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Transforming Universities
for a Changing Climate

**Fostering Adaptive
Innovation and
Climate Action:
A Participatory Action
Research Study
Involving Students,
Social Entrepreneurs
and Community
Actors**

Transforming Universities for a Changing
Climate

Working Paper Series No. 17

By Devisha Sasidevan and Sunil D. Santha

October 2023



UK Research
and Innovation



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Abstract

Universities hold a pivotal role in fostering just climate action initiatives by empowering a diverse range of stakeholders in co-designing and implementing strategies. This working paper explores the transformative potential of participatory action research (PAR) in catalysing climate action initiatives within the university ecosystem. Recognizing universities as pivotal hubs for knowledge dissemination and community engagement, this study documents the collaborative journey undertaken to uncover the agency and voices of diverse stakeholders, including students, educators, social entrepreneurs, and local communities. This reflective working paper delves into the PAR we initiated in two villages of Tamil Nadu, India, examining its engagement with praxis, uncovering drivers and barriers within the university's capacities, and shedding light on the emergent outcomes, both intended and unintended. Through this exploration, we illuminate the potential of universities as drivers of inclusive, participatory, and just climate action, showcasing the importance of decentralised knowledge production and the empowerment of diverse stakeholders in co-designing and implementing sustainable solutions. This paper also focuses on the influence of action research in enhancing awareness and preparing postgraduate social work students to undertake participatory action research initiatives designed to promote significant climate action initiatives. Furthermore, it highlights the potential of alumni networks and university-affiliated organizations to serve as advocates for climate action.



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INTRODUCTION

Universities play an essential role in strengthening the capacities of diverse stakeholders in co-designing and implementing just climate action initiatives. However, fostering this responsibility also means that knowledge production structures and processes become more decentralised and participatory, recognising the agency and voices of multiple stakeholders, including students, educators, social innovators, local communities, state actors, and other agents. This working paper describes our journey in a similar pathway that facilitated participatory action and knowledge creation towards strengthening local knowledge and collective action in adaptation to climate change. It attempts to narrate the impact of our action research in raising awareness and equipping postgraduate social work students with the skills to initiate participatory action research (PAR) projects aimed at advancing meaningful climate action endeavours. Additionally, it showcases the role of alumni networks and organizations that universities could foster as champions of climate action.

Our participatory action research was 'Adaptive Innovation and Climate Action: A Participatory Action Research with Students, Social Entrepreneurs, and Community Actors.' Located in two villages of Tamil Nadu, the PAR was facilitated through the dynamic partnership between faculty and postgraduate social work students from the Centre for Livelihoods and Social Innovation (CLSI), School of Social Work at TISS Mumbai, two distinct social enterprises (founded by the CLSI alumni), namely Hooga Seed Keepers (HSK) and Goodliving.eco (GLE), and grassroots-level community actors in the respective project sites.

HSK is a social enterprise established in a farming village in Erode district of Tamil Nadu in India. In states like Tamil Nadu, climate change has begun to impact people's everyday lives, including small-scale farmers, daily wage labourers, and other marginalised groups. The agricultural economy of the state depends primarily on the Southwest Monsoon (June to September) and the Northeast Monsoon (October to December). Studies show that agriculture in the Erode district has been affected by climate change regarding cropping system, harvesting time, crop growing season and the untimely destruction of crops (Sivaraj and Philip, 2015). The region is considerably affected by erratic rainfall in quantity and distribution, resulting in drought-like situations, monsoon failure or shifting of the monsoon from its regular calendar. While some blocks within the district are characterised by severe water scarcity, other areas in the recent past were affected by prolonged continuation of heavy rains. There are also places where water has become more saline and unfit for cultivation. All these factors adversely affect the crop growing season. There is also a rise in stem borer, ear bugs, and new pest infestations. Yields are also impacted by diseases such as blast, leaf spot, bacterial blight, and other new types of infections (ibid). Operating as a community-based heirloom seed bank, HSK's primary mission is the revival

and conservation of native and heirloom flora through natural farming practices. Additionally, HSK endeavours to forge solidarity networks among heirloom seed keepers.

GLE strives to co-design and build climate-resilient and green housing for poor and marginalised families and communities. Their interventions are located around Villupuram district of Tamil Nadu, located along the southeast coast of India. It is one of the six regions in the world where severe tropical cyclones originate in May, November, and December. This area has experienced nearly 60 cyclonic surges in the past century. Storm surges in this region are well known for their destructive potential and impact on human activities due to strong winds along the coast and heavy rainfall. Apart from the cyclones, the area also faces floods and coastal erosion. The coast also faced the brunt of the Indian Ocean Tsunami that struck in 2004. An added risk factor is that large parts of the coastal zones are low-lying with gentle slopes, resulting in extensive inundation, thus increasing the region's vulnerability. During the Thane cyclone, the deaths in Villupuram occurred mainly due to electrocution, tree falling, and the collapse of houses or walls. Trees uprooted and fell over lamp posts and electric poles. Hand pumps and bore wells were damaged, which led to water scarcity and a lack of safe drinking water. Major roads were blocked for a whole week. GLE believe in enabling the adaptive and entrepreneurial capabilities of grassroots-level collectives, such as self-help groups of women and youth associations, in contributing to the green value chain, specifically focusing on climate-resilient buildings and green habitats.

To begin with, the PAR had three guiding objectives:

1. To promote awareness and develop the capacities of social work students to undertake participatory action research projects towards meaningful climate action initiatives.
2. To strengthen alumni networks and social enterprises in facilitating climate action initiatives at the grassroots through their start-ups and social innovations.
3. To enable grassroots-level community actors to enhance their adaptive capacities and entrepreneurial capabilities to livelihood and environmental uncertainties at the local level.

This working paper is a reflective piece of work examining the PAR in terms of:

- How did the PAR engage with Praxis, mainly in terms of practice contexts, its diversity and situatedness, theory-practice interlinkages and methodological pluralism?
- What were the various drivers and barriers that shaped the capacities of the University to engage with the PAR?



- How do we locate emergence² in the context of this PAR, specifically in terms of intended and unintended consequences, spin-offs, and spiral effects?

The sections of the working paper are arranged according to these lines of inquiry. The contexts of praxis are discussed next.

POSTHUMANISM, ADAPTIVE INNOVATION, AND METHODOLOGICAL PLURALISM

a) Posthumanist Perspectives

Contemporary worldviews, including our curriculum, ignore that nonhuman beings are historical actors with stories about cross-species entanglements and their overlapping world-making trajectories (Tsing, 2015, p. 168). Though we are all entangled within the pluriverse (Escobar, 2015), conventional research and practice contexts have been unable to theorize these ontological relationalities adequately (Bell, 2013). Predominant onto-epistemological approaches have instead fuelled nature's commodification, cheapening some humans and nonhumans and inflicting violence on them (Moore, 2016; Taylor, 2018). Specifically in social work education and practice, our engagement with knowledge production and social transformations is rooted in Cartesian duality and modernism, emphasizing humanism and anthropocentrism (Webb, 2021). Constrained by dualisms such as nature/culture, material/discursive, subject/object, human/animal, man/woman, and North/South, we tend to promote human hierarchies and legitimize all forms of oppression and othering practices (Bozalek & Pease, 2021; Taylor, 2018).

Escobar (2015) asserts that we need to step out of existing institutional and epistemic boundaries if we genuinely want to bring just transformations. In this context, the PAR was shaped by a posthumanist philosophy – an amalgam of worldviews not solely tied to human action but a practice that engages with relational networks of assemblages in a more-than-human world (Fox & Alldred, 2015). A central premise of posthumanism is entangled living (Bignall & Braidotti, 2019), which enables us to explore the networks of dependencies that constrain and drive the human condition (Hodder, 2016: 9). Posthumanism does not devalue human life. Instead, it emphasises an ethical sensibility that values entanglements of nonhuman life and the natural environment (Bozalek & Pease, 2021; Alaimo, 2012), which becomes crucial for climate action.

Braidotti (2013) explains posthumanism as a theory and practice existing on the entangled existence of humans with nonhumans, microbial actors, and socio-economic forces. A pedagogical focus on phenomena and entanglements Barad (2007:52) explains,

"To be entangled is not simply to be intertwined with another, as in the joining of separate entities, but to lack an independent, self-contained existence. Existence is not an individual affair. Individuals do not pre-exist their interactions; rather, individuals emerge through and as part of their entangled intra-relating."

b) Adaptive Innovation

Building resilience in the context of climate change is a complex phenomenon. We must recognise and work with diverse knowledge systems and situated practices to develop meaningful climate action strategies. Therefore, our approach has to be rooted in the lived experiences of various vulnerable groups and their everyday struggles of interacting with a complex social-ecological system. Navigating collectively through shared conversations and dialogic processes, we could embark on an enduring journey where diverse actors would mutually learn, innovate, and make informed choices to enhance the safety and security of their lived environment.

In the past few years, at the Centre for Livelihoods and Social Innovation, we have been mentoring our postgraduate social work students specialising in Livelihoods and Social Entrepreneurship to equip themselves towards 'Adaptive Innovation'. We felt that such an approach was fundamental in addressing wicked problems like climate change. The adaptive innovation model draws inspiration from action research and reflective practice traditions. Adaptive Innovation refers to:

"People-centred innovation processes by which local community actors collectively analyse their situations in the context of social and ecological transitions; forge a constructive partnership with other relevant actors to dialogue, ideate and develop working models; and implement and critically observe, reflect, and validate their adaptive strategies to the emergent contexts. These processes are situated, reflective, context-specific, developmental, and committed to the values of care, justice, and solidarity." (Santha, 2020)."

The ultimate aim of adaptive innovation is to nurture caring solidarity, strengthen adaptive capacities, transform institutions as people-centred and enhance the resilience of social-ecological systems through collective decision-making and action. The goal here is to design people-centred resilience-building strategies that could have the intent and effect of our decisions and activities on the structures and processes shaping equality, justice, care, and empowerment for those disadvantaged and vulnerable populations in a more-than-human world (Santha, 2020).

The core components of an adaptive innovation model are:

- The guiding values of justice, care and solidarity that are embedded within,

2. Emergence refers to novel and self-organised patterns of systemic arrangements, which represent both the intended and unintended consequences of the adaptation project (Santha, 2020). When we deal with complex systems such as climate change, we need to factor in the phenomenon of emergence instead of predetermined linear and stable outcomes. While some adaptation strategies could have enhanced the adaptive capacities of social-ecological systems, certain other strategies would have failed to do so (ibid).

- The six phases of the adaptive innovation cycle, and
- Are enriched by reflective practice, and
- Analysis of actor interfaces in adaptation.

Ethical climate action is only possible if we embed our knowing and doing with the values of justice, care, and solidarity. A single conceptualisation of normative distributive justice may not be sufficient to address the structural inequalities and forces shaping climate vulnerabilities. The poor and marginalised sections in a community often have limited access to institutions and resources, thus constraining their participation and decision-making capacities to mitigate risks or cope with them. The ethics of care emphasises that the foundations of our practice based on love, empathy, compassion, sensitivity, and responsiveness are equally crucial as justice to build a resilient world. Such a perspective also provides sufficient scope to recognise the situatedness and differences in the needs of others. Adhering to the fairness of procedures with a sense of caring and reflexive solidarity would make the idea of climate justice meaningful.

The six practice phases of the adaptive innovation cycle are (i) Situational Analysis, (ii) Micro-mobilisation, (iii) Dialogic Ideation, (iv) Action Framing, (v) Piloting and (vi) Emergence. Each phase of innovation is visualised as a process of discovering and reflecting on new ways of forging partnerships, nurturing participation and co-creating actionable solutions. The adaptive innovation cycle indicates an iterative and reflective pathway to design diverse climate action steps that suit local contexts and knowledge systems. Each phase in the adaptive innovation model can be explained as follows:

- Situational analysis** is the phase in which we try to understand the vulnerability contexts, livelihood practices, adaptation trends and other vital issues affecting diverse community actors in a given social-ecological system.
- Micro-mobilisation** is a strategic process to organise involved actors to participate collectively in devising suitable climate action strategies through innovation platforms.
- Dialogic ideation** is a process of collective imagination where involved actors ideate and co-create multiple climate action pathways through in-depth deliberations, dialogue and other forms of shared conversations and decision-making.
- Action framing** refers to the collective and participatory processes that involve translating emergent ideas into meaningful sensory experiences, images, or visuals of action. It allows for systematic exploration of actionable possibilities through working models.
- Piloting** refers to iterative and reflective processes to implement and test working models' suitability, feasibility, and effectiveness.
- Emergence** refers to the emerging self-organised patterns of systemic arrangements, both the intended and unintended consequences of the PAR project.

Any form of ethical climate action can only be strengthened through reflective practice. Critical reflexivity also involves questioning our positionalities and assumptions as educators, practitioners, or social innovators. In PAR, the reflective practice

would involve iterative cycles of action-reflection, whereby multiple actors are engaged in reflection-for-action, reflection-in-action, and reflection-on-action. Further, climate action needs to be contextualised and reflected upon as interfaces between diverse actors in different power relations, whose outcome depends upon the respective actors' capacities, tactics, and rationality in making suitable decisions. Actors in this context must be recognised as active stakeholders with specific knowledge and ability for action. Recognizing competing expertise and interest in any situation also helps us remain alert to power relations and ideological issues interfacing with our practice. If not nurtured sensitively, diverse social encounters in climate action can become sites of domination and spaces for perpetuating mere socio-technical interest. The adaptive innovation model described above is represented in Figure 1. The processes and timeline involved in mentoring students for the action research project are briefed in Annexure 1.

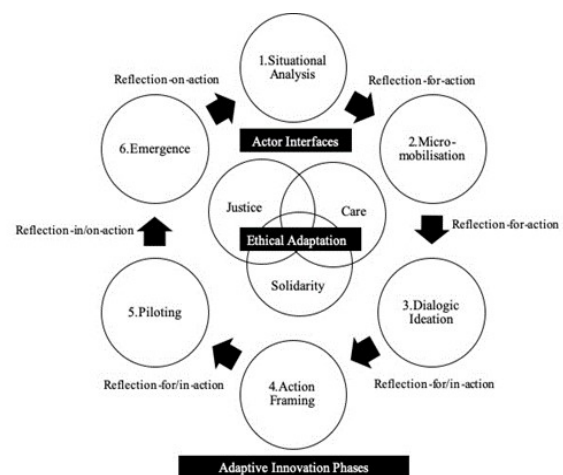


Figure 1. Adaptive Innovation Phase model. Source: Santha, 2020.

c) Methodological Pluralism and Situatedness

Guided by posthumanism as a theoretical perspective and Adaptive Innovation as a practice model, the following paragraphs describe the diverse methodologies that enabled us to nurture entanglements and becoming. The first step was identifying a few students to be placed with the two social enterprises (HSK & GLE). Table 1 gives the details of participants in each setting. We had the advantage of our social work curriculum supporting such an arrangement through the Rural Practicum (15 days), Livelihood Innovation Lab (9 weeks), and Block Field Work (5 weeks). The processes and timeline involved in mentoring students for the action research project began before the rural practicum and stayed throughout the action research and involvement. We selectively identified the methods for each site based on the evolving context and need. Also, the methods and progress in each setting varied based on the evolving context.



Table 1: Details of Participants Involved in PAR

Institution	Place	Participant Category	Number	Gender	Remarks
TISS	Mumbai	CLSI Faculty	3	2 Female & 1 Male	The postgraduate students were part of the climate change and action research workshop at TISS. The doctoral scholars attended the action research course at TISS and facilitated the learning of postgraduate students.
		Postgraduate Students in Social Work	20	11 Female & 9 Male	
		Doctoral Scholars in Social Work	12	6 Male & 6 Female	
Hooga Seed Keepers	Erode	Staff	3	2 Female & 1 Male	
		Social Work Students placed at HSK	4	All were female	4 students from the above-mentioned 20 were placed with HSK based on their volunteering and interest in working with HSK.
		Agricultural Science Students placed by two local agricultural universities at HSK	30	15 Female and 15 Male	These students were not part of the PAR, but as their placements with HSK happened during the Dialogue Conference and Field Engagements, they too became active participants and volunteers in the research process.
		Local Government School Teachers & Students	4 teachers & 26 children	--	
		Seed Keepers & Farmers	80	55 Male and 25 Female	
		Government Officials	4	2 Male and 2 Female	
		Farming households in the local community	20	-	
Goodliving.eco	Villupuram	Staff	3	1 Female and 2 Male	
		Social Work Students placed at GLE	2	Both Female	2 students from the above-mentioned 20 were placed with HSK based on their volunteering and interest in working with GLE.
		Climate impacted and vulnerable households	11	--	All households were women-headed households.
		Other actors	--	--	Government departments involved in subsidised housing schemes.

Based on the situatedness of each setting or context of practice, we had to avail different methodological options. Thus, during the initial orientation phase with the six post-graduate students, we engaged with methods such as storytelling, shared and reflective conversations on the self, movie watching, and daily debriefing. During the action research workshop, specific inputs were provided on oral histories, conversational interviews, digital storytelling, and photovoice. Village stays, key informant interviews, transect walks, household visits, and document analysis guided the rural practicum phase. Critically diffractive presentations, expert feedback, peer consultation, idea canvas, and extended action research workshops enable students to ideate and brainstorm during the Livelihood Innovation Lab. Further, group exercises, games, movie screenings, photo-voice, dialogue conferences, and exposure visits enabled us to deepen the action research. The fieldwork culminated with the action research conference. Fieldnotes, research journals, daily individual field reports and weekly summary reports strengthened the action-reflection process. Some methodological innovations and regular methodological approaches followed in both settings are briefly discussed below.

METHODOLOGICAL APPROACHES SPECIFIC TO HOOGA SEED KEEPERS

a) Following Seeds

Our fieldwork was considerably shaped by the posthumanist methodologies. The students at HSK began their fieldwork by following native seeds. They explored the profound entanglement of seeds and humanity from a post-human perspective, seeking to understand the various facets of this relationship and the practices it entails. For example, this perspective allowed us to delve into how diverse commodity frontiers can restrict the cultivation of heirloom crop varieties, often leading to their dispossession and displacement. Furthermore, as our journey unfolded, we encountered the complexities associated with ethical adaptation, primarily driven by the intersectional structural contexts influencing the agency of humans and seeds/homes in a more-than-human world.

We visited different households and attempted to engage in shared conversations. Initially, meeting community members proved challenging as many were involved in daily labour work. We continued visiting various local sites, adjusting our schedule to early mornings and late evenings to ensure accessibility. We observed that marginalized households initially responded less proactively to group meetings but exhibited vibrant and knowledgeable participation once assembled. We maintained weekly visits to these communities to sustain rapport and foster ongoing dialogue. Furthermore, our approach involved immersing ourselves in the world of non-human entities. For instance, when students engaged in the meticulous process of de-seeding the Trèfle du Togo Tomato, it became a journey of storytelling and

shared conversations that aimed to unravel the unique history and intrinsic agency of this heirloom variety originating from Africa. Questions emerged:

“What gives it its striking red hue? Why does its shape deviate from conventional tomatoes? Why is it considered an heirloom variety? How does it adapt to water scarcity? And what insights can other seed keepers offer about this species?”

These inquiries and explorations were ongoing, representing our constant pursuit of understanding the intricate and multifaceted epistemologies that characterize the more-than-human world.

We also recognised an entangled ethics of care when directly involved in packaging, transporting, and couriering seeds. These activities are typically perceived as linear functions within the supply chain. Yet, our posthuman practice defies such conventional notions. Instead, we began to treat seeds as living entities. While holding this belief, we engage with seeds on a sensory level—touching, feeling, selecting, and counting each seed with meticulous care. We take great care in placing them into biodegradable and non-toxic materials, ensuring they are safeguarded throughout their journey as we package them into covers and boxes. Finally, we send them on their way, knowing that our actions reflect our commitment to the well-being of these seeds throughout their intricate journey. In caregiving and care-receiving, these everyday practices are deeply woven into the fabric of our interconnected world, which extends beyond humanity's boundaries. Often, we remain oblivious to the intricate web of connections that envelop us. In packaging seeds, our shared conversations assume a unique significance. They offer a window into empathetic listening, allowing us to immerse ourselves in narratives that seem to carve their distinctive pathways and destinations. As we understand them, these pathways serve as vital lenses through which we can decipher the essence of our daily rituals, the repercussions of climate change, and our evolving strategies for adaptation.

Following seeds led us into the heart of entangled relationships, not just among humans but with the nonhuman entities in our ecologically and socially intertwined worlds. For instance, a poignant revelation dawned upon us as we traced seeds to fathom human bonds. Many farmers harbour a profound yearning for specific seed varieties. Yet, paradoxically, they find themselves increasingly estranged from the diverse seed varieties they once had access to. At the outset, our students distributed seeds to a few farm households. However, astute observation unveiled a silent yearning among some individuals during our needs assessment. These voices, muted by circumstance, risked exclusion from our engagements. Nevertheless, attuned to the broader context, we persevered in our interactions with these families. Gradually, we realized that they too, needed seeds, sharing the same aspirations for quality agricultural resources but existing on the peripheries of opportunity due to historical and social structural constraints. Their expressions of need had yet to find their voice.



Reflecting on these unfolding processes, our students at HSK articulated their insights as follows:

“We also noted the existence of exclusionary dynamics in the realm of access to critical livelihood resources. On a particular field day, we became aware of two families discreetly observing us from a distance while we distributed seeds to other community members. They stood apart from the larger group despite belonging to the same community. Somehow, during our deliberations and seed distribution, they were overlooked in the initial round. Later in the day, we visited these two families and inquired if they would be interested in receiving some seeds. Although they did indeed desire seeds, their hesitation to approach us stemmed from the fact that our rapport with them had not yet fully matured. Over time, as our fieldwork continued, we cultivated trust with these families, ensuring they had access to the seeds they needed.”

In this narrative, we see the threads of empathy and understanding weaving together a richer tapestry of interconnectedness as we navigate the intricate landscapes of caregiving and care-receiving in our more-than-human world. Our student Afla, during the debriefing, shared her understanding,

“Following seeds gave us a perspective... Did you get the seed, and did it grow? We may get both ‘yes’ and ‘no’ answers. If the answer is yes, we enquire how it is growing. In contrast, when people say no, we probe the reasons for their failure. On many occasions, we also end up opening a Pandora’s box – be it the micro-politics of water, overuse of chemical fertilisers and pesticides, or the domination of capitalist market forces on the everyday lives of farmers.”

b) Mapping Seasonal Livelihoods / Extreme Weather Events

We explored cropping patterns and livelihood diversity through seasonal calendars, revealing the crops cultivated each season or the type of livelihood practices that local people adhered to. For instance, farmers in Erode shared their techniques, shedding light on the seasonality of different crops and their yield variations.

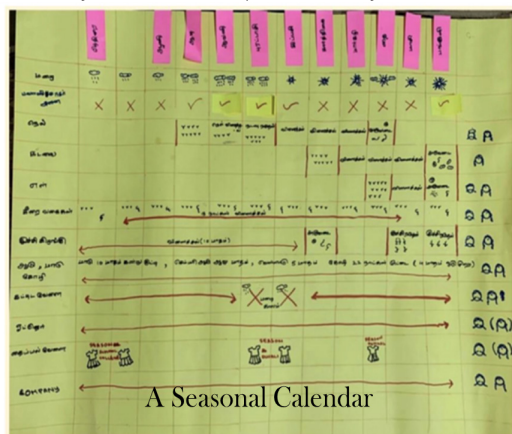


Figure 2. A seasonal calendar showing livelihood and crop diversification practices.

The calendar showed in Fig. 2 captured livelihood and crop diversification practices and facilitated a deeper understanding of traditional cultivation routines. Notably, we discovered that the bulk of vegetable cultivation took place during Vaikashi (14 May - 14 June), Āni (15 June - 15 July), and Ādi (16 July - 16 August).

One illuminating aspect that emerged from this seasonal calendar exercise was the realization that certain crops, such as groundnut, brinjal, tomato, tapioca, chilli, coconut, and okra, exhibited year-round growth. However, their yield significantly varied depending on the specific months or seasons in which they were cultivated. For instance, groundnut yielded its best results from March to May, offering nearly fourfold the production compared to other months. Using the seasonal calendar, we also examined the different extreme weather events that impacted local communities yearly.

Tamil Month	English Month	Crops Cultivated
Chithirai	Mid-April to mid-May	Groundnut, brinjal, tomato, tapioca, chilli, coconut, okra.
Vaikashi	Mid-May to Mid-June	Sugarcane, Groundnut, Raggi, onion, chilli.
Ani	Mid-June to mid-July	Groundnut
Aadi	Mid-July to mid-August	Yam, groundnut, chilli, avara, banana.
Avani	Mid-August to mid-September	Paddy and Groundnut
Porattasi	Mid-September to mid-October	Sugarcane, banana, groundnut, onion
Aipassi	Mid-October to mid-November	Groundnut and onion
Karthigai	Mid-November to Mid-December	Groundnut and sugarcane
Margazhi	Mid-December to mid-January	Groundnut, sugarcane, chilli
Thai	Mid-January to mid-February	Sugarcane, banana, groundnut, chilly, avari
Massi	Mid-February to mid-March	Groundnut, tomato
Painkuni	Mid-March to Mid-April	Yam, groundnut

Table 2: Seasonal Calendar & Cropping Pattern

c) Photovoice

The utilization of photovoice emerged as a pivotal methodological pillar that significantly informed and enriched our action research endeavours. This method allowed us to gain profound insights into the contextual intricacies and practice landscapes and catalysed micro-level mobilization, dialogic ideation, and the framing of actionable strategies. Importantly, photovoice exhibited a remarkable potential for seamless integration across various phases of the action research process. A significant revelation stemming from the adoption of this methodology, underpinned by a critical posthumanist perspective, was the intricate entanglements forged between different actors, notably children and the broader natural environment, with the tools employed – namely, the camera and resultant photographs – within their ecosocial realms. Within this multifaceted interplay, each actor wielded distinct agencies pivotal in co-creating meaning and shaping the distinctive characteristics of their eco-social domains.



Figure 3. "Trees will die due to overheat". An example of children's photovoice responses.

Remarkably, our original fieldwork plan did not involve working with children. We intended to engage with farmers and seed keepers exclusively. However, during our early field visits, we recognized the children's potential to contribute to preserving heirloom seeds and climate action. They displayed remarkable curiosity about our work, willingly accompanying us to farming households and participating in seed-sorting activities. To begin with, we collaborated with seven local children residing near Hooga Farm, which later expanded to a group of twelve within a week. These children, aged seven to sixteen, shared a close-knit bond, fostering an enabling group atmosphere.

Once we decided to employ photovoice with these children, we presented the idea to them, and they willingly provided their names and consent to participate. We also explained the broader purpose of the photovoice process to their parents, obtaining their oral consent. At the community level, we organized the photovoice process into four sessions. However, this was not entirely a smooth, linear process. Our students, during the fieldwork presentation, shared their experiences as follows:

"The term climate change was too vague for the children to understand. Due to the language barrier, we could not convey the exact meaning. As soon as we realised this, we showed two videos on climate change. Then, they were asked to share what they knew about climate change; their replies mainly were about lifestyle changes and seasonality/trends associated with them and a little bit about the change in the climate. Still, it was a little confusing for them. They could not fully comprehend the idea of climate change, even though this region was fragile and exposed to extreme weather events. So, we changed the guideline to 'Click photos on any issue that you think is closely connected to you and Nature.'"

Yet another setting for photovoice was the local government school, located approximately two kilometres from Hooga Farms.

We initially approached the school, discussing our purpose and potential activities with the principal and teachers, who expressed interest in photovoice despite unfamiliarity with its methodology. They allocated three consecutive half-days from their academic calendar for our upcoming sessions. After much consultation, we decided to work with eighth-grade students. The teachers assigned students from VIII C, totalling 26 volunteers out of the class's 33 students.

Our approach with the school children included a brief orientation to photovoice, exploring their existing knowledge of climate change, seasonal changes, global warming, and pollution. We organized them into groups, each led by a facilitator, and provided mobile phones for taking photos. The students then selected 10-13 pictures from their collections and captioned them, eliminating irrelevant images and crafting more profound captions. They then presented, with each group sharing their photos and explanations. The children conveyed stories about climate change, often drawing from their grandparents' knowledge, which proved rich and insightful. Their evolving understanding of climate change, from a vague idea to a more profound comprehension, was evident through the photovoice process. Their diverse local knowledge, rooted in farming and nature, was particularly prominent.

d) Movie Screening

During our fieldwork, we collaborated with seed keepers from a marginalized Dalit community in Kanjikovil, located in a remote area. Initially, due to historical distrust stemming from caste hierarchies and conflicts, our engagement faced scepticism. Gradually, as we spent more time empathetically with the community, they reciprocated warmly. Seven families had expressed interest in farming and seed preservation. Some already maintained small kitchen gardens with traditional seed-saving practices. Initially, we aimed to hold joint meetings with both men and women but observed that women hesitated due to male dominance. Eventually, with the help of a dedicated female volunteer from the community, we organized separate meetings for women. Through discussions, we learned that only a few women had kitchen gardens, and an older woman shared her knowledge of seed preservation techniques. These women expressed interest in obtaining native seeds from HSK. They also suggested an awareness campaign on native corn varieties before planting. Our transect walk revealed the community's challenges: inadequate infrastructure, limited land holdings, and reliance on daily labour in the farms of upper-caste farmers. We identified households with kitchen gardens and documented their crop diversity, rainfall patterns, and alternative livelihoods.



Figure 4. "Kadasi Vivasayi" (The Last Farmer) was shown. This movie evoked several emotional reactions among the farming community we were working with.

To foster community involvement, we screened the Tamil movie “Kadasi Vivasayi” (The Last Farmer), which mirrored their lives. Choosing an appropriate location was challenging due to caste dynamics, but we eventually screened the film in an open space by a water tank tower. Despite weather-related interruptions, the community displayed immense interest in the movie. Post-screening discussions unveiled their struggles and experiences, aligning with the film’s themes. They emphasized the importance of water in farming, organic practices, and the preservation of native seeds. The film screening served as a powerful tool for conscientization. The community identified with the movie’s characters and shared their reflections on traditional farming methods. They also collected native seeds for their kitchen gardens, signalling their commitment to seed conservation. This experience highlighted the significance of working collectively with the community and instilled a sense of ethical responsibility among our students to support this marginalized community’s efforts in preserving heirloom seeds and sustainable agriculture.

e) Seed Festival, Fairs, and Exposure Visits

Yet another series of innovative methodologies was to organise seed festivals, fairs, and exposure visits (Yatras / Journey).



Figure 5. A seed festival

Farmers and seed keepers in seed festivals, fairs, and yatras express concerns about seed and crop commodification, which has affected seed-sharing practices and communal harmony.

One farmer noted:

“The commodification of seeds has impacted our social harmony and traditional practices like Mulaipari offerings at Pongal festivals, which encouraged collective seed sharing.”

To revive these traditions and strengthen seed sharing, we organized seed festivals that served as spaces for storytelling and sharing memories of cultural practices. Local farmers and seed keepers actively participated in these festivals, passionately preserving diverse heirloom seeds. Expert seed keepers emphasized the importance of experimenting with various native seeds and closely observing their performance. Each nursery bed

and plot became an example to inspire local farmers to adopt native seed varieties. During these gatherings, stories and histories related to seeds, seasons, soil, pests, and cuisines were shared, preserving cultural knowledge.

A farmer shared with us:

“The commodification of seeds has affected our social harmony. During the festival of Pongal, we farmers used to offer the Mulaipari to our temple. The Mulaipari consists of seed sprouts placed in independent trays, which respective farmers contribute. We offer these prayers collectively and inspect which tray has the healthiest seedling. Further, the farmers who brought the healthiest seedling will share seeds from their stock with other farmers. These collective rituals ensured that the whole village got a healthy crop. Such seed sharing and exchange mechanisms, an integral part of our culture, are no longer followed in many places, including ours..”

We implemented a participatory approach by creating a climate-resilient food forest at Hooga Farms. Farmers, women, children, and men were all involved in sowing various heirloom seeds, mulching, de-weeding, and preparing the food forest. These activities promoted a caring and communal approach to knowledge sharing. Farmers also shared techniques for seed preservation, including using cow dung, wood ash, and neem leaves.

Farmers expressed concerns about the dominance of hybrid seeds, driven by market forces and corporations. Despite being aware of the limitations of hybrid varieties, farmers felt compelled to use them, often leading to crop failures and financial losses. The commodification of agriculture dispossessed farmers of their agency and seed sovereignty, making them dependent on external entities. It also devalued their efforts, as crops were sold for meagre prices. To counteract this trend, we initiated a model where seed keepers provided heirloom seeds to interested farmers for trial cultivation, aiming to encourage the adoption of native seeds. Seed festivals and fairs facilitated seed sharing and exchange among seed savers, creating vibrant seed commons. They also served as platforms for discussions on seed sovereignty, climate change, and sustainable agricultural practices.

Seed yatras played a crucial role in expanding the network of seed keepers and sharing knowledge about heirloom seeds and conservation methods. Experienced seed keepers shared valuable insights, like using traditional seed storage systems such as Kuthir and Pakka Kothi. We strongly believe these events and initiatives are vital in revitalizing our rich agricultural heritage, preserving seed diversity, and resisting commodification. Seed exchanges foster reciprocity and collective action among seed savers, reminding us of the importance of conserving heirloom varieties and seed freedom.

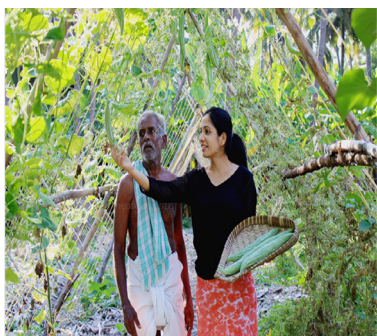


Figure 6. A small patch of land was developed to pilot the heirloom variety of snake gourd during the seed festival. Similarly many other varieties were piloted for learning and replication.

f) Dialogue Conference

The Dialogue Conference at HSK brought together diverse stakeholders, including seed keepers, farmers, government officials, educators, agro-entrepreneurs, and youth. This event required extensive preplanning. During the event, participants were organized into three groups: (a) Heirloom seed keepers and farmers, (b) Educators, civil society actors, and government officials, and (c) Youth and agriculture students, who reflected on climate change impact, practical solutions, heirloom seeds’ role, and future action strategies².



Figure 7. The Dialogue Conference

inadequate infrastructure, limited land holdings, and reliance on daily labour in the farms of upper-caste farmers. We identified households with kitchen gardens and documented their crop diversity, rainfall patterns, and alternative livelihoods.

METHODOLOGICAL APPROACHES SPECIFIC TO GOODLIVING.ECO

The contexts and settings at GLE were entirely different from HSK. The climate-impacted households (CIH) encompassed diverse living situations, including those who had halted construction midway, those residing in rented homes due to the destruction of their shelters during the cyclones or heavy rains, and those living in incomplete houses unable to finish construction, among others. These households were scattered across the village and did not

maintain a sense of ‘community’. Due to these reasons, entirely different PAR methodologies were adopted. Our student Khadeeja shared her experience as follows:

“Meeting anyone in the village was tough initially, as they would have gone for labour work. Some days, we just happened to walk and walk, wait and wait, without really knowing where the community is that we are looking for! Gradually, we started visiting different sites in the locality either early in the morning or late evening, assuming that people would be in their homes. We also noticed that people from marginalised households responded less proactively and slowly to attend meetings whenever we called for a group meeting.”

For the action research, we intentionally selected eleven female-headed climate-impacted and vulnerable households hailing from Scheduled Caste (SC) or Backward Caste (BC) communities, often widowed, separated, or deserted. Other selection criteria included disability, elderly members, orphaned children, or bonded labour. All the women chosen for the research played a crucial role as the primary breadwinners in their families, often due to the men’s inability or unwillingness to contribute to household duties. Alcoholism and domestic violence were prevalent issues in many families. Men in these households, often struggling with alcoholism, contributed little to household needs. Conflicts were frequent, yet the women stood together in times of necessity, especially against the stigmatization of widows and conflicts with in-laws. Some women were illiterate, too.

The area’s livelihoods primarily depended on proximity to Auroville and the local construction sector. Most women found employment in Auroville’s tourism industry, including hotels, restaurants, boutiques, and guest houses. Some individuals sold homemade products at tourist attractions. While the construction sector offered increased income, the work’s physically demanding, tedious, and often hazardous nature led some to opt for lower-paying jobs like domestic work, restaurants, and security. These women often juggled multiple jobs, including gathering cashew fruits, selling homegrown fruits and vegetables, and working in various part-time occupations. They were also engaged in cottage industry work from home, such as lamp making, earning meagre amounts per piece. However, contractors sold these products for much higher prices.



Figure 8. Most CIHs (climate impacted households) has walls and rooves that were weak and vulnerable to cyclones and heavy rains.

² The video of the whole event is available at <https://www.youtube.com/watch?v=3WaX7Wq5Vxl&t=33s>





Figure 9. Most CIHs had open-air kitchens with woodburning stoves. Bathrooms were an open space partially covered with tarpaulin.

Our efforts were directed towards:

- Establishing a community platform for ten households to discuss housing concerns.
- Encouraging active participation in weekly and smaller group meetings.
- Fostering local leadership.
- Crafting local solutions for climate adaptation.

The methodologies that we followed were:

a) Household Visits

Our household visits aimed to build rapport and trust with these families, understanding their housing conditions, concerns, and coping mechanisms. We also explored their perceptions of climate change and its impact on their lives. We delved into their housing histories, spending patterns, barriers to housing improvement, and aspirations for climate-resilient housing through conversational interviews and shared conversations. These interactions provided insights into the drivers and obstacles these households face in achieving their housing goals. During these visits, we focused on understanding the impact of climate change on housing in various intersectional contexts, such as caste, gender, age, class, livelihood security, and disability. We also explored their coping mechanisms related to housing and climate impacts.



Figure 10. A shared conversation during a house visit..

We also explored their coping mechanisms related to housing and climate impacts.

Our initial inquiries included questions such as:

- How do residents perceive climate change and its relationship to extreme weather events?
- How does climate change impact their daily lives and housing conditions?
- What forms of micro-level solidarity exist among climate-impacted groups?
- How do existing collectives like SHGs and youth groups assist households in coping with housing needs?
- What are the drivers and barriers vulnerable households face in achieving climate-resilient housing?

Simultaneously, we aimed to build rapport with these families and observed their living conditions. Our conversations covered aspects of their livelihoods, income, construction costs, and barriers to improving their housing. As the fieldwork progressed, our lines of inquiry evolved to include questions about their current housing, spending capacity, sources of income and plans for climate-resilient housing. We also explored potential barriers and financial channels available to them. Despite initial challenges like the unavailability of family members during the day and language barriers, these visits provided valuable insights into the community's housing concerns and aspirations. This situational analysis helped identify the drivers and obstacles faced by households and paved the way for the next phase: micro-mobilisation.

b) Participatory Group Meetings

Micro-mobilisation involves organizing the identified households to devise adaptation strategies collectively. Despite their diverse backgrounds and scattered housing, these households shared a common concern for climate-resilient homes. Weekly meetings with all members were platforms for sharing housing situations and weather event impacts, evolving into spaces for venting frustrations and expressing aspirations. Meeting logistics were pre-decided with member input, and discussions began with previous meeting recaps and facilitator insights. Members from different households discussed obstacles to claiming their housing rights and local housing finance complexities. Discussions often included activities and games to maintain focus and improve plans for future meetings. Each session concluded with debriefing and gathering opinions on upcoming agendas.

We also conducted a participatory exercise to explore the various financial sources accessed and prioritized by these households. We initially created a chart in Tamil to record information on these sources, which were identified through household visits. Participants were given sticky notes to place under their primary financial source to determine the most prioritized one. During the micro-mobilization phase's participatory meetings, we identified a crucial challenge for CIHS in accessing housing: increased financial resources and timely information about government schemes offering support. To enhance group participation and lighten the atmosphere during these meetings, we incorporated energizing activities and games suitable for women of different age groups, men, and children. These activities aimed to engage everyone and express our gratitude for

their trust and kindness through small tokens of appreciation.

These participatory shared conversations revealed that 'Access to Finance' was a significant barrier for the CIHs to access safe housing. Our student Soofiya recollected these conversations later:

"People sometimes laugh at our questions whenever we ask about their plans and aspirations because they say they do not have anything to start dreaming about. They belong to extremely low-income families who are wage earners and often survive daily through a hand-to-mouth existence. Their priorities are primarily based on their daily survival needs and expenditure."

c) Spider Web

Much of our participatory sessions were facilitated through games. One such exciting game was the spider web. The goal of the spider web game was to understand people's plans for building new houses and the barriers they face. Participants sat in a circle, holding onto a ball of string and passing it to others while saying their names. This served as an icebreaker and highlighted dynamics within the group. Initially, participants had difficulty understanding the rules, but after a demonstration, they discussed while tossing the string. The activity ensured that everyone had a chance to speak and energized the meeting.



Figure 11. Playing the 'Spider Web' game.

The activity also allowed participants to share their stories of accessing subsidized housing schemes. Some had to bribe officials, while others faced delays and empty promises. Many expressed hopes of having their names on beneficiary lists but were sceptical due to party affiliations and micropolitics. The everyday reality is that beneficiary households often face delays in receiving their first instalment for housing construction. This is because the bureaucrats typically disburse the funds only after demolishing the existing house and preparing the foundation space. Consequently, many of these households end up demolishing their homes and temporarily relocating, hoping to begin construction soon.

Additionally, extreme weather events further complicate the housing vulnerability of these households. When there are delays in beneficiary lists or instalment releases, people are forced to borrow money from other sources to initiate or continue their construction projects. However, elected representatives and government officials may view this as the household's ability to independently undertake

housing construction without external assistance, causing them to hesitate in releasing the funds. In summary, the games such as spider web facilitated discussion, revealed challenges in accessing housing schemes and highlighted the role of political power plays and corruption in the process.

d) External Stakeholder Meetings

In our external stakeholder meetings, conducted mainly through key informant interviews, we aimed to understand better how the outside social world perceives grassroots climate financing and validate the discussions with the household members. To select external stakeholders for interviews, we used purposive snowball sampling. Initially, we asked the household members to introduce us to the villagers who were organizing informal credits, allowing us to grasp the technicalities of these institutions. We also collected information about the banks and microfinance institutions they had accessed, covering topics such as eligibility criteria, borrowing process, maximum loan amount, interest rates, repayment duration, and the time it took to receive funds, as well as any challenges faced.

The external stakeholders were cooperative in providing information, although some contradictions emerged among their narratives. We also met with government officials at the local governance institutions, such as the gram panchayat³ and departments associated with the government housing schemes, to inquire about the status of our participant households. During these interactions, we encountered resistance from the Panchayat President, who preferred to avoid us, and later suggested building houses based on his list of beneficiaries. We shared these findings with the households during our group meetings, and they expressed gratitude for the information and the collaborative space created by our meetings.

DRIVERS AND BARRIERS SHAPING UNIVERSITY CAPACITIES

Democracies are being shaped by self-interest, and citizens are becoming politically inert and culturally intolerant (Hart et al., 2010). The values of neoliberalism are individuality, competitiveness, and progress. However, these values directly contradict the values of PAR, which is committed to social justice. This is a challenge and a transformation phase for universities, too. Some of the most vital issues that universities like TISS need to deal with today are the deepened marginalisation of vulnerable populations, insecure livelihoods, widening inequities in resource access and the relations of power and inequalities within and outside specific communities. The estranged and powerless find it difficult to voice their concerns, sustain their livelihoods and uphold their identities and rights against the structured dominance of state bureaucracy, capitalist markets, and the rapid expansion of newer commodity frontiers.

3 Gram panchayat is the basic form of local self-governance institution at the village level in India. Legitimised by the 73rd Constitutional Amendment of 1992, the gram panchayat is the lowest level of Panchayat Raj institutions (PRIs) in the country.



In India, social work, its education and practice, has always invited widespread criticism from within and outside the profession. For instance, contemporary social work is critiqued for lacking emancipatory capacity when social relations are becoming individualised, identities are transformed and often categorized as problematic by multiple centres of power (Singh et al., 2011; Stepney, 2006; Jordan, 2004). Globally, social work is today appraised as not only a victim of neo-liberalism but also as a profession that has tremendously adapted to the influence of the neo-liberal matrix (Jordan, 2004; Lorenz, 2005). Subsequently, the knowledge generated and disseminated is found repetitive, prescriptive, and fragile (Walker, 2011). Across many states in India, one could also see the managerial discourse overpowering the social change or poverty eradication discourse that exists within social work. Critiques caution that this trend from 'welfare to workfare' needs to be sceptically considered as such changes may never favour society's marginalised and vulnerable population. Instead, they add to producing ineffective policies and programmes for the poor (Sewpaul and Holsler, 2004).

Social work education has the potential to revitalise the goals of human emancipation and also give back its theoretical and empirical learning to the benefit of other social sciences. This paper argues that university education needs to diffractively engage with students in crafting practical skills and capacities for the poor and the marginalised sections of the population, such that they can overcome the crisis emerging out of the neo-liberal economic and social processes, including climate change. Through innovative praxis, it needs to bring back to focus the primacy of human and non-human life and their mutual entanglements, which has for some time been replaced by an economy that aims at transforming the society into a market society (Hart et al., 2010; Bakshi, 2009). This paper suggests nurturing theory-practice interlinkages through PAR could enable diverse actors to innovate and revive community practice and climate action with marginalised groups. The underlying belief is that local participation should be a foundation for progressive social policy and social change, and climate justice outcomes should guide the mission and evaluation of our practice.

The Centre for Livelihoods and Social Innovation, School of Social Work at the Tata Institute of Social Sciences, Mumbai, launched its M.A. Social Work in Livelihoods and Social Entrepreneurship in 2012 to address some of the above-mentioned concerns. Our vision was that our students would pursue innovative ideas, institutional designs and processes to challenge and transform the contexts of vulnerability and uncertainty of individual households, vulnerable groups, and marginalized communities, enhance their asset base and affirm their rights to live with dignity and freedom. In this regard, our curriculum-specific and community-specific goals also enabled us to undertake the Climate-U PAR.

Our curriculum-specific goals are:

- To develop a scholarly platform to explore, discuss and develop innovative methods to strengthen social work practice based on equity, justice, and sustainable development principles.
- To re-examine, innovate and re-position community practice through adaptive social innovation.
- To develop competencies in adaptive social innovation that

would feed into the international accreditation standards of development practice and social work education.

- To expand the talented pool of community practitioners and social entrepreneurs through the development of praxis-based social work.
- To nurture the entrepreneurial skills in students and the community towards social value creation and positive change through field-based projects, internships, and civic engagement experiences.

The community-specific goals are:

- To critically engage with vulnerable communities in transforming their marginalities through livelihood promotion and adaptive social innovation.
- To promote community resilience in dealing with risks and uncertainties of the day-to-day livelihood struggles of the poor.
- To nurture 'Comm-U-niversity' partnerships where social work educators, students and communities are engaged as co-learners, co-creators of knowledge and partners in social value creation.
- To enhance the potential of structures and institutions in democratic practice through adaptive social innovation.
- To create spaces for reflective and diffractive social innovations.

These student- and community-centred goals were the foundations for our PAR. The goals were fundamental to our capacities of knowing and doing. Our curriculum provides ample opportunities for social work students to realise that the day-to-day affairs of the marginalised populations are governed by a pluralist base of economy and not controlled by the functions of a market society. These pluralist forms of economy enable communities to sustain their harmonious living with nature, lead a socially bonded way of life and develop solidarity-based human networks in social value creation (Laville, 2010; Caille, 2010). Such a curricular perspective also demonstrates to the learners that the complexities of poverty, marginalisation and development are posing newer challenges for the resource-deprived and marginalised communities.

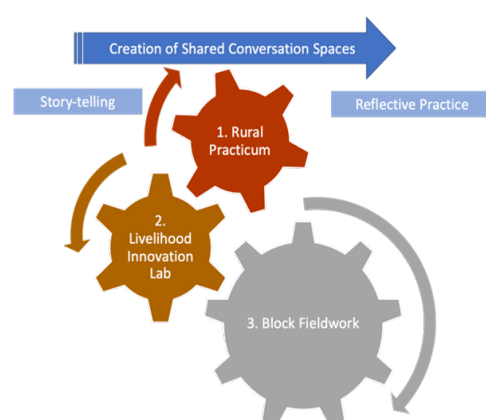


Figure 12. The CLSI Fieldwork Model.

Yet another strength of our curriculum is that it provides space for adaptive social innovation as a praxis. The curriculum structure

and its flexibility for diffraction through interdisciplinary and diverse methodological innovation is thus a driver⁴.

The Rural Practicum – Livelihood Innovation Lab – Block Fieldwork model provided the necessary space for students to observe, experience, share, reflect and engage in climate action. Such a curricular space for engagement allowed students to apply their creativity and be involved in experiential learning to enhance marginalised communities' livelihoods. It is envisaged to nurture university-community partnerships that emphasise each partner's mutual synergies and strengths. Such a strategy could aid in creating spaces to address complex social issues and problems, and at the same time, all the partners benefit mutually from the same (Martin et al., 2005). This also provides scope to be involved in local revitalisation ventures, the creation of 'community scholars' and the development of cohesive meshes of learning, research, and service partnerships (ibid). The livelihood innovation lab is designed so that classroom sessions are immediately linked to the innovation platforms in the community setting. In such an environment, all the stakeholders in learning, namely the social work students, social work educators and diverse groups within the community, are envisaged to evolve as 'co-creators', 'co-producers' and 'co-owners' of knowledge.

Some of the expected outcomes through such a course design have been that students were thoroughly grounded in the field to understand the needs and problems of marginalised communities. In addition, as a process of co-learning, students and educators were actively involved in working with specific communities towards revitalising their livelihoods in a warming world. The rural practicum – livelihood innovation lab – block fieldwork model enabled us to stimulate creativity, make new pathways and enhance other entrepreneurial skills among social work students in identifying sustainable and equitable solutions to the problems identified. Students and faculty were also encouraged to explore the application of new media and other innovative forms of social organising in promoting livelihoods and enhancing assets of marginalised communities.

While the above-mentioned curricular and pedagogical contexts enhanced the capacity of the university to facilitate socially responsible climate action initiatives, we also noticed some barriers during the process.

Each batch of students is unique. We were lucky that during the implementation of the PAR, we had a batch that was interested in deepening their theoretical base and exploring practice. However, students were more interested in pursuing practice the following year than exploring their theoretical underpinning. Similarly, the PAR attained momentum due to students' passion for environmental issues, agriculture, housing, biodiversity, etc. However, all batches of

students need to have the same passion.

PAR involves both diffraction and reflection. There must be adequate 'diffractive space' to work on meaningful publications, i.e., towards the co-production of knowledge. Further, the present project was of a concise duration. PARs take time to produce tangible results. Both social enterprises were start-ups. Their need to diversify and scale up implies that they may not always be able to focus entirely on the sustainability of the initiatives that evolved through the PAR. Unfamiliarity with the local language was a barrier to facilitating grassroots social innovation sustainably.

The Scale and Intensity of Extreme Weather Events. The practice context in Villupuram was entirely different from Erode due to its proximity to periodic cyclonic storms. Storm surges in this region are notorious for their destructive potential, affecting human activities due to strong coastal winds and heavy rainfall. The region has also faced significant challenges from events like the 2004 Indian Ocean Tsunami and the 2008 Nisha cyclone. The topography of this coastal area, characterized by low-lying terrain with gentle slopes, exacerbates the risk by facilitating extensive inundation during extreme weather events. Consequently, the region's vulnerability is further heightened, as witnessed during the 2004 Indian Ocean Tsunami and the 2008 Nisha cyclone.

Housing Conditions and Climate Justice in Historic Time Contexts. Housing is not merely a structure for shelter; it is an environment that enables daily activities, such as cooking, sleeping, studying, and spending quality time with family. Unfortunately, many households in cyclone-prone villages of Villupuram district find themselves in precarious housing situations. Most houses are made of thatched roofs and mud walls, often constructed using raw mud bricks susceptible to erosion during heavy rains. The foundations are weak, and the floors are inadequately plastered, causing water seepage. Thatched roofs are prone to termite infestations, leading to leakages and destruction. These housing structures require annual maintenance, which burdens low-income families financially. Due to limited resources, some households resort to poor alternatives like metal sheets and cement walls, ill-suited for the local climate. From the perspective of time, these families are always in a state of 'waiting', with the never-ending hope that they will receive their entitlements before the next monsoon or cyclone season. However, constructing a house seems to be inversely proportional to the frequency of extreme weather events.

Intersectional Barriers (Caste, Class, and Gender Hierarchies). The interconnections between various binaries became pronounced during the fieldwork. The sites of practice turned out to be a complex and nuanced habitus in which we could sense diverse forms of binaries and, more typically, the complex entanglements of Society and Nature binaries with the intersectionalities of gender and caste. Caste and class-based segregation further complicate the identification of vulnerable families and working with them. The households of marginalised Backward caste (BC) and Scheduled Caste (SC) families are located far from the mainstream villages and often lack access to essential assets such as schools, hospitals, transportation, roads, and electricity. Land ownership remains a concern, as many households

4 The concept of diffraction implies a self-accountable, critical, and responsible engagement in a more-than-human world (Geerts & van der Tuin, 2016). This notion of diffraction promotes dialogue across knowledge strands, engendering creative and unintended outcomes, and simultaneously acknowledges the contextual and theoretical positions (Barad, 2007). Though its location is on the Self/other identity politics, it also promotes boundary-crossing and following inter/trans-disciplinary methodologies (ibid). Applying diffraction as a mode of knowing and doing allows the scope to innovate more inclusive methods in education (Bozalek & Zembylas, 2018).



lack formal land rights. Some have been relocated for development projects, receiving promises of compensation that were not fulfilled. Additionally, many welfare schemes fail to reach these vulnerable populations, leading to alcoholism among men and early widowhood among women. The plight of single-headed women households was already explained. Identifying the most vulnerable families in such a situation proved complex. Caste dynamics and political factors also influenced the selection process.

A student who worked with a marginalised Dalit community near Erode reflected later:

“These marginalised communities have been carrying a legacy of silently conserving and living with heirloom seeds and crops. Their mutual entanglement was a critical signifier of their small acts of everyday justice, resisting the oppressive structures of caste and gender. Recognising these entanglements also nurtured a sense of ethical obligation and accountability to deepen our work with these communities.”

However, the students also began to recognise the complexities and labyrinths of intersectionality and the evolving politics of practice. They reflected during the de-briefing:

“Among the Dalit farmers, we were moved by the stories of women who helped us to see their bond with nature and how their intersectional identities as ‘Dalit women’ connect them with Nature more than others. The suppression women have to encounter throughout their life and the exploitation Nature has to go through at the hands of Humans is the web entangling both Women and heirloom seeds. Women like Poongudi, in her domestic space, cultivate and save native seeds independently. The connection between livestock and women is also noticeable. While men do farming on a commercial basis, women are the ones who take care of cattle in the household. Moreover, they eventually use biofertilisers when cultivating crops in their kitchen garden. All these also showcase the ethics of care in their everyday entanglements and patchy epistemologies.”

They continued their reflections as follows:

“We are also alarmed by the various binaries and intersectionalities entangled with the emerging complexities of climate change. Perhaps the marginalised and oppressed caste groups, women, and landless labourers (hired on other farms) were affected the most. They have to work in the fields of others and are vulnerable to extreme weather events such as heat stroke. Moreover, those who own some land cannot cultivate anything due to a lack of water. While the privileged caste groups and wealthy men can dig the bore well and use it, they are also appropriating the water the poor farmers deserve. Like this, the poor and oppressed people and Nature face the negative impacts of thinking and actions fuelled by dominant and privileged actors.”

The heterogeneity and divisions among different castes of Dalit

households also made our practice difficult. The further divisions among the Dalit farmers made the scenario more complex; while inviting them for the film screening activity, we learned that different caste groups would not come to each other’s houses to watch the movie. They were ready to watch it outside together, but not in the home of another caste member. Theoretically, we tend to homogenise oppression as a universal construct of caste or gender. The heirloom seeds can create solidarities across these divisions. This is what occasions like the discussions after movie screenings, seed festivals and dialogue conferences demonstrated.

Institutional Contexts. Implementing photovoice in a formal school setting was a unique experience compared to working with children at the community level. While it had merits in stimulating curiosity and efficiency, the formal school environment significantly constrained creative space. Our limited time with the school students and the constraints of conducting activities within the school campus impacted the depth of our work. The closed and disciplined school environment and time limitations constrained us from being more innovative. Children initially had little understanding of climate change in the community, but as the activity progressed, they opened up and provided more exciting interpretations. On a positive note, the photovoice process increased awareness among children and teachers, leading some to become active volunteers at Hooga Farms, where they engaged with heirloom seeds. This outcome demonstrates the emergence of positive change during our action research process.

Other key pointers for our own reflection and future engagement are:

- Indigenous knowledge systems enable us to understand climate change in specific ecosocial contexts collectively. However, adaptation requires diffractive co-designing of alternatives.
- Intra-intersectionality contexts of everyday life matter.
- Need for inclusive and innovative climate action fund at the grassroots.
- Children, youth, and women are crucial for co-designing and shaping sustainable futures.
- The contexts of practice matter when it comes to climate change adaptation. While open settings contribute to autonomous adaptation, formal settings provide insights into structural and institutional adaptation.

PAR OUTCOMES

The PAR Outcomes could be understood through the lens of emergence.

Outcome 1: Enhanced Awareness and Capacity Building Among Social Work Students

Through our collaborative and co-constructive action research approach, the social work students placed at both HSK and GLE have experienced a significant enhancement in their awareness and capacities related to climate action initiatives. This outcome is

reflected in several key indicators:

- **Increased Knowledge:** Our students have demonstrated a deeper context-specific and more extensive understanding of climate change issues, including their causes, impacts, and potential solutions. They are now well-versed in the complexities of climate change, enabling them to contribute meaningfully to research projects.
- **Improved Research Skills:** Students have acquired practical research skills for conducting participatory action research, including data collection, analysis, and interpretation. They are proficient in action research methodologies. Dhanya, our student who was placed with HSK wrote a reflective piece in her fieldwork notes on her initial days of action research:

"We had planned our first meeting with the farmers that evening. We were a little disheartened at first when no one assembled. Only two families came by at the designated time. We remembered what our action research mentor told us about community practice and the anticipated ups and downs at the grassroots. It was still a warm, lovely conversation. Gradually, the people gathered. They also expressed their interests in working collaboratively towards seed conservation."

- **Increased Sensitivity and Heightened Awareness:** Students have developed a heightened sense of social responsibility and a commitment to addressing climate-related challenges while using the posthuman perspectives of looking at humans in a more-than-human world and the entangled lives between humans and non-humans. They recognize the importance of their roles as change agents in promoting climate action.

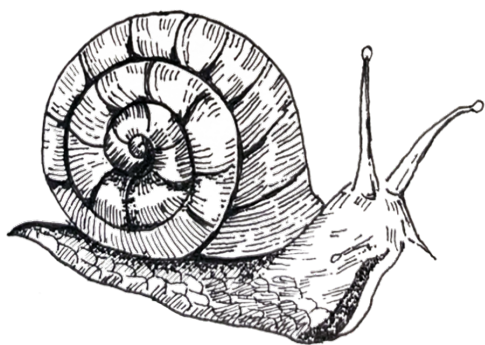


Figure 13. A sketch of a snail by student Manisa Hansda. "Is the snail considered an invasive species...is it a victim of climate change? It must also have migrated to survive!" Our students asked these questions while interweaving post-humanism with PAR methodologies.

- **Collaborations:** Collaborative and co-constructive action research methods have instilled in students the value of teamwork and cooperation. They appreciate the power of collective effort in tackling complex climate issues.
- **Empowerment through Training and Support:** The students have gained experience conducting action research and could visibly see the effectiveness of training and support programs

using participatory methodologies. They were able to help facilitate the empowerment of community actors with essential entrepreneurial skills. Student Khadeeja Ali reflected:

"I am grateful that our course and the exposure it is giving me is an entirely new and novel experience. This is my first time working in diverse settings, encountering, and coming across several realities and subjectivities on a scale I have not experienced before. All these experiences are undoubtedly learning opportunities shaping my perception and me as a person. A lot of learning and unlearning is happening, and fieldworks are a tremendous opportunity to enhance such learning through hands-on experiences."

Sensitisation started even before our fieldwork began, as part of the action research orientations, where we did regular meetings to assess our awareness of climate change. Although climate change might not have been a new phenomenon, the extent of awareness I got on the impacts of climate change and its effects on multiple facets of life, including housing, livelihoods, and mental health, among many others, was something new from this fieldwork.

The experience of directly working and engaging with CIHs enhanced our awareness and helped us to connect and get a first-hand experience on the impacts of climate change on people's lives. Witnessing fragile and vulnerable housing conditions and knowing how climate change and extreme weather events impact the most disadvantaged and less privileged people made me reflect on how privileged we are not to face the brunt of these issues.

Fieldwork supported by action research is where I came into contact with people whose struggles are compounded by multiple intersectionalities like gender, age, class, and caste. These concepts were new to me, and I have learnt to relate such concepts to real-life situations and scenarios now more than ever.

Today, I am more sensitised to how women are more vulnerable to climate change and how women's vulnerability stems from several social, economic and cultural factors. Earlier, I was unaware of the extent of social exclusion and stigma related to widowed women in certain cultures. Especially in the community we worked with, I could see how women are, in most cases, scared of widowhood status for the rest of their lives more than anything else. This was a cultural shock that I could not relate to coming from a different setting.

Another negative issue affecting their socio-economic upliftment is alcoholism in the community. Almost all households are affected by this issue. It destroys families and affects people mentally, physically, financially, and their relationships. This was another cultural shock I did not have to encounter previously.

Women, therefore, have more roles and responsibilities; therefore, the takeaway from this is how relevant it is to work with women via a bottom-up approach. It is essential to build the capacities of women by trying to break their shackles of exclusion, and this can have an impact in the long run to combat many issues faced by people who are less privileged



also. They build their capacities to become active and effective agents of adaptation and mitigation of problems like climate change.

Engaging with communities and realising all their struggles from an action research student's perspective, I have realised the importance of being empathetic while learning about the significance of approaching practice guided by the values of Justice, Care and Solidarity, and all these learnings have added value to my role as a human being. I have started reflecting more on the realities and concepts, and the more I learn, the more I realise how much I do not know, which pushes me to grow curious, learn and do more."

Student Soofiya Yousef reflected:

"This fieldwork helped me understand the beauty of action research. I could learn the dos and don'ts of working with people, the ethical dilemmas while working with them, and how these can be addressed from my closest vicinity.

The constant thoughts on being a good action researcher have added value to my personhood. While in the fieldwork, I learned that micro-mobilisation is all about bringing different actors together under a single platform to address a common objective. Exposure to micro-mobilisation on even a tiny scale made me understand how integral every actor within a community or related field of the action topic is.

I understood the potential of 'working together'. So as a social work professional, this phase of action research made me realise how I should grow as a person to respect and align with other stakeholders while working on different projects in future. This will be my takeaway for life; it is not as easy as it seems in various contexts.

Another aspect that came from mobilisation is the realisation that it is possible to work with people who have a history of conflicts and are desperate. From the first meeting, I have seen women and men acknowledge whatever others say despite their conflicts. It was good to see how the shared vision for climate-resilient houses emerged naturally among them from the first meeting itself. The reflections and discussions of women during the meeting seemed as if they were waiting for a platform to have shared conversations together.

Moments of improvisation in the meeting were learning to be sensitive to the people sitting across us while working with people. The planning and execution of the meeting taught me how vital an action research practitioner's micro-skills and core values are. As our work was focused on climate change and people, I got sensitised about the interconnection of climate change with every aspect of human life and how the most marginalised sections bear the brunt of climate change and climatic disasters. This sensitisation will help me look at climate justice and social, political and economic justice together."

Outcome 2: Strengthened Alumni Networks and Social Enterprises

Our collaborative action research project has strengthened alumni networks and social enterprises, resulting in increased support for grassroots-level climate action initiatives. Key outcome indicators in this regard include:

- **Foster Alumni Leadership in Climate Action:** Empower alumni entrepreneurs of both HSK and GLE social enterprises involved in our project to take on leadership roles in climate action initiatives, actively contributing to initiating climate action in the communities they are working with.
- **Cultivate Alumni-Driven Participatory Strategies:** The project created an encouraging space for alumni to spearhead and actively participate in community engagement efforts, employing participatory methods to enhance their businesses while fostering stronger community connections.
- **Establish a Robust Support Network:** We were able to facilitate the creation of a dynamic support network wherein our alumni social innovators provided mentorship, shared resources, and offered their expertise to both current students and community members, facilitating knowledge transfer and collaboration.
- **Promote Sustainable Entrepreneurship:** Inspired alumni social entrepreneurs to incorporate sustainable practices into their enterprises, demonstrating how climate-conscious business strategies can positively impact their communities. Both HSK and GLE have shown a commitment to sustainability and environmental responsibility. These enterprises have integrated climate action initiatives into their business models and practices.
- **Amplified Alumni-Community Partnerships:** Strengthened the bonds between alumni and their local communities by facilitating collaborative projects that address climate-related challenges, fostering a sense of shared responsibility and engagement.
- **Financial Support for Training and Capacity Building:** Our project has facilitated connections between alumni-led social enterprises and external training and capacity building. This has resulted in increased growth and development of skills and capacities for these enterprises for climate-related projects and initiatives at the grassroots level.
- **Innovation and Collaboration:** Alumni networks and social enterprises have fostered a culture of innovation and collaboration. They actively seek partnerships with other organisations and stakeholders to amplify the impact of their climate action initiatives.

Outcome 3: Empowered Grassroots-Level Community Actors

Our collaborative action research project has empowered grassroots-level community actors, enabling them to better respond to environmental uncertainties and improve their livelihoods. Key outcomes in this regard include:

- **Enhanced Adaptive Capacities:** Community actors have

developed awareness and confidence to cope with the challenges posed by environmental uncertainties, such as extreme weather events and resource scarcity.

- **Entrepreneurial Skills:** Through training and support, community actors have acquired entrepreneurial skills that enable them to manage and identify sustainable finances and income-generating opportunities. Our initiative in GLE has improved financial literacy among community actors, focusing on their capacity to make informed financial decisions.
- **Sustainability Awareness:** Our interventions have raised awareness about sustainability and climate action among community actors, specifically by exploring their participation in collaborative initiatives related to sustainable agriculture and eco-friendly enterprises in the context of HSK.
- **Knowledge Sharing:** Knowledge sharing and capacity-building initiatives have facilitated the transfer of valuable climate-related knowledge and skills within communities. This has resulted in initiating increased self-reliance and reducing vulnerability.
- **Strengthened Solidarity:** Collaborative action research has strengthened community solidarity and social cohesion. Community actors now work together more effectively to address climate-related issues, fostering a sense of unity and shared responsibility.
- **Sustainable Futures:** The photovoice processes, in particular, shaped the collaboration among children and the setting up of school seed clubs. They are also today's and tomorrow's climate champions. Our postgraduate students who facilitated the photovoice shared during the debriefing on the crucial role of children in climate action:

"We were working on their future, and they indirectly expressed that they had a more significant stake in participating towards sustainable futures."

The follow-up discussions also resulted in the setting up of a seed club in the school. The purpose of the seed club is to create awareness and co-design suitable adaptation strategies among the students, teachers, and parents on aspects such as biodiversity conservation, heirloom seeds, seed sovereignty, and climate change. Some of the activities that the seed club is involved with are:

- Conduct annual events such as seed fairs and exhibitions at the local level, where children make the adults aware of the missing ecosocial links.
- Set up a kitchen garden in the school that could provide nutritious vegetables for preparing food as part of the ICDS and mid-day meal schemes.
- Develop a seed library in the school where the children can learn about biodiversity, heirloom seeds, and their history and significance.
- The seed club will develop as a seed bank for parents to exchange seeds.

After the seed club's inauguration, HSK received a similar request from another regional school. HSK also received appreciation from the Panchayat President, Rotary Clubs, Temple Associations, and

local elected representatives.

In conclusion, our action research project has yielded positive outcomes across all three project goals. Social work students, alumni networks, social enterprises, and grassroots-level community actors have all benefited from enhanced awareness, capacity building, and empowerment, contributing to more meaningful climate action initiatives at various levels. The learning and experiences of students from the PAR were also shared during the CLSI Annual Action Research Conference.

CONCLUSION

According to Braidotti (2018: xvii), the posthuman subject

"To be entangled is not simply to be intertwined with another, as in the joining of separate entities, but to lack an independent, self-contained existence. Existence is not an individual affair. Individuals do not pre-exist their interactions; rather, individuals emerge through and as part of their entangled intra-relating."

We believe that all actors in the PAR were like Braidotti's posthuman subject. This working paper showcases the dynamic partnerships forged among various interconnected stakeholders. Exploring "following seeds" and "following homes" from a post-human lens revealed the complex entanglements and patchy epistemologies surrounding seeds and their role in farming practices, as well as the dynamics of land rights and housing challenges in a climate-uncertain world. By engaging with communities and non-human actors, we uncovered valuable insights into the agency of heirloom varieties, the challenges faced in their conservation and people's aspirations regarding housing. Our research shows a glimpse into the multifaceted dynamics of pursuing ecological resilience and ethical climate adaptation at the community level. Furthermore, our research revealed the complexities of intersectionality, where caste divisions, gender disparities, and climate change intersected with the politics of practice. These insights call for collective efforts to reclaim seed sovereignty, protect local knowledge, and work towards just adaptation strategies. And universities could play the role of catalysts in facilitating just transitions.

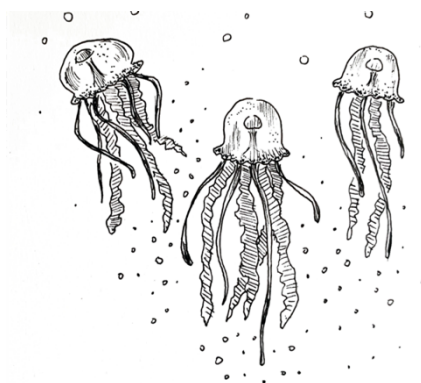


Figure 14. Even the jellyfish are facing an uncertain future! This sketch was visualised by Dhanya Kolathur.



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APPENDIX: Adaptive innovative pathways that emerged in the PAR

Date	Actors	Theme	Description	Method
19/3/2022	Faculty Students	Knowing Ourselves	Introducing the idea and description of the action research project. Developing self-awareness on 'Who am I?'	Circle of Care
26/3/2022	Students	Reading & Reflecting Week	Self-study	
2/4/2022	Faculty Social Entrepreneurs	Planning for Action Research	To reflect upon the context and need for action research concerning the ongoing work of both field partners.	Shared Conversations
	Faculty Students	Knowing Self in the context of Nature & Society	To self-reflect on one's awareness of climate change issues, environmental justice, and sustainable livelihoods.	Circle of Care
9/4/2022	Students	Reading & Reflecting Week		Locating Stories from One's Surrounding
16/4/2022	Faculty Social Entrepreneurs	Planning for Situational Analysis	To reflect upon the context and need for situational analysis with respect to the ongoing work of both field partners.	Brainstorming Session Experience Sharing
23/4/2022	Students	Reading & Reflecting Week		Case Studies of Others' Lived Experiences
8/5/2022	Faculty Students	Listening and Sharing of Stories of Care, Justice, & Solidarity.	To listen to stories that each student has read the previous week on communities impacted by climate change and environmental change.	Storytelling Circle of Care
		Theoretical Reflections	To locate the binaries governing our knowledge frames. Introduction to discourses on <i>Commodity Frontiers</i> *	
11/5/2022	Students	Movie Watching	Watched the Tamil Movie, ' <i>Kadaisi Vivasayi</i> ' (The Last Farmer).	Movie Watching
13/5/2022	Faculty Social Entrepreneurs	Goal Setting	Developing Learning & Actionable Goals for Rural Practicum	Brainstorming Session

15/5/2022	Faculty Students	Reflection on Movie Listening & Sharing Stories of Care, Justice, & Solidarity Theoretical reflections	To listen to one's feeling after watching the movie. Discussing the key takeaways. Listening to stories each student has read the previous week on communities impacted by climate change and environmental change. Introduction to Posthuman Thinking* Developing Learning & Actionable Goals for Rural Practicum	Storytelling Circle of Care Reflective Conversations
21/5/2022	Faculty Social Entrepreneurs	Reflection on Goals	Reflecting on Goals developed based on Field Realities	Reflective Conversations
	Faculty Students	Goal Setting Theoretical Reflections	Developing Individual and Collective Goals Reflecting on Issues of Intersectionality and Climate Justice*	Shared Conversations Circle of Care
23/5/2022	Faculty Students Social Entrepreneurs	Collective Goal Setting	Developing Collective Goals and Action Plans for Rural Practicum. Emergent Themes for Reflection*: <ul style="list-style-type: none"> - Commodification, Dispossession & Resistance - Intersectionality & Climate Justice - Gendered Local Knowledge Systems - Dispossession & Alternative Livelihoods - Climate Justice & Built Environment Climate Change Impact, Agency, & Everyday Life Struggles	Brainstorming
28/5/2022	Faculty Students Social Entrepreneurs	Reflection on Goals	Reflecting on Rural Practicum Plans	Sharing of Feelings and Anxieties through Shared Conversations

29/5/2022-14/6/2022	Students Social Entrepreneurs Community Faculty	Situational Analysis	Rural Practicum Knowing the Field Theoretical Reflections	CASIO Framework Storytelling Group Discussion Weekly Reflective Meetings Daily Debriefing
15/6/2022-11/7/2022	Social Entrepreneurs Community Faculty	Situational Analysis	Knowing & Learning from the Field	Conversational Interviews Oral Histories Key Informant Interviews
15/7/2022-15/8/2022	Social Entrepreneurs Community	Reframing Goals Micro-mobilisation	Reframing the Goals based on Situational Analysis Identifying Key Community Actors for Action Research	Shared Conversations Storytelling Presentation Brainstorming
16/8/2022	Faculty Students	Reframing Goals	Getting back after Rural Practicum Reframing Goals based on the Situational Analysis	Presentation Expert Feedback Peer Consultation Idea Canvas
18/8/2022 – 22/9/2022	Faculty Students	Livelihood Innovation Lab (with larger group of Faculty and Students).		Brainstorming
29/8/2022 – 18/9/2022	Faculty Students	Action Research Methodology	Orientation to History, Philosophy, Principles, and Methods of Action Research	Workshops Group Exercises Action Framing

26/9/2022 – 21/10/2022	Students Social Entrepreneurs Community Faculty	Micro- mobilisation Dialogic Ideation Action Framing	Block Fieldwork	Household Visits Seed Festivals Group Discussions Games Movie Screening Photovoice
31/10/2022	Faculty Students	Reflection & Feedback with Larger Group of Faculty & Students		Presentations Reflective Conversations Storytelling
9/10/2022 – 10/10/2022	Faculty Students	Reflective Action Research Workshop		Reflective Methods
23/01/2023	Students Faculty Social Entrepreneurs	Action Research Conference		Presentations & Discussions
24/01/2023 – 25/01/2023	Faculty Social Entrepreneurs Students	Micro-mobilisation & Piloting		Policy Analysis Dialogue Conference Seed Club etc.
21/03/2023	Policymakers Faculty	Dissemination of Action Research to Officers in the Indian Administrative Service as part of the training.		Presentation Storytelling



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