diet and enhanced food security
- Active participation of the Community in the initiatives
- Environmental impacts in the form of increased soil fertility, promotion of traditional seeds and prevention of soil erosion
- Financial well-being of communities in the form of additional source of income
- Livelihood generation opportunities have been realised - earning through cultivation in small areas of land and intra village marketing opportunities to sell surplus

Along with success stories have come challenges, such as reduced availability of vegetables, non-maintenance of records, and the need for a collective marketing strategy—all of which VSP is working to address.

The organisation has also conducted trainings on goat rearing and poultry which has led to establishment of goat rearing enterprises and backyard poultry units. These have benefited approximately 800 Self-help Group (SHG) members.

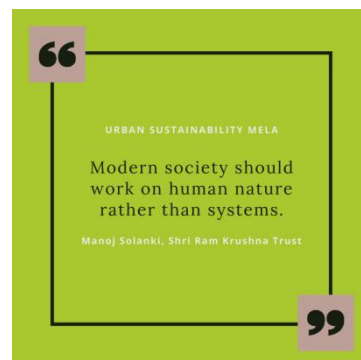
4.4 Shri Ram Krishnan Trust

Presented by Manoj Solanki, Kukma

The speaker advocated for ‘*Jaivik Krishi*’ (organic farming) to manage air, water, and food resources sustainably. Suggesting that one should keep oneself in the centre and plan around it, he strongly put forth the idea of *Sahaj aur Saral Jeevan* (simple and easy life). Manoj strongly believes that nature has been farming organically at its own pace, and the role of the farmer is to facilitate the process but this knowledge has been undermined for years. It is because of urban ignorance and mismanagement that **“we are ignoring nature’s offerings, and moving towards paid facilities”**. It is important, he added, that, modern society works on human nature rather than systems.

Focusing on solutions he shared that, every technology has some (adverse) impact on the environment. The idea thus, is not to abandon the use of technology but to devise alternatives.

During the presentation, Manoj suggested a parallel reimbursement programme wherein, if one is using a motorbike, they should be mandated to plant a tree first. He was of the view that, agriculture, handicrafts, cattle rearing and all other village industries need to be nurtured in partnership with the cities around them.



Theme 5: Energy Efficient, Renewable Energy- based Appliances/ Techniques

5.1 Samuchit Enviro Tech

Presented by Dr. Priyadarshini Karve, Pune

Dr. Priyadarshini Karve from Samuchit Environment Tech shared how **thermal energy can be used to convert waste into energy systems**. Advocating the use of Biofuels, she shared the impact of making this choice:

- No transmission loss
- Organic fertilizers back to the soil
- 100 million tonnes of petroleum import reduced
- User-friendly and accessible

Among the innovations by this company are ‘Renewable Charcoal’ and the ‘Portable charring kilns’. The feedstock for these solutions includes leaf litter, dry weeds, dry grass, dry bushes, etc.

The other innovations include:

Char Briquettes

- Made from coconut waste with an efficient and pollution-free process
- Calorific value ~ 4000-5000 kcal/kg
- Ignites quickly, burns with very low smoke once properly ignited
- Can be used as fuel for any charcoal stove, best suited for the Samuchit Steam Cooker Stove.

Steam Cooker Stove

- Steamer fuelled by charcoal/renewable char briquettes
- Cooks three items at a time (for a rice based meal for two to five people)
- Slow cooking

5.2 HybRid

Presented by Sumitabh Tiwari, Gandhinagar

Elaborating on the different types of solar cookers, Sumitabh shared the purpose of panel-type, parabolic-type, community based, Schiffler steam-based and indoor-based solar cookers.

Sharing how challenges like increased price of cooking gas, increased indoor air pollution, import dependency of LPG and coal and less availability of clean sources of fuel make it difficult for consumers to adopt sustainable cooking practices, the speaker elaborated on his organisation’s innovation, the ‘Hybrid Cooking Approach’. While manual cooking centers on human involvement, this **technology-based cooking innovation** contributes a new level of control and flexibility that is otherwise hard to introduce in a professional kitchen. Digital fabrication tools enable the application of computational additions to the manually cooked dish. Therefore, a hybrid cooking team with varying skill sets is necessary to fully realise the potential of this new approach.



It involves the use of an integrated solar cooking technique along with the traditional approach and includes the following models:

- Solar hot plate station
- Solar steam generator
- Solar baking

The organisation has also innovated a ‘solar tea machine’ which is currently patent pending. Another innovation is the ‘Two-degree café’ for income generation and awareness building around solar appliances and their viability. It has been envisioned as a café to cater to around 500 students per day. The equipments that will be used at the café include a solar oven, steam generator, fresnellens, parabolic cooker, and solar tea machine.

During the question-answer session, a participant expressed how small-scale sellers should also have access to this hybrid cooking method and not just those who are privileged and have access to a large network of well-to-do people.

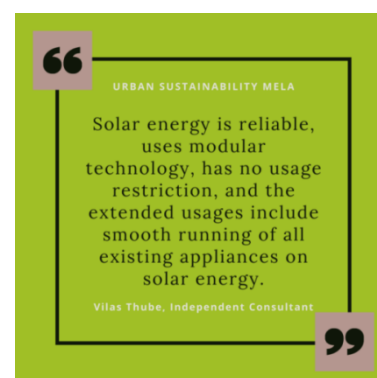
5.3 Rooftop Solar for Housing Societies

Presented by Vilas Thube, Mumbai

The speaker began by sharing that any silence or passive attitude to environment enrichment will only accelerate irrevocable damages to human society. Advocating for rooftop solar panels for housing societies as the most environmentally friendly and optimal use of rooftop/terraces, he demonstrated this with an example of the Maharashtra Cooperative Housing Society Bye-laws.

Vikas explained the differences between common electricity expenses vis-à-vis solar electricity. He advocated for a **switch to solar energy** as it is reliable; uses modular technology; is based on sunlight (a renewable energy source); has no usage restrictions; and the extended usage includes smooth running of all existing appliances on solar energy.

Talking about Bhuj city, with a population size of 40-50,000 families (and four to five members per family), he calculated that, installing a solar rooftop panel in every household today, would mean free electricity for all the families in a time span of four to five years.



5.4 Mahila Housing Trust (MHT)

Presented by Dhaval Sharma, Ahmedabad

This presentation focussed on the cost effectiveness of LED bulbs in comparison to fluorescent glass bulbs. According to Dhaval, the cost of 60-watt fluorescent glass bulbs will cost a family nearly Rs.300/- for usage over two months, whereas six-watt LED bulbs given under Ujala Yojana cost only Rs.30/- for the same duration. Through its network of women energy auditors, MHT has sold sustainable energy products such as LED lights, smokeless cook stoves, solar lanterns, and solar lighting and cooling systems to more than 27,500 slum families across 10 cities in India.

MHT also engaged with the community on the use of **solar rooftop panels** and discussed the challenges in accessing subsidies for installing these expensive panels as well as the

lack of skilled workforce for the same. These steps were important for MHT to plan the way forward in providing a sustainable solar energy solution for the communities.

After a rich exchange of information, experiences, solutions and innovations on urban sustainability over the two days, the mela participants came together for a closing reflection session.



Reflection and Closing session

This session was moderated by Mr. Sandeep Virmani, Homes in the City. He began by sharing that, twenty years ago, when someone asked children if they were interested in environment issues, only two to four children would raise their hands; while today, this number has increased to at least 80% children raising their hands. This shows hope in the role that children can play in saving the environment and ***“if we start working with young people, we may be able to address some of the climatic impacts going forward”***. He also pointed at the need to talk about rural sustainability actions along with urban sustainability which was the focus of this mela.

Mr. Virmani invited the participants to reflect on their learning's, takeaways and observations from the two-day mela. Some participants also shared, ***‘My Sustainability Pledge’***—based on a request made by Aanchal Kapur, from Kriti Film Club on Day 1 of the mela—personal action points as learning's and takeaways from the mela.

Sharing his experience of learning from the youth during this mela, Tushar from the Centre for Environment Education (CEE) pledged that, ***“moving forward he will engage and involve undergraduate interns in industry-related sustainable projects”***. He reflected on the importance of giving the youth relevant opportunities to voice their thoughts. Other participants also shared their sustainability pledges.

My Sustainability Pledges

“In one year's time, I will try and install a solar energy system in my house. I ask each one to make such a beginning since we are using electricity and this would be a sustainable step.” (Sandip Goswami, ward 8)

“I understand that saving the environment is important and not just saving money, so I have decided today to take the first step towards putting a solar panel in my house for electricity” (Hansa Vaghela, Ramdevnagar).

“We have lived our lives, now the younger generations have to survive. So I will work with young people on these issues.” (Tushar Jani, CEE)

Setu Shah added that if common people start to make sustainable choices like installing solar electricity panels, even the government and politicians will wake up and support such actions.

Chander Lal Gore seconded the thought that youth should be involved. He suggested that partnerships with different organisations including NGOs, Rotary Clubs as well as school children would help in rolling out effective urban sustainability strategies. Another participant enthusiastically expressed, ***“Implement it (these strategies) like a war.”***

Ridhima Pandey, youth climate activist, mentioned that she wants ***“the younger generation to be involved in finding and implementing solutions to solve urban environmental problems”***.

Divya, one of the participants, shared that through the different presentations and exhibits, she gained practical knowledge on many theoretical frameworks and models that she had prior understanding of.

