BSF's 4th retreat

Retreat on Climate Resilience

27th - 28th January 2023

BENGALURU
SUSTAINABILITY
FORUM

Background

The Bengaluru Sustainability Forum (BSF) is an inter-institutional collaborative initiative to address issues relating to long-term sustainability of urban and peri-urban landscapes - focusing on public goods, including water, air and soil, amongst others. The primary objective of the forum, which comprises both academic institutions and practitioners, is to provide a platform that integrates various perspectives, approaches and areas of expertise to examine issues of long-term urban sustainability.

Retreat Location
School of Ancient Wisdom, Bengaluru

Author
Namrata Narendra

Photos
Bhanu Sridharan

Report design
Namrata Narendra

Premise

Why Climate Resilience?

The varied impacts of a changing climate are now an inescapable reality for most of us. The factors exacerbating climate change are global in nature, but their impact on communities is very rooted in local realities. The resultant challenges have profound implications for our ecosystems, economies and social fabric.

Extreme weather events also have a more pronounced impact on vulnerable populations and biodiversity. It therefore becomes imperative that we foreground resilience at individual and systemic levels. Holistic strategies that encompass adaptation and mitigation, technology and nature-based collective solutions, policy frameworks, and ethical processes are the need of the hour.

Cities are complex systems composed of interconnected infrastructure such as housing, water, power, healthcare, transport and each play parts in supporting a well functioning city.
Moreover, this ties in with governance efforts towards important goals such as public health, waste management, biodiversity protection, food and water security, creation of socially inclusive and environmentally friendly community spaces, and protection of livelihoods.

Objectives of the retreat

- To bring together policy makers, government representatives, researchers and frontline workers on concerns of planning, research, finance and on ground implementation work as a basis for discussion.
- To expand the scope of conversations to facilitate a two way conversation about what sustainability and resilience mean to residents of the city
- To have a mutual sharing of information and knowledge, taking forward BSF's vision of a platform for inclusivity
- To assess and reflect on the current situation of climate action (away from the mitigation centric narrative) in our city, and discuss where we would we like to go from here
- Use on ground evidence to kick start conversations at the retreat and base future discussions on the same.

In this report:

Geeta Menon from Stree Jagruti Samiti, Domestic Workers Rights Union speaking about the everyday struggles of domestic workers

Section 1

Vulnerability to Resilience

What is resilience?
What does it mean to us?

Society

Building a just, equitable and democratic society

Vulnerability is the key to understand what builds resilience

Urban systems

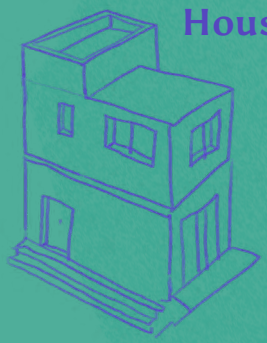
The phenomenon where different systems bounce back after perturbation.

Resilience is at the scale of the collective, not that of an individual

Agriculture

Supporting farmers as the crops they grow and their survival face an era of unprecedented uncertainty.

My experience of moving to a low income neighbourhood which experienced flooding every year had made me think of adaptability in more personal and urgent terms.



Housing

Resilience will mean surviving in the same house for the next 20 years.

Framework

There are various scales at which a climate resilience framework can be based. At the scale of action, there are **adaptation** and **mitigation** frameworks and a combination of both.

However, for practitioners working on the ground, the response to what a framework should be is quite different. The focus of the conversation, is **equity** and that becomes the directive. Adaption is a given, once equity becomes the guiding force of any action. For community based organisations and community workers, resilience is is at a systems level and they believe that scientists understand systems and citizens do not. The majority of the population operate with levels of justices, injustices and respond better to emotions and not terminologies such as resilience.

To bring together the questions arising in the retreat, a **vulnerability to resilience framework** was outlined. The vulnerability to resilience framework which can be a foundation for analysis and action in the city, is an outcome of collating various action models, reports and frameworks on climate adaptation across the world. It is useful to understand that reduction of vulnerability and strengthening of resilience of individuals, households and communities have to be looked at synchronously.

The framework sets out the key factors that contribute to peoples' vulnerability: exposure to hazards and stresses; fragile livelihoods; future uncertainty; and weak governance. The framework is influenced a lot by **Katherine Pasteur's and the Reducing Vulnerability Team** (UK)'s book.

This framework addresses the need to work in a more integrated way to tackle the causes and consequences of vulnerability. The framework fully integrates climate analysis and action within an existing holistic approach which can be applied in many situations.[1]

> *Resilience is not only returning to or bouncing back to earlier circumstances, but also bouncing forward, with the situations we are presented. Resilience requires you to tap into the novelty that cities offer to be able to respond to crises and to create that space for all groups of people irrespective of caste, gender and class.*

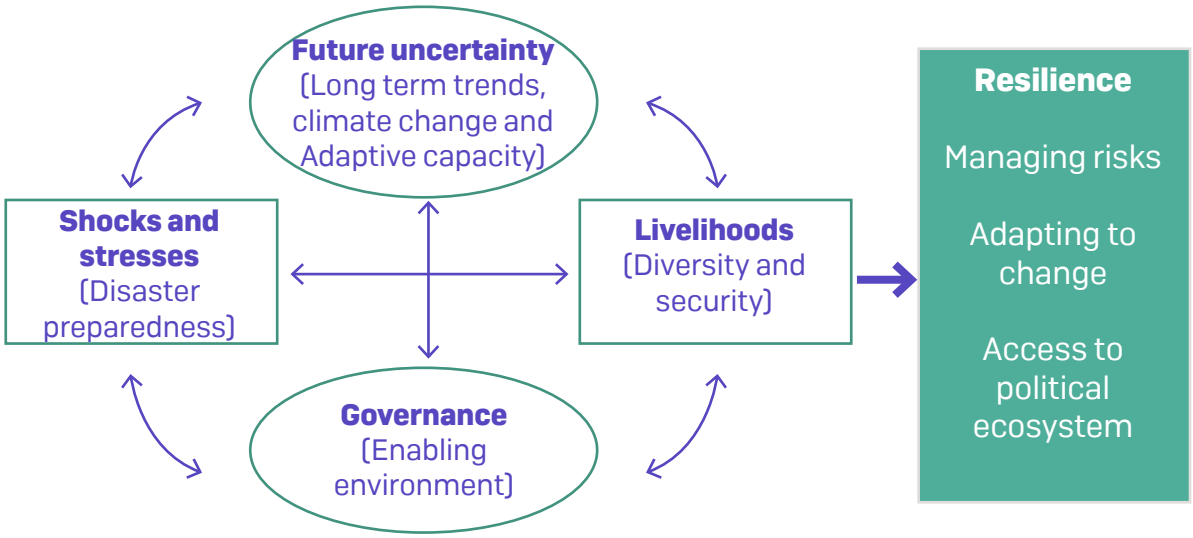
1 From Vulnerability to Resilience: A framework for analysis and action to build community resilience, Katherine Pasteur

In the instance of extreme events like floods or droughts, the livelihoods that are dependent on natural resources and those who reside by rivers/ lakes and untenable lands are affected the most. In the case of the recent Bangalore flooding, a lot of people were forced to abandon their homes and sell their assets just to survive the event. This influences their collective resilience i.e, their recovery in the future as each shock can drive them deeper into loss.

Moreover, the families that have migrated from across India face an even greater risk from these events because they do not have any support system to recover their losses easily and end up relocating to their villages/towns of origin. They do not have any social security because of the nature of their work and do not have access to any formal housing either, to be able to bear the brunt of these hazards.

These groups are also the most politically marginalized and have little to no connection with the decision makers and governing authorities in the city. Considering the voices of all groups of society requires collaboration of various organizations, communities and individuals. **Resistance** is another often overlooked aspect of resilience. To resist, struggle and survive is one way of claiming space in cities. This can only be possible with **collective strength and wisdom** of the people.

At the heart of any local-level adaptation intervention is the need to increase the individual or community's **adaptive capacity**. Broadly speaking, adaptive capacity denotes the ability of a system to adjust, modify or change its characteristics or actions to moderate potential damage, take advantage of opportunities or cope with the consequences of **shock** or **stress**[2]. A key component of this is ensuring that individuals, communities and societies are actively involved in processes of change[3].



Resilience Framework based on: From Vulnerability to Resilience: A framework for analysis and action to build community resilience, Katherine Pasteur

2 Brooks, 2003
3 Pettengell, 2010

How to equip vulnerable communities in the city on a path to resilience?

Key inquiries

- Vulnerability ***of*** what/ whom?
  Intersectionality: Spatial, gender, occupational, etc: both biophysical and social
- Vulnerability ***to*** what and when?
- What is causing this vulnerability and what does this vulnerability mean for adaptation and development goals?
- What are the multi-scalar concerns?

As per the IPCC sixth assessment report, interactions among coupled systems: climate, ecosystems (including their biodiversity) and human society is used as the foundation. These interactions are the basis of emerging **risks** from climate change, **ecosystem degradation** and biodiversity loss and, at the same time, offer opportunities for the future. The recognition of climate risks can strengthen adaptation and mitigation actions that reduce risks. Taking action is enabled by governance, finance, knowledge and capacity building, technology and catalysing conditions.

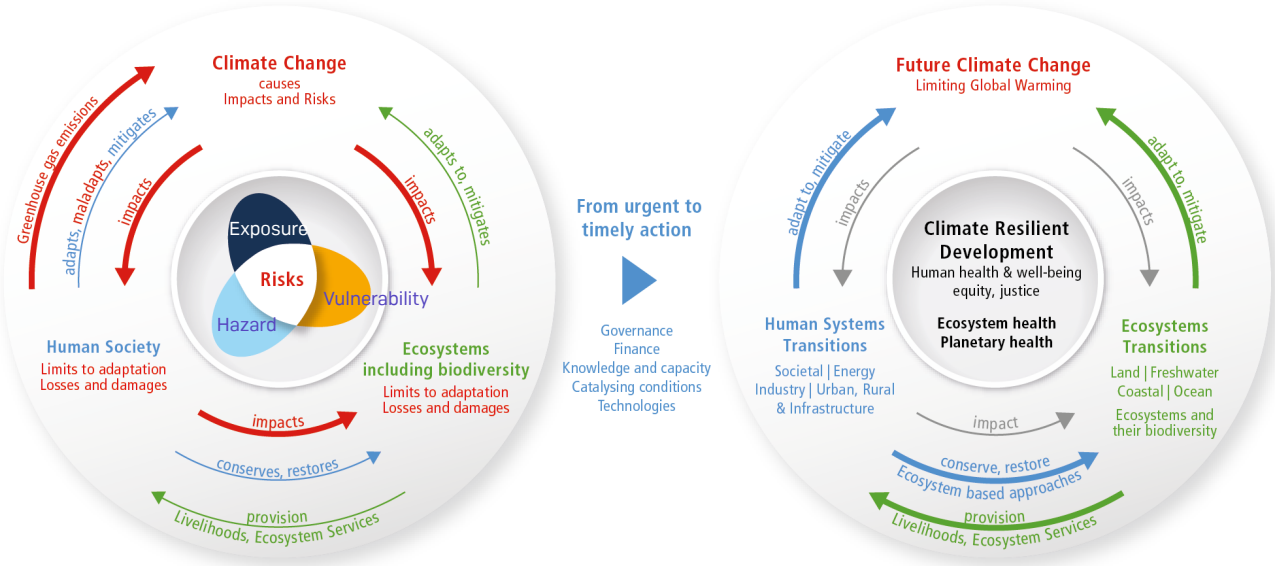


Image source: IPCC sixth assessment report,

From climate risk to climate resilient development

On the left, arrow colours represent principle human society interactions and the impacts of climate change and human activities, including losses and damages, under continued climate change. On the right, arrow colours represent human system interactions, ecosystem interactions and reduced impacts from climate change and human activities.

The risk propeller shows that risk emerges from the overlap of:

Livelihoods, social security and climate risk are intertwined and should not be studied independently of each other. There must be a multi-organisation, integrated, collective approach to address these challenges.

Section 2

Adaptive capacity at the local level

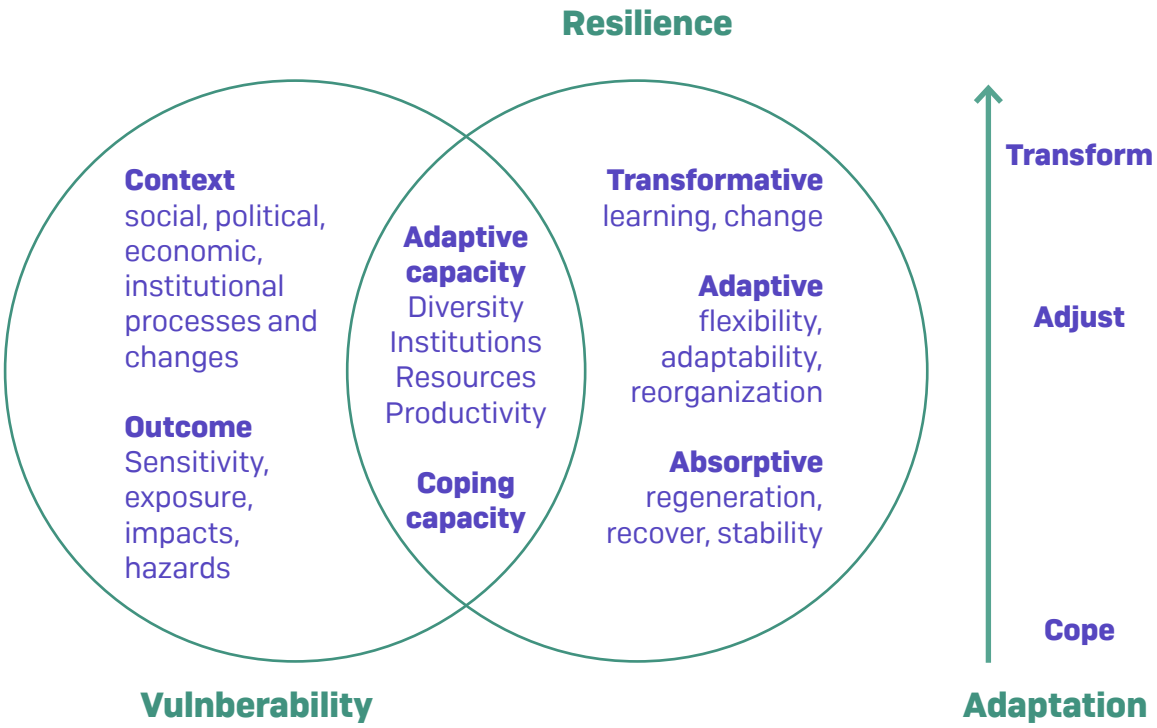
Impacts of climate change vary across neighbourhoods of the city and amongst various socio-economic groups. It is important to address such unique needs and challenges that arise specifically when planning and designing infrastructure to alleviate climate change and improve our capacities to withstand the shocks it brings.

What does adaptation mean and how is it different from development?

As set out in the framework, it is crucial to discuss what climate risks are, what are the hazards, who are exposed and vulnerable and what are their capacities to adapt in context of our city of Bangalore.

How does inequality reproduce vulnerability in the city?

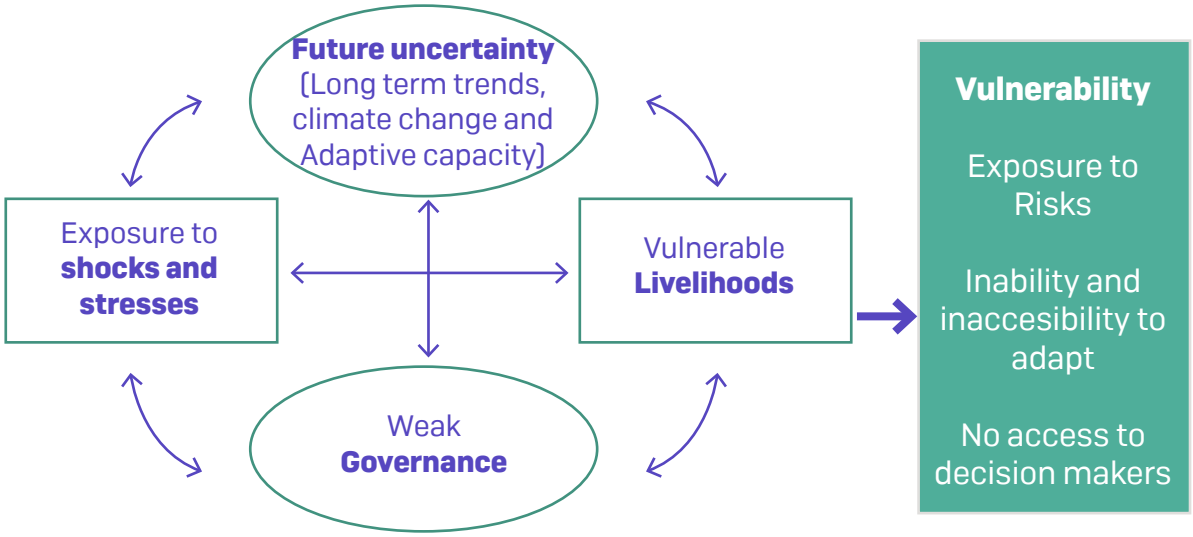
Carrying forth on discussions around urbanism risk and awareness issues at various levels on climate change, individual, professional and political action in the face of it - this retreat focussed on the best way to get around this problem which is to break the climate change dialogue into parts and discuss in the way people relate to it, starting from neighbourhoods and community groups and how they ought to be included in the climate dialogue.



Dixon, Jami & Stringer, Lindsay & Challinor, Andrew. (2014). Farming System Evolution and Adaptive Capacity: Insights for Adaptation Support.

To cope and deal in a effective manner, the communities that are exposed to risk have to understand strategies they can incorporate with knowledge of future trends and gain support for their responses.

Coping capacity is an ability to cope with threats or stresses in the short term, adaptive capacity is key to effectively responding to dynamic change over the long term.[4]



Vulnerability Framework based on: From Vulnerability to Resilience: A framework for analysis and action to build community resilience, Katherine Pasteur

4 From Vulnerability to Resilience: A framework for analysis and action to build community resilience, Katherine Pasteur

Learning from the past

Before diving into discussions on adaptive capacities of the marginalized and vulnerable in light of the changing climate, Mahesh Rangarajan who currently heads the environmental studies department at Ashoka University shared with the gathering, his thoughts on the anthropocene in the context of India.

Humans have had a positive as well as antagonistic relationship with nature for millennia. While the notion of sustainability as we currently think of did not exist in ancient India, human societies have had to think of how resources ought to be used and managed. Crises like drought, siltation and denudation existed in the past but crises did not always lead to collapse. Societies in the past created systems to cope with these crises and it is crucial that we learn from these older ancient methods.

Bengaluru's ancient water management systems followed the contours of the city and captured water following the terrain and stored it in lakes, in the plains or the maidaan. The fact that these lakes and tanks are still seen as key to Bengaluru's water needs, is indicative of the value in understanding ancient management practices. Colonialism has had a huge influence in destroying some of the nation's traditional and indigenous production and management systems. This past is reflected in the present; for instance in Bengaluru's tree cover, gardens and avenues are a result of a series of world events including the second world war and the occupation of the city by British soldiers. A new theory that as discussed, is the idea that British occupation in Bengaluru and Chennai resulted in different degrees of democracy. Chennai, is a city that facilitates more dialogue than Bengaluru. Although in theory, but the need for greater democracy in Bengaluru is a refrain that is repeated by almost everyone in the city.

How can we create political will to act against climate change?

It is unlikely that people will change their politics because of climate change, but they will react when issues affect them directly. To illustrate the point, a great example is that of the 'coolie-uthar' or 'coolie-begar' movement in Kumaon region of Uttarakhand in 1916. The coolie-begar movement was essentially an uprising by the people of the region against forced and unpaid labour imposed by the British government. Although it was primarily a labour movement, the uprising is credited with inspiring a movement to take control of forests from the Imperial Forest Department in the nearby Garhwal region. The lesson being that we have to work across spaces and communities and engage with people across all walks of life, particularly children.

Landscapes and waterscapes have active human presence, not passive as before. This is the anthropocene

Mahesh Rangarajan discussing the Anthropocene, India and the city scape

Climate reality and local capacities

The lessons of the past paved way to the problems of the present, Geetha Menon, Jashodha, Lakshmi and Chennamma from the Stree Jagruti Samiti, a domestic workers rights union and Rudramurthy, Auto Drivers' Association in Bengaluru asked a timely question.

How can communities deal with the climate crisis while struggling for basic needs?

Lower income groups are disproportionately affected by extreme weather events precipitated by climate change. There are multiple challenges of dealing with increased flooding and mosquitoes in areas of inundation in lower income neighbourhoods of Bengaluru.

One of the first people to struggle when the city floods are auto drivers navigating the city. While the world's attention was on the luxury cars drowning in the Bengaluru floods of 2022, several auto drivers were faced with damaged vehicles that they had to fix at their own expense. When the city needed it, auto drivers were out there helping move and rescue people, but the city was not there for them.

From (L-R) Yashodha, Rudramurthy (Auto Drivers' Association), Geetha Menon, Chennamma and Lakshmi from the domestic workers rights union speaking about adaptive capacites.

Climate induced struggles often jostle for space alongside the struggle for basic needs. There are a multitude of material concerns that marginalized communities face. Free electricity is announced for poor people, but is nowhere to be seen and when asked for, government officials demand a myriad documents. Economically poor groups often face casteism and discrimination when they attempt to address these issues with city officials. Members in groups like Stree Jagruti Samiti fight these battles while continuing to go to work. One of the reasons why the group did not stay for both days of the retreat, was because the houses employing the members did not let them off.

How can governance systems be improved so the basic needs of those at the front lines of the climate crisis can be met?

These issues are political and social problems not technical and managerial. There was consensus that environment will only become a political issue when it is the primary personal issue. There is urgency for the environmental community at large to participate in the larger political process. For example, environmental groups in the US endorse political candidates with a strong environmental agenda.

Break out discussions across the venue on infratsucture provision and local capacities to deal with the climate crisis.

Section 3

Infrastructure and governance

The idea of a climate resilient city should never be separated from the idea of people friendly cities. What can be key steps to align these objectives?

The demand from citizens is for the state government, in coordination with city governance bodies, to take action immediately in making all planning processes for the city, including the ongoing Bengaluru climate action and resilience plan, decentralized (as per 74th constitutional amendment), truly inclusive and democratic.

From ESG's Climate action plan (2021):

Planning should be a process where local communities can engage through Ward Committees to envision their futures, and collation of such imaginaries must shape the visions for the metropolis, as is required by the Nagarpalika Act, 1992.

There are three larger discussions to be had while discussing how a city can be governed keeping in mind social justice and climate equity.

How can communities deal with the climate crisis while struggling for basic needs?

A: Institutional frameworks

Planning

Looking at policies existing in place at the moment, there is a demand for them to be contextualized to the cities and wards. We can use current climate action plans by Karnataka State Disaster Management Authority as precedents for the city's climate action plan; There is a huge opportunity with the COP 27 and global south adoption especially with India's G20 term as chair.

- All communities have a right to a decent standard of living and more work needs to be done in this respect.
- It important to acknowledge the power of local, democratic and decentralised decision making to achieve equitable and therefore more resilient societies
- The framework governing municipal governments is extremely confusing and needs to be clarified.
- Resilient infrastructures and systems are rights that citizens are entitled to and not benefits to be given.

Everyday monitoring and maintenance

To understand the scenario, we must historically trace adaptation strategies by residents of the city.

- Taking care of the basic necessities of marginalized and underserved communities is crucial to create space for them to engage and think about larger environmental problems.

Corrective measures

The current demolition drives of built up storm water drains are an example. Problems such as flooding can be looped back to infrastructure planning; for instance, there is a need to build houses that do not flood and roads that can still be walked on during heavy rains. While evaluating existing infrastructure or planning new ones it is vital to compare intent vs. impact.

B: Finance

What are the budgetary impacts on key infrastructure that are at risk?

These include communication, civil infrastructure, electricity, water and transport. What will ensuring resilience of this mean?

- Who benefits from any new infrastructure and who pays the cost must be scrutinised.

C: Politics

Where does adaption led climate action appear on political party campaigns and manifestos? Are there any precedents?

There is a huge civil society movement to strengthen the ward committees and instate ward sabhas to improve the governance at the local level.

Moreover, newer municipal level parties that look at environment as their lead priorities are cropping up with voices from RWAs, communities and NGO's being raised through these channels.

Lack of information on climate change affects the local neighbourhoods and their governance. The problems within the government are not only technical, but also managerial. Addressing these constraints through strategic actions that include the development of appropriate institutional and human resource capacity for this purpose will form the main goal.

Climate Action Plans

A city with rapid urbanization and unplanned infrastructure development aggravates vulnerabilities and increases cost of living, especially for the urban poor. Global experiences indicate cities cannot build their way out of congestion. The 'smart city' projects have skewed relationships between intent and impact, with massive investments being made in gentrified neighbourhoods to the neglect of most other areas of the metropolis.

Would turning planning and development into decentralized processes and promoting self-sufficient neighbourhoods be the answer to reducing the carbon footprint of the metropolis and adapting Bengaluru to climate change impacts? What responses are required from citizens for this?

How can the city's infrastructure make

WRI outlined the struggle of how a collaboration between a research and policy organisation and the Brihanmumbai Municipal Corporation allowed researchers to create a baseline assessment of Mumbai's climate parameters such heat islands, air pollution and housing locations. The organisation was attempting to understand what climate change meant at the level of each ward in the city and what ward specific mitigation measures the municipal corporation could engage in. A similar attempt is being made in Bengaluru with the BBMP and there is a larger initiative by C40 cities to create climate action plans in forty major cities across the world.

Experience with Mumbai Climate Action Plan (MCAP)

- Social vulnerability is more difficult to illustrate than geographic vulnerability. There are a lot of problems with required socio-economic data, they are either missing or outdated. For instance, the current population data is based on the 2011 census.
- MCAP can be a great learning tool to refine strategies to deal with disasters. It works better for disasters that are easily attributable to climate change, and is a tool to prompt government action.
- It has facilitated engaging and difficult conversations between departments and between civil society, other stakeholders, and the local government.

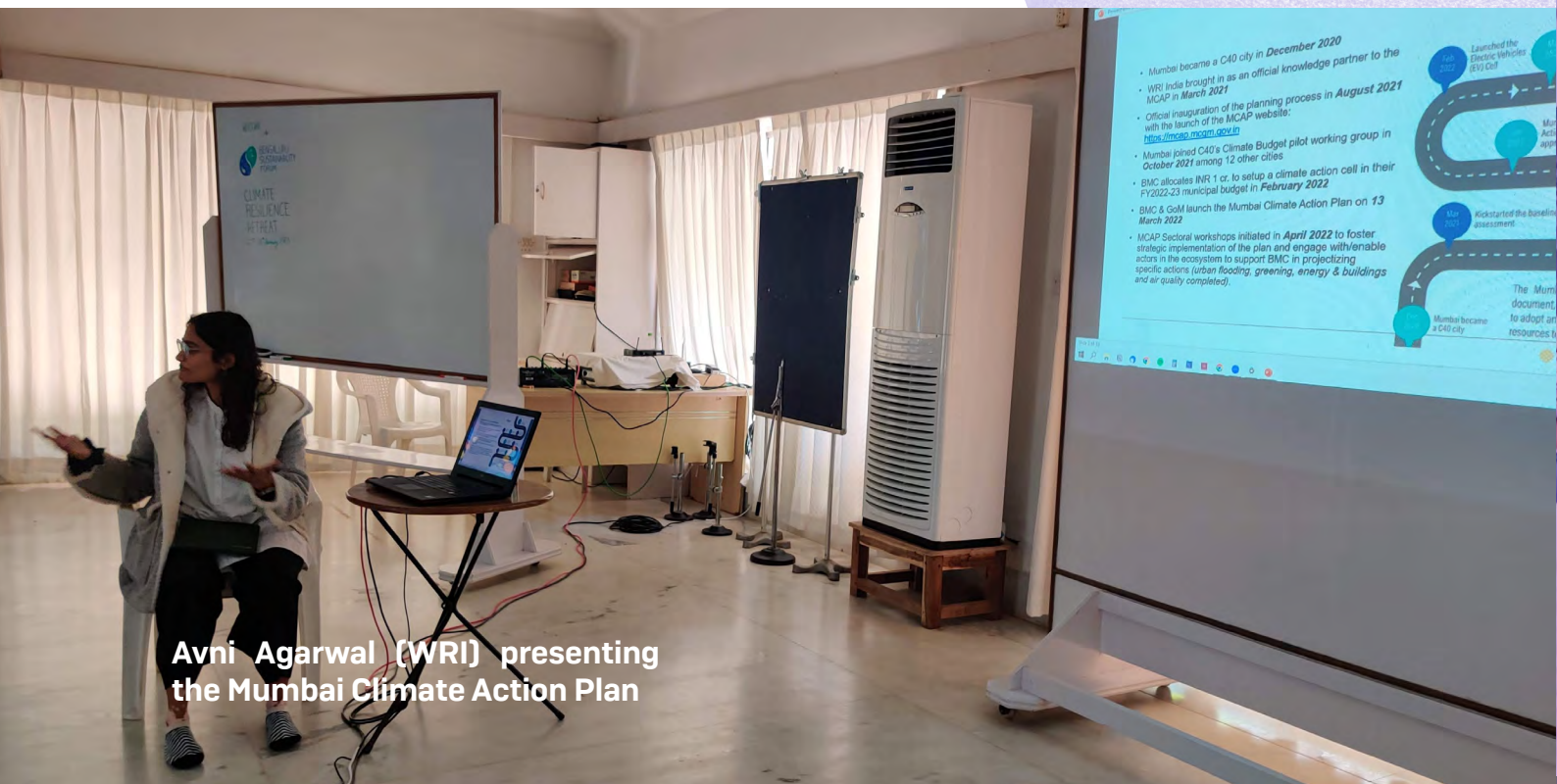
The question that then arises is **what are the role and the duties of the scientists and technical experts?** Experts, ideally should not engage with state actors that are undemocratic in nature, but if engagement with the entities in power does ensure better mitigation plans, it is worthy to pursue a dialogue.

There is a long and convoluted history associated with Bengaluru's governance. The Climate Action plans published by WRI unfortunately are not statutory documents, that means they are not bound by any legal act or law. This makes them hard to implement, especially by a municipal government (BBMP) that has very power when it comes to planning and is solely responsible of execution. What has to be worked on is a way for different agencies and authorities to own it such that there is responsibility taken on from all their ends to make it actionable.

The biggest concern Bengaluru faces is the **parastatalisation** of all its service provision agencies/ authorities. They are not accountable to the municipal government which makes coordination quite complicated. The BBMP Restructuring Committee 2017 had proposed a three-tier governance structure for Bengaluru with clear roles for democratic bodies like the Ward Committees, multiple Municipal Corporations and a Greater Bengaluru Authority plan implementation. But the Revised Master Plan of 2031 does not address these institutional and governance frameworks to implement the plan.

Bengaluru currently has no working master plan.

The BBMP Municipal Elections have not been held since September 2020.



Avni Agarwal (WRI) presenting the Mumbai Climate Action Plan

'Nadiyolage': poem by Mamta Sagar
Translated by Mamta Sagar
Composed by Vasu Dixit

Inside the river

Inside the river are the sky,
the cloud, the cold sun.
cupped in my hands the river.
If I throw up my hands,
the river spills in drops, scattering
sky, cloud, and sun all over me.
If I drink the river from my hands
then within me are
the sun, the cloud, the sky.
Tell me then, who is in whom?

Vasu Dixit performed a few pieces on sustainability and climate on the evening of the first day

An uncertain winter by Munmun Dhalaria

Everything about life in Spiti revolves around basic survival and optimal utilization of land in a place where all the elements are against habitation. Winter temperatures dip to -30 degrees. The stoic women endure the winter as the valley takes everything away from them. In Kibber village, 4300m above sea level, we follow the life of Langzom. She lives in one of the most inhospitable conditions in the world and faces many problems even in accessing basic facilities we take for granted. Isolated farming communities, like the ones residing in Spiti valley, are especially vulnerable to climate change and its direct repercussions through fluctuating harvest. This film is an ode to life in the frozen desert, and the resilience of the women who call it home. The same snow that makes a major part of the year unlivable, is responsible for a decent harvest of Kibber's only cash crop: greenpea.

Participants viewing the film on the second day of the retreat as a premise to the session on climate communication

Section 4

Climate vocabulary and actionable climate science

What is the way forward?
How to bring perspectives of the working class communities within the city?
How can climate science be understood by all parts of our citizenry?

How can climate science, with all its underlying uncertainty, be effectively communicated at the scale of cities and even neighbourhoods?

Communicating climate change to a diverse audience cutting across barriers of caste, class and gender is of course complex, but different strategies emerged throughout the discussions. There is a need for more thoughtful language, storytelling and communication centred around climate change and resilience. Some of the vocabulary around climate change and resilience have problematic histories and need to be examined or even abandoned altogether.

One of the challenges grappled by Citizen Matters, a local city level media platform concerned with urban issues is the question of where the media fit into the picture and what the narrative that they needed to focus on was and how could their reporting push decision-makers to act. Stories of climate change should not obfuscate other underlying issues. For instance, are the Bengaluru floods last year an example of climate change or the result of poor planning by city officials? Are women labourers suffering heat waves a climate change issue or an issue of lack of labour protections?

A question that emerged was if communities experiencing these issues could be provided the resources to tell their own stories. Dakshin Foundation is attempting such a model with women from fishing communities in Tamil Nadu. Agriculture World too, during the Covid lockdown, brought together farmers across India to participate in seminars and online discussions through Facebook live. Such models require substantial resources and investment but are important as they enable more people to engage with the issue and have their voice travel.

Events centred around food and food systems could spark larger conversations about nature, environment and biodiversity. There is a chef residency programme that allows communities from different geographies to talk about their food systems and plan with each other.

It is time for climate communicators to take a cue from the youth and embrace social media as a legitimate medium for telling stories.

Climate scientists who attended the retreat urged fellow academics to jump into the communication fray. It is crucial that scientists and researchers consciously step away from the technical "IPCC" language of climate change and communicate climate issues in a more accessible manner.

A very interesting debate arose that is outlines below:

As long as you manage to get a man into an electric vehicle, does it matter if he knows why that is important for the climate?

The general consensus however was that all information should be accessible regardless of whether the community finds it useful or not.

Community based journalism is useful in telling people's stories, but it doesn't matter much if people in positions of power are not basing their decisions on these stories. Funding agencies have to take into account whether the groups they engage with are further able to extend the messaging. It is also important that the experience of reporting and sharing their own stories adds some value to the lives and circumstances of these communities.

Participants

Aarthi Sridhar

Founder Trustee,
Dakshin Foundation

Aarthi Sridhar heads Dakshin's Communities and Resource Governance Programme. Her interests include sociology of knowledge and socio-legal studies, with a focus on promoting and facilitating on-ground practices of resource regulation, environmental justice and governance in relation to coastal and marine systems. Through her programme at Dakshin, she facilitates collaborative platforms for strengthening coastal and marine environmental knowledge and practice and produces learning tools on environmental subjects.

Aishwarya Sudhir

Lawyer, Air Quality and Health, Climate researcher

She has worked in the Climate and Energy space with a focus on improving air quality over a decade. In the past, she worked in the capacity of a programme lead, senior researcher and a campaigner with multiple international and national organisations such as Climate Trends and the Health and Environment Alliance(HEAL). A large part of her career was spent communicating the stories of communities impacted by pollution from coal-fired power plants in India's critically polluted hinterlands. In the last couple of years, she worked in the capacity of an independent consultant with various organisations and govt bodies including the BMRCL to help devise clean air strategies.

Ajay Raghavan

Co-founder, Initiative for Climate Action

Ajay was a senior partner at Trilegal, a leading Indian law firm, where he built one of the most successful legal practices in the country. After being deeply influenced by what was happening with the planet, Ajay co-founded Bangalore Creative Circus (BCC) and the Initiative for Climate Action (ICA), both working towards building ecosystems for climate action. Ajay leads the 'Climate and Cities' practice at the ICA and is currently working with a group of like minded people on Project 44, a proto-lab working with 40,000 residents in Ward 44 in Bangalore to empower them to make informed choices and access quality services and solutions with the intent to test and prototype what a flourishing community in the era of climate change could look like.

Akshatha Venkatesha

City Advisor, C40 Cities

She is an architect and a landscape architect by academic training; a designer at heart and enjoys solving problems with a social lens. Akshatha is passionate about building inclusive partnerships between communities, donors, and not-for-profit organisations to achieve long-term social impact. Over the last nine years, as a development sector professional, Akshatha has successfully developed and implemented community programs and mobilised funding for organisations that work across sectors such as women empowerment, healthcare, education, and the environment. Akshatha is interested in addressing the socio-economic impacts of climate change that affect people's lives and livelihoods.

Amaresh Belagal

Senior Associate, Enviormental Sustainability, Janaagraha

Amaresh holds a Bachelor's degree in Civil Engineering and a Master's degree in Environmental Engineering from Visvesvaraya Technological University (VTU), Belagavi. Additionally, he has completed his Post Graduation in Developmental Leadership from the Indian School of Development Management (ISDM), Noida. He has previously worked with Tide Technocrats as a Senior Environmental Engineer and also with the Centre for Policy Research based out of Bhubaneswar as a Public Health Engineering Expert.

Arpan Golechha

Senior Project Associate, WRI India

He is a climate policy researcher with over 6 years of experience in the field of climate adaptation, mitigation, and finance. In his current role, Arpan is working on climate-economy modelling to understand the different low-carbon pathways through which India can decarbonize in a just and equitable manner. He has also been involved in conducting a Political Economy Assessment on climate action at the city level and in helping deliver capacity building for city level officials.

Previously, Arpan has worked as a Researcher at Watershed Organisation Trust (WOTR) where he worked on measuring resilience impacts of adaptation interventions and tools, adaptation finance requirements, valuation of ecosystem services and mapping systems of agriculture and adaptation finance.

Dr. Ashwin K. Seshadri

Assistant Professor, Divecha Centre for Climate Change (DCCC) , Indian Institute of Science

Ashwin is an assistant professor at Indian Institute of Science, working in two areas: climate dynamics, and science and policy aspects of decarbonization. Their group tries to work on improving the scientific foundations of climate decision making. Much of their work is curiosity driven, but while they try to pick interesting problems in climate, they also like to prioritize those problems whose answers carry value in the climate change context, e.g., is the monsoon among the tipping elements of the Earth system / what can help integrate variable and intermittent renewable energy in the grid?

Ashwin Mahesh

Founder, Lvbl - The Neighbourhood Improvement Company

Ashwin Mahesh is an urbanist, journalist, politician and social technologist based in Bangalore. After his education in atmospheric science (PhD) and astronomy, he worked as a climate scientist at NASA, before switching to a career in governance reforms and urban development. He is a co-founder of the national public affairs magazine, India Together. He also founded the social technology firm, Mapunity, and is one of the co-founders of the electric vehicles-based transportation company, Lithium. He is also a founder member of Bangalore Political Action Committee (BPAC). Ashwin Mahesh was awarded the Ashoka Fellowship in 2009.

Avni Agarwal

Senior Program Associate, WRI India

Avni Agarwal works with WRI India's Urban Development team. She has been working on the Climate Action Plan, Staffing Plan for the city's Climate Action Cell and Climate Budget for Mumbai, and supporting CAP related activities for other cities in India. More recently, she has started working towards developing a climate risk and vulnerability assessment framework for Indian cities. She has worked with the Climate Program at WRI India before, where she was involved in developing climate action plans of 7 cities in Madhya Pradesh, capacity building workshops, and developing an emission estimation tool based on the Ministry of Housing & Urban Affairs Climate SMART Cities Assessment Framework (CSCAF).

Bhanu Sridharan

Senior Reporter, Citizen Matters, Bengaluru

She previously worked an independent journalist and primarily covered environmental issues. She has an undergraduate degree in communication studies and literature and a Masters degree in wildlife biology and conservation. In the past, she has worked as a field biologist, studying mangrove forests in the Andaman Islands and with an organization involved in hornbill conservation in northeast India. When not writing, she likes to travel to beautiful places, watch wildlife and manage her dog's busy schedule.

Bhargavi Nagendra

Program Manager, Socratus Foundation for Collective Wisdom

Bhargavi is currently leading the Namma Ward Namma Dhwani Initiative , a project working at the intersection of climate change, citizenship, and cities at the ward level in Bengaluru. She is interested in exploring systems thinking for environmental and social impact. She worked at the Public Affairs Centre before joining Socratus and led action research projects on themes related to food security and energy. She has experience in strengthening last-mile delivery by engaging with various stakeholders on the themes of food systems, waste management, and migration.

Chandni Singh

Senior Researcher, Indian Institute For Human Settlements (IIHS)

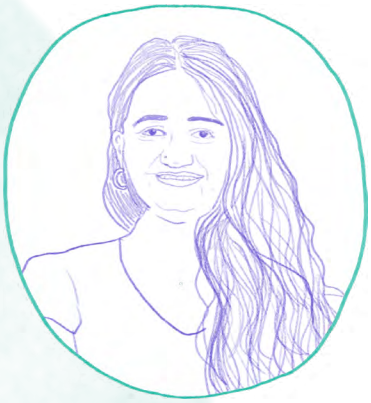
She works at the intersection of development and climate change, examining drivers of vulnerability to climate change and links to human wellbeing, rural-urban migration and livelihood transitions, and behavioural aspects of climate adaptation. She was a Contributing Author on the IPCC Special Report on Global Warming of 1.5°C and is a Lead Author on the IPCC's latest Sixth Assessment Report on Impacts, Vulnerability and Adaptation. She has previously worked in research and practice-based organisations such as Bioversity International, Pragya, and WWF India. Chandni is deeply interested in science communication for lay audiences and has written for New York Times, The Hindu, Times of India, etc.

Chennamma

Domestic Workers Rights Union

Divya Narayanan

Campaigns Director, Jhatkaa, Bengaluru



Divya is an activist who works at Jhatkaa.org, a digital campaigning organisation where they use innovative technology and public mobilisation to build an active movement of progressive Indians who take action to affect change that would not be possible if they acted alone. She has previously worked in women and child health, monitoring and evaluation of public health programs, environmental public health, water and other environmental issues. She has a background in public health and human rights. She is also a facilitator and independent consultant.

Elizabeth Yorke

Food researcher; Co-founder - Edible Issues

Elizabeth is a chef turned food researcher, writer and an advocate for sustainable food systems. She is the co-founder of Edible Issues, a collective that is fostering thought and conversation on the Indian Food System, and the founder of Saving Grains, a community centred upcycling food initiative inspired by the historically circular relationship between brewers and bakers.

Being a professionally trained chef with a variety of experiences inside and outside the kitchen. I look for opportunities to use my skills as a chef and knowledge in food systems to create better educational experiences for both consumers and creators of food via the circular economy.

Geeta Menon

Stree Jagruti Samiti, Domestic Workers Rights Union

Geeta Menon is a women's rights activist. For over three decades, she has been involved with women and women workers, especially in the informal economy, in the building of women's own voice and leadership. As a representative of Stree Jagruti Samiti and the Domestic Workers Rights Union, she has worked on issues like domestic violence, sexual harassment, issues of domestic workers especially that of forced labour.

Ike Uri

PhD Candidate, Brown University; Fellow, WRI Mumbai

Ike Uri's research focuses on the intersection of urban planning and climate risks in India. He considers how cities are responding to climate change, often engaging non-governmental consultants in such processes. His work looks in particular at the city of Mumbai and the experts who have been engaged in climate planning work for the city.

Dr. Indu K Murthy

Sector Head - Climate, Environment and Sustainability at CSTEP

She completed her bachelor's in Botany from Ethiraj College for Women, Chennai; master's in Botany from M S University, Baroda; and PhD in Ecology and Environmental Sciences from Pondicherry University. Prior to joining CSTEP, she worked as a Consultant Scientist at the Indian Institute of Science, Bengaluru. Her areas of interest include climate change mitigation, vulnerability and risk assessment, adaptation and climate policy.

Dr. Jagdish Krishnaswamy

Dean, School of Environment and Sustainability, Indian Institute For Human Settlements (IIHS)

He is a field ecohydrologist and a landscape ecologist with research and teaching interests in applied statistics, environmental applications of remote sensing and GIS, ecosystem services, ecological restoration, river ecology and climate change. He loves the challenge of understanding complex changes in the environment over time and space. He was the Coordinating Lead Author of the Special IPCC Report on Climate Change and Land.

Dr. Lakshmi Unnithan

Agriculture journalist and Sustainability expert

Lakshmi is a well-known Sustainability expert and Indian journalist with a passion for agriculture, farmers, food systems, the environment, lifestyle and health. Originally from Kerala, she currently resides in the Bangalore, Karnataka. A contributor and photographer to a wide number of publications and newspapers including The Deccan Herald, Good Homes, Complete Wellbeing, Prismma, Kerala Karshakan, Journal of Architecture, Design Source, Leisa, Down to Earth and various other online web columns.

Lakshmi

Domestic Workers Rights Union

Lalithamba Vishwanathaiah

Bengaluru NavaNirmana Party (BNP)

Lalithamba BV, the Zonal leader of BNP in HSR Zone. She has been an integral part of BNP's development and has been actively volunteering on several civic issues across Bengaluru. Her interests are water management, sustainability and good governance

Leo Saldanha

Coordinator and Trustee, Environment Support Group (ESG)

Leo F. Saldanha is full-time Coordinator and also Trustee of ESG. He has gained wide-ranging experience in the areas of Environmental Law and Policy, Decentralisation, Urban Planning and a variety of Human Rights and Development related issues, working across many sectors for over a decade. He is a keen campaigner on critical environmental and social justice issues and has guided several campaigns demanding evolution of progressive laws and effective action. He has creatively supported various distressed communities to secure justice through public interest litigations and advocacy efforts, arguing as party in person several public interest litigations, many of which have resulted in remarkable judgments. He has a background in Environmental Science.

Manu Mathai

WRI India

Manu works on the political economy of Development as expressed in energy infrastructure choices and their implications for justice in human well-being outcomes, on a shared and finite planet. His publications include Nuclear Power, Economic Development Discourse and the Environment: The Case of India (Routledge, 2013) and the co-edited volume Green Growth: Ideology, Political Economy and the Alternatives (Zed Books, 2016). He proposed the idea of "sustainable structures of living together" as a heuristic for local governance in the Anthropocene and is trying to put these ideas into practice through the Flourishing Bengaluru Collective. His other ongoing work focuses on the expansion of "big" renewable energy infrastructure, and the problem of sufficiency in extant production-consumption systems. His training includes Environmental Science (Bangalore), Wildlife Science (Dehradun), Public Policy (Maryland), and a PhD in Energy and Environmental Policy (Delaware). He lives in Bangalore and works with World Resources Institute (India).

Padma Venkataraman

India Climate Collaborative, Communications Associate

She is a lawyer and researcher passionate about climate action, human rights, and justice, and the role that philanthropists and corporations can play in addressing climate change and other social issues. She currently works to build narratives that account for equity and accuracy, and leverage data and storytelling for climate action. Prior to this, she litigated in Delhi, with a focus on corporate liability, as well as the rights of under-trial prisoners and immigrants.

Prarthana Ramesh

Janaagraha

Prarthana currently leads the climate policy work at Janaagraha. Her primary work has been in delivering sustainability lessons to children through the Bala Janaagraha programme. She has previously worked with 'Dream a Dream' on their experiential camps with young children and drafting content for their curriculum, 'UNI' with underprivileged children and with 'Centre for Legislative Research and Advocacy' with drafting bills and policy briefs. She has worked with the New Indian Express as a reporter and AIESEC Russia as an exchange participant on the BRIC project in Samara, Russia.

Puneet B

Stree Jagruti Samiti

Puneeth is a practitioner and researcher whose interests span rural livelihoods, development, social welfare, environmental policy, politics and governance and climate change adaptation and mitigation. He has initial experience of working on field with farmers and other rural communities, as well as with researchers and bureaucrats, on a host of projects tackling various socio-environmental and developmental issues.

Radha Chanchani

WRI India, Sustainable cities and transport

Radha Chanchani is a Senior Manager at the WRI India Ross Center for Sustainable Cities. She manages research and technical assistance initiatives, primarily in Bengaluru. Her recent work focuses transit-oriented development and land value capture financing. She has a keen interest in nature-integrated and climate resilient planning and was involved in the preparation of the Bengaluru Climate Action Plan (BCAP) being developed by WRI India in partnership with C40 Cities and BBMP. She hopes to stay engaged on city initiatives to implement BCAP proposals and allied activities.

Rudramurthy
Auto drivers Association

Sachin Prasad
Associate Program Manager at Juspay

He is an engineer who works on the Namma Yaatri last mile connectivity and mobility services App for auto rickshaw drivers in the city.

Dr. Seshadri KS
Faculty, Ashoka Trust for Research in Ecology and Environment (ATREE)

His research is focused on understanding and conserving biodiversity across diverse landscapes. His research expertise spans several ecosystems and taxa ranging from dragonflies to epiphytes in the tall forest canopies in the Western Ghats. During his PhD at the National University of Singapore, he discovered new species and new reproductive behaviour of frogs and examined the evolutionary ecology of such behaviour. He has, in the past worked at the Centre for Ecological Sciences, IISc, The Agumbe Rainforest Research Station, and Gubbi labs where he continues to collaborate with his former colleagues.

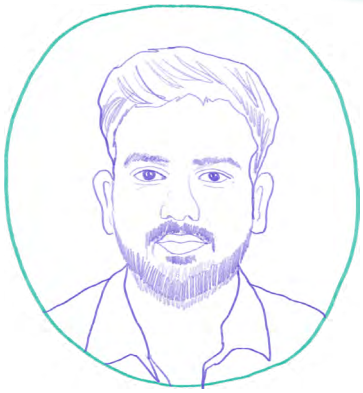
Shweta Srinivasan
Program Manager, India Climate Collaborative

Shweta works on decarbonization and just transitions initiatives. She is a climate change researcher and sustainability professional with 10 years of experience in technology, policy aspects of energy and environment sectors. She has a keen interest in connecting the dots, filling knowledge gaps, and accelerating decisions for low-carbon transitions. Her prior professional stint was at the Centre of Science, Technology and Policy, a leading Indian think-tank where she led CSTEP's low carbon pathways team.

Sravasti Datta

Journalist and Consulting editor at Citizen Matters

Experienced independent Journalist with a demonstrated history of working in the newspapers industry. Skilled in Journalism, Newspapers, Digital Media, and News Writing. Strong media and communication professional with a Diploma in broadcast journalism focused in Journalism from Asian College of Journalism, Chennai.



Supratheesh T.

Senior Program Associate, WRI India

Supratheesh is originally from Tamilnadu. He has completed his Bachelors in Electronics and Communication Engineering and has worked as a software engineer with a leading firm in the domain of automotive electronics. Realising his passion to solve public problems and wanting to build a career in the development sector, he completed his Master's in Public Policy and Governance from Azim Premji University, Bangalore.

Yashoda

Domestic Workers Rights Union

BSF Attendees

Jahnavi Phalkey
Founding Director,
Science Gallery
Bengaluru

P.S Narayan
Head of Sustainability,
Wipro Ltd.

Satyajit Mayor
Professor and
former director,
NCBS

Dinni Lingaraj
Group Manager,
Corporate
Sustainability, Wipro
Ltd.

Nakul Mohan Heble
Program officer,
Wipro Ltd.

Organising team

Namrata Narendra
Coordinator, BSF

Manasi Pingle
Coordinator, BSF


EETING POINT

Acknowledgments

This retreat is the result of collaborative thinking and planning with the members of the Steering Committee, friends and the network of BSF.

We would like to give a huge thanks to Wipro and the accounts team at NCBS who supported us in managing finances and making sure everything was accounted for.

A big thanks to the School of Ancient Wisdom for hosting us at their wonderful campus.

Thanks to BMTC (Yeshwanthpur Depot) who supported us at the last minute by arranging transportation for all the participants on both days of the retreat.

Lastly, a big thank you to all the retreat participants that made the two days meaningful, exciting and a great environment of learning.

Location

The School of Ancient Wisdom

Accounting

ncbs
National Centre for Biological Sciences
Tata Institute of Fundamental Research

Transportation

Bangalore Metropolitan Transport Corporation

Stationery

rescript

Financial support

wipro

Display panels

Rivers of Life

Azim Premji University

Glossary

Adaptive capacity
The combination of assets, skills, technologies and confi dence to make changes and adapt effectively to the challenges posed by long term trends, such as climate change.

Capacity
The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Capacity Building
The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including by improving knowledge,
skills, systems and institutions.

Climate change
A change in the climate that persists for decades or longer, arising from either natural causes or human activity.

Climate Change Adaptation
The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Adaptation includes changes in management activities, institutional settings and infrastructure that enables effective response to the changes in climate that may occur.

Coping strategies
The strategies that households and communities use, based on available skills and resources, to face, manage and recover from adverse conditions, emergencies or disasters in the short term.

Ecosystem services
The benefits people derive from ecosystems, including provisioning services such as food and water; regulating services such as fl ood and disease control; cultural services such as spiritual, recreational, and cultural benefi ts; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.

Environmental degradation
The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Equity
The situation in which everyone is treated fairly according to their needs and no group of people is given special treatment:

Exposure
People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Governance environment
The range of different formal and informal organizations, policies and practices operating at different levels from local to international.

Hazard
A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Long term trends
Patterns of change over time such as population change, resource use or degradation, technology development, and social change. They can be either positive or negative. Climate change is an important long term trend.

Mitigation
The lessening or limitation of the adverse impacts of hazards and related disasters.

Preparedness
The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Prevention
The avoidance of the adverse impacts of hazards and related disasters.

Recovery
The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Resilience
The ability of a system, community or society to resist, absorb, cope with and recover from the effects of hazards and to adapt to longer term changes in a timely and efficient manner without enduring detriment to food security or wellbeing.

Response
The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Risk
The combination of the probability of an event and its negative consequences.

Risk assessment
A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Risk management
The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Stresses
Smaller, low impact events, and seasonal factors (for example employment, prices, health) can undermine livelihoods.

Sustainable development
Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Vulnerability
The degree to which a population or system is susceptible to, and unable to cope with hazards and stresses, including the effects of climate change.

The glossary is taken from: From Vulnerability to Resilience A framework for analysis and action to build community resilience, Katherine Pasteur

BENGALURU
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