



Climate-U

Transforming Universities
for a Changing Climate

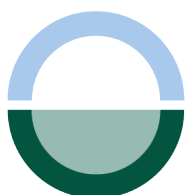
**Five conditions
for participatory
action research to
enhance universities'
contributions to
climate justice**

Transforming Universities
for a Changing Climate
Working Paper Series No. 19

Climate-U
October 2023



UK Research
and Innovation



Climate-U

Transforming Universities
for a Changing Climate

Five conditions for participatory action research to enhance universities' contributions to climate justice

Transforming Universities for a Changing Climate Working Paper Series, No. 19

Climate-U
October 2023

www.climate-uni.com

Tweet @ClimateUniv

© October 2023 Climate-U,
Institute of Education, UCL
20 Bedford Way, London, WC1H 0AL

Free to download with use of suggested citation:
Climate-U (2023). *Five conditions for participatory action
research to enhance universities' contributions to climate
justice*. Transforming Universities for a Changing
Climate, Working Paper Series No. 19

ISSN: 2754-0308

Abstract

This working paper argues that participatory action research (PAR) offers a key pathway by which universities can enhance their contributions to climate justice. PAR has traditionally responded to inequitable social conditions and processes: this paper contributes an expansion of that focus from the margins to the frontlines, in engaging with ecological and climate breakdown. To understand how universities can engage in PAR towards socio-ecological justice, we share five conditions which work as enabling elements for universities' PAR work. In doing so, we draw on the experiences of fifteen institutions in Brazil, Fiji, Kenya, India, Indonesia and Tanzania participating in the Transforming Universities for a Changing Climate (Climate-U) study, setting up locally generated PAR initiatives in partnership with communities. We argue that these five conditions – equitable partnership, co-production, immersion, agency and transformative institutions – scaffold and guide PAR work and together constitute enabling environments. Each condition is illustrated by fine-grained case studies from these different contexts within the Climate-U network. We see these conditions as necessary (although not sufficient) for the kinds of transformations which universities must undertake to respond to the related challenges of growing social inequalities and the climate crisis.



Contributions and Authorship

At **University College London (UCL)** research was led by Tristan McCowan (Principal Investigator), with Alexandre Apsan Frediani (Co-Investigator), Charlotte Nussey (Research Fellow), Lorena Sanchez Tyson (Research Fellow) and Palesa Molebatsi (Research Fellow). This working paper was written up by Charlotte Nussey and Alexandre Apsan Frediani, with conceptual guidance and review from Tristan McCowan, drawing on synthesis work by Palesa Molebatsi and literature review support from Sophie Ho.

The research in Brazil was led by Luciana Brandli from the **University of Passo Fundo** (UPF, Brazil). At UPF, the final report was co-authored by Janaína Mazutti, Amanda Salvia and Luciana Brandli (Mazutti et al. 2023). All activities carried out by the Green Office were the result of the efforts of numerous students, whether they were scholarship holders or not, as well as professors from various fields, who share a common belief in a better future. The Green Office team includes Ana Carolina Martins, Bianca Gasparetto Rebelatto, Carolina Andreis, Eliara Riasyk Porto, Éllen Dias, Gabriela Rodrigues, Giovana Reginatto, Júlia Lorenzatto, Kuliana Kurek, Marianne Di Domênico, Michele Rocha Reolão, Pedro Henrique Diniz, Pietra Taize Bueno and Victória Sensolo.

At the **University of São Paulo** (USP), Brazil, the PAR activities were led by Tercio Ambrizzi and Amanda Rehbein, who are the main authors of the final report (Ambrizzi and Rehbein, 2023). The following co-investigators lead the nine different mini projects: Sylmara Lopes Francelino Gonçalves Dias, Danúbia Caporusso Bargos, Paulo Antonio de Almeida Sinisgalli, Pedro Roberto Jacobi, Rosely Aparecida Liguori Imbernon, Carla Morsello, Adriana Cristina Ferreira Caldana, Sonia Maria Portella Kruppa, Erica Leonor Romão and Maria Elisa Siqueira Silva.

At the **Federal University of Pará** (UFPA), Brazil, the PAR was led by Salomão Antônio Mufarrej Hage with the participation of Edir Augusto Dias Pereira (UFPA), Oscar Ferreira Barros (UFPA), Hellen do Socorro de Araújo Silva (UFPA) and Romier da Paixão Sousa (IFPA). The PAR also included the participation of students from our postgraduate courses: Waldirene dos Santos Castro, Celso Alexandre de Araújo Ribeiro and Maria de Nazaré Cunha de Araújo; and Marcos Vinícius Costa Lima and Guiomar Corrêa Tavares from other governmental and non-governmental organizations.