Karan (who has been working on climate change issues for 12 years), shared that India lives in small forums. Reflecting on the mela, he said that it was a balanced event with an *“introduction to different technologies, diverse perspectives on defining problems and implementing solutions”*, as well as an opportunity for networking.

One of the participants suggested that just like people have family doctors, lawyers or chartered accountants, it would be useful to have a *“family farmer in urban areas”*. Having visited the wastepickers’ community in Bhuj city and interacting with them, the representatives of SWaCh, Pune talked about *“seeing similar challenges and issues to what they have been addressing in Maharashtra”* and would consider a partnership in this area to bring in their solutions here. He added that an important step forward could be to identify and have a ‘family waste picker’—someone who comes home, segregates and picks up the garbage generated by a household. Mr Virmani added that, infact, such people do exist especially in smaller towns. Other participants made more suggestions, including, organising farmer markets in smaller cities; using technology to make it easier for farms to sell their organic produce; promoting *Krishi Paryatan* (farm tourism), etc.



Reflection session

Shailendra shared how cities are the consumers and villages around them can act as suppliers for them, with effective planning and participation. He suggested that such a process can help establish a balanced, demand-supply chain that benefits both, cities and villages. An *“interdependent ecosystem”* would be the solution and not an independent one!

Aseem Mishra was happy that the mela could highlight sustainable practices and technologies in terms of what can be done at the household and community level and expressed hope that some of these ideas would help make our cities sustainable.

The discussions and exhibits motivated and inspired many participants and left them hopeful for a green and sustainable future. *“Let us help ourselves before we become helpless”*, was the sentiment shared by another participant.

Reflecting on the methodology and process of the mela, participants made two recommendations for future events like this:

- being mindful and sensitive of the language of communication—use of Hindi and English to suit the needs of a diverse participant group.
- involve the local people through the use of innovative and relatable communication channels of dissemination, so that they can learn about the solutions they need to better their urban environment.

Overall, the collaborative process of coming together, sharing and reflecting on environment-friendly and sustainability solutions for urban living was well-appreciated by all the participants. The very fact that so many people participated in this mela, amidst the Covid-19 pandemic was also reflective of the commitment and energy to take

sustainable actions to create a better urban environment for all. The exhibition also provided a unique interaction opportunity for all. The participants also applauded the use of various mediums—exhibition and demonstrations, film screenings, presentations and informal networking spaces to strengthen and further the dialogue on urban sustainability.

The *finale of the mela* included an address by Reshmaben Zaveri, Vice-President, Bhuj Nagarpalika (Municipal Corporation), who applauded all the organisations and individuals at the mela for their sustainability footprints and efforts in finding solutions to the significant problems that affect urban geographies. The mela ended with musical performance and some poetry by well-known local singers from Bhuj, as well as a closing Garba dance by all participants who wanted to join.



Annexure

Programme Schedule

Day 1 - October 23 rd , 2021		
Time	Programme	Speakers
9.30-10.30am	Inauguration of the mela and exhibition	Ridhima Pandey, Environment activist, Uttarakhand Tashi Choedup, Environmentalist, Telangana
11.00-1.00	Theme 1: Passive Architecture, eco-friendly building designs/materials, low-cost eco-friendly solutions for informal settlements, etc.	SELCO, Bangalore cBalance, Mumbai MHT, Ahmedabad Hunnarshala, Bhuj
3.00-5.30	Theme 2: Waste and waste water recycling, Disposal and Management	Inspiration, Kerala SwaCH, Pune Hunnarshala, Bhuj Khamir, Bhuj
7.00-8.00	Documentary Screenings	Kriti Film Club, New Delhi
Day 2 - October 24		
Time	Particular	Speakers
9.30 - 12.15	Theme 3: Water conservation, groundwater recharge, sustainable use, etc.	BIOME, Bangalore Sujalaam, Ahmedabad Urdhvam, Pune ACWADAM, Pune ACT, Bhuj
12.30-2.00	Theme 4: Sustainable food and lifestyle practices	The Nazareth Foundation, Mumbai Vikas Sahyog Pratishthan, Mumbai Samuchit Envirotech, Pune Satvik, Bhuj Agrocell, Bhuj
3.00-5.30	Theme 5: Energy efficient, renewable energy based appliances/ techniques	Samuchit Envirotech, Pune Hybrid Energy Solutions, Gandhinagar Vilas Thube, Mumbai MHT, Ahmedabad GTNFW, Ahmedabad
5.30-6.00	Reflections from Participants	Mr. Sandeep Virmani, Homes in the City
6.00-6.30	Concluding session	Mr. Sandeep Virmani, Homes in the City
6.30-6.35	Vote of Thanks	Ms. Prachi Patel, Homes in the City
7.00-8.00	Folk Music Event	Local folks artists (coordinated by Mr. Jay Anjaria, Homes in the City)



Coming together for sustainable action in Urban Spaces