At the **Federal University of Paraná** (UFPR), the PAR was led by Sônia Fátima Schwendler. Other researchers involved in the PAR activities include: Cristina Frutuoso Teixeira, Katya Regina Isaguirre-Torres, Naína Pierri Estades, Andrieli Teixeira Ribas, Julya Naara Mayer Wisniewski, Mariana Ribeiro do Amaral, Robson Delgado,

Sylviane Guilherme, Victoria Hillesheim Garcia e Silva and Vinicius Ricardo Tomal. Representatives from the following organizations also participated in the project: Landless Rural Workers' Movement (MST), Movement of People Affected by Dams (MAB), Movement of Peasant Women (MMC), Movement of Artisanal Fishers (MPP), and representatives of Indigenous, quilombola and caiçara communities. The UFPR final report was written up by Sônia Fátima Schwendler, Cristina Frutuoso Teixeira, Katya Regina Isaguirre-Torres, Naína Pierri Estades, Julya Naara Mayer Wisniewski, Mariana Ribeiro do Amaral, Sylviane Guilherme, Victoria Hillesheim Garcia e Silva and Vinicius Ricardo Tomal (Schwendler et al. 2023).

At **Federal University of the Western Pará** (UFOPA), PAR was led by Tânia Suely Azevedo Brasileiro and Luís Alípio Gomes. Other researchers involved were Adriane Gama, Kláudia Sadala, Luciandro Tássio Souza, Elian Mara Sousa Carvalho, and Luis Antonio da Cruz Gomes. The collaborators included Mayko Carlos Silva Vasconcelos, Prof. Danilo Duarte Godinho, Aline Sousa Cardoso, Elizandra dos Santos Amorim, Milena da Silva Godinho, Jander Ferreira Cardoso and Maria Odilla Duarte Godinho.

The research in Kenya was led by Jackline Nyerere at Kenyatta University. Other researchers involved in the PAR process at **Kenyatta University** include Wilson Mutuma, Purity Muthoni and Godwin Opinde, Rachel Okinyi, Winniejoy Gatwiri, Jeremy Munene Kaburu. Kenyatta University's final PAR report was written by Rachel Okinyi and Jeremy Munene Kaburu with the advice and review of Jackline Nyerere (Okinyi and Kaburu, 2023).

At **Kisii University**, the PAR was led by Anakalo Shitandi. The final report was written by Anakalo Shitandi supported by George Ogendi and Erick Oyaro (Shitandi, 2023). We wish to acknowledge the Kisii Nyamira small scale farming groups who participated in the PARG, Stella Omari, Jacqueline Walubwa, Lydia Kitonga and Professor Christopher Ngacho (Committee members PARG Kisii University), Dean School of Pure and applied Sciences E. Obwogi and Erick Nyakundi Chair Biological Sciences Department. We thank Kisii Agricultural Training centre for the facilities in hosting the workshops and Ndizi TV local stations for granting TV shows for dissemination.

At **Kenya Methodist University** (KeMU), the PAR was led by John M. Muchiri. The final report was written up by John Muchiri supported by Mworio Mugambi, Patrick Gitonga, Ann Kiara and Lily Masinde. Final editorial work was done with assistance of Ann Waituru and Victor Sambuli.

The research in Fiji was led by Rosiana Lagi at the **University of the South Pacific**, who was assisted by Apolosa Robaigau, Filipe Veisa, Ledua Waqailiti, Kolaia Raisele, Malakai Waqa, George Toganivalu, Apolonia Tamata, Rajendra Prasad, Maika Daveta, the Fiji Ministry of Forestry, Fiji Ministry of Education and the members of the Vatutavui Community in Tavua. The final report was a collaborative effort by Rosiana Kushila Lagi, Apolosa Robaigau, Filipe Veisa, Ledua Waqailiti and George Toganivalu which they have been solevaka collating over the period of the project.

At **Fiji National University (FNU)**, the PAR was led by Unaisi Nabobo-Baba. She was assisted by Sereima Baleisomi, Matereti Sarasau, Katarina Ruru, Laisa Vuetaki, Lia Bogitini, Margaret Gabriel and Moses Natuilagilagi. Assistance in the PAR was also provided by the Government through its Ministry of Forestry and the Ministry of iTaukei Affairs. The report on PAR was compiled by Sereima Baleisomi under the guidance of Unaisi Nabobo-Baba. Literature review for the report was put together by Joseph Veramu and Matereti Sarasau.

At the **University of Fiji**, the research was in two parts: the on-the-ground research questions were developed and led by the Vice Chancellor, Professor Shaista Shameem, assisted by the Centre for iTaukei Studies at the University for the protocols with traditional communities and liaison. All Faculty Deans and Heads of Department were involved in allocating student and staff researchers for each community visit. For the Drua Voyage, the expedition was led by Captain Setareki Ledua, who was in charge of the crew and passengers on the I Vola Sigavou. The final report was compiled by Professor Shaista Shameem (2023).

At **Tata Institute of Social Sciences (TISS) Mumbai** campus, the PAR was led by Sunil D. Santha and Devisha Sasidevan in partnership with Hooga Seed Keepers Collective and GoodLiving.eco in Tamil Nadu, India. The synthesis report of the PAR was written by Sunil D. Santha and Devisha Sasidevan (Santha and Sasidevan, 2023) with immense insights and pieces contributed by the following team members: Sowmya Balasubramaniam, Atul Raman, Deepankar Panda, Gauri Shenoy, Khadeeja Ali, Soofiya Yoosuf, Afla C.P., Ghurshida Jabeen, Anna Steffy K J, and Dhanya Kolathur.

At **Tata Institute of Social Sciences (TISS) Hyderabad** campus, the PAR was led by Suparana Katyaini (Lead Investigator) with inputs from Bibhu Prasad Nayak (Co-Lead Investigator) and affiliate researchers Bhavya Katyal and Aradhana Amlathe. Researchers Monami Bhattacharya and Proshakha Maitra also supported the research for brief periods. The report on PAR has been a collective effort of the researchers led by Lead and Co-Lead Investigators. The work benefited immensely by the periodic interactions with the other universities who are a part of Climate-U.

At **ST Bhinneka University**, the PAR was co-led by Tracey Yani Harjatanaya, Dorothy Ferary, Irfan Sarhindi, Rinrin Meilani Salim with the participation of 17 lecturers. The PAR involved Focus Group Discussions and Interviews with 27 stakeholders from 21 institutions; one university, three private companies, six NGO or communities, and eleven government institutions.

Almas Mazigo (Lead Investigator) and Emiliana Mwita (Co-Lead Investigator) coordinated the PAR project at the **Dar es Salaam University College of Education (DUCE)** of the **University of Dar es Salaam** in Tanzania. The PAR synthesis report was written by Almas Mazigo, Emiliana Mwita, Maregesi Machumu and Jovitha Mayenga with inputs from Renatus Semeni, Fausta Kalolo, Said Chande, Ally Winda and Haji Ibrahim.





Table of contents

Introduction	6
Methodology	6
Table 1: Climate-U PAR-Inspired Initiatives	
Five Conditions for PAR to Enhance Universities' Contributions to Climate Justice	7
Condition 1: Equitable Partnerships	11
<i>Case Study 1: 'Opening a Pandora's Box' - following seeds with Tata Institute of Social Sciences (TISS), Mumbai</i>	
Conditions 2: Co-Production	14
<i>Case Study 2: 'In this journey together' - Co-production with Dar Es Salaam College of Education (DUCE), Tanzania</i>	
Condition 3: Immersion	16
<i>Case Study 3: Solesolevaki - communal planning with the University of the South Pacific</i>	
Condition 4: Agency	19
<i>Case Study 4: Climate Ambassadors - student agency and the Green Education Hub at Kenyatta University</i>	
Condition 5: Transformative Institutions	21
<i>Case Study 5: The establishment of a Green Office at the University of Passo Fundo</i>	
Concluding Reflections	23
Acknowledgments	24
References	25

Introduction

Universities are key actors in responding to the climate crisis. As institutions, they play a key role in producing knowledge, building technical expertise as well as advancing concrete practices needed to address climate adaptation and mitigation. Given universities' aspirations to address societal as well as ecological challenges, they are in a unique position to promote thinking and practice that integrate responses to the climate crisis with actions that address inequalities and socio-ecological injustices. As identified by the Climate-U project (McCowan 2020; Nussey et al. 2023), universities have at their disposal diverse pathways through which they can realise this potential. However, in practice there have been several bottlenecks and constraints hindering the possibility of universities to advance social-environmental transformations. These include, for example, the continuous trend of commodification of higher education systems, as well as lack of incentives, policy and regulatory frameworks for universities to move in this direction. At times, these trends have led to universities deepening the climate crisis, rather than playing a role to meaningfully address it.

One of the key areas of research of the Climate-U project has been on the role of participatory action research in expanding the capabilities of universities to respond to the twin challenge of growing inequalities and climate change. Participatory action research (PAR), understood as a collective learning journey focused on the generation of emancipatory knowledge and action, has been an important mechanism through which university actors have unlocked their agency to interact and transform societal and ecological processes. PAR methodologies and principles have been mobilised by university actors also to create more equitable relationships between universities and marginalised voices and experiences in society. While the role that PAR can play to advance social justice is well documented, there is less evidence and reflection about how PAR can enable universities to respond to climate change. This working paper aims to contribute to that gap and to show, through fine-grained and situated accounts, that PAR is a central strategy for universities to advance climate justice.

The various universities involved in the Climate-U network have drawn on PAR principles and methodologies to design, implement and reflect on collaborative and multi-stakeholder initiatives that can enhance the capabilities of universities to generate climate actions that also respond to social injustices. Apart from advancing a diverse set of meaningful climate actions, these initiatives have also produced insightful learnings about the conditions that have enabled or constrained them. In this paper, we put together a set

of reflections that identify some cross-cutting lessons learnt about what needs to be in place to enhance the possibility of PAR to transform universities and enhance their capabilities to address the current climate and social crisis.

From this series of reflections, five conditions emerged which both supported and enhanced the outcomes of PAR initiatives, and which were further enhanced by the PAR process itself. These five conditions are:

1. **Equitable partnerships**
2. **Co-production**
3. **Immersion**
4. **Agency**
5. **Transformative institutions.**

Part three of this paper defines each of these conditions in more detail, as well as providing a specific case study for each condition that offers a fine-grained and contextualised account of the connections between them. When understood in relation to each other, these conditions start to map out the enabling environment that universities need to put in place for their PAR initiatives to better respond to climate and social injustices.

Methodology

The materials for this synthesis paper are a series of reports documenting the processes and outcomes of the PAR initiatives of the fifteen institutions in the Climate-U study. More details of each PAR initiative can be found on the Climate-U website¹, and in our working paper series². The Climate-U study was launched in February 2020, coinciding with the COVID-19 pandemic and further complicated by funding cuts and logistics. This meant that not all fifteen PAR initiatives were initiated at the same time. For the seven institutions whose PAR work has been ongoing since 2020³, this paper synthesises the information included in a series of three interim reports and one final PAR report. For the nine institutions whose work all started in 2021-2⁴, this working paper draws on written material included in one final PAR report. As this working paper will highlight, however, a key concern of the PAR initiatives in all fifteen institutions was that they would aim to be self-sustaining, whether seeking future funding schemes, or becoming embedded in institutional and community structures and processes. As such, none of the PAR initiatives are 'closed' – all are ongoing. This working paper includes some reflections on enabling conditions for this sustained work.

The authorship for this working paper is a collective – Climate-U. This reflects the concern to acknowledge not only the work of

1 www.climate-uni.com/PAR

2 www.climate-uni.com/publications

3 University of Passo Fundo (UPF), Brazil; University of São Paulo (USP Brazil); Federal University of Pará (UFPA), Brazil; University of the South Pacific (USP Fiji); Kenyatta University (KU), Kenya; Kisii University, Kenya; Kenya Methodist University (KeMU).

4 Federal University of the Western Pará (UFOPA), Brazil; Federal University of Paraná (UFPR), Brazil; Fiji National University (FNU); University of Fiji (UoF); Tata Institute for Social Sciences (TISS), Hyderabad campus, India; Tata Institute for Social Sciences (TISS), Mumbai campus, India; ST Bhinneka, Indonesia; Dar es Salaam University College of Education (DUCE), Tanzania.



writing but the work of doing the PAR itself as making this working paper possible. But it also reflects the methodology by which the argument, findings and analysis for this working paper were generated, through:

- a series of monthly team meetings over the course of the four years of the Climate-U study
- the development of a collective protocol for our work, published as a working paper in our series (Climate-U, 2021), and used as the basis for a set of open access tools to support the PAR processes⁵, including developing theories of change, stakeholder analyses, community engagement, action planning and monitoring, evaluating and learning (MEL) frameworks
- reading groups and conceptual exchanges fostered by our mini-lecture series on PAR
- monthly meetings within institutional monitoring, evaluation and learning (MEL) leads
- a collaborative journal article, beginning to generate a comparative analytical framework, drawing on the capability approach (Nussey et al. 2022)
- two sets of intensive knowledge exchanges, over the month of September 2021 and September 2022. These international knowledge exchanges used Google Classroom to develop collective and comparative analysis through discussion boards and threads, responding to video and photographic material posted by participating institutions on different themes – theories of change and sites of impact, methodologies, environmental impacts, partnership, and counter-hegemonic initiatives. A set of international workshops in each year brought researchers together, at which detailed notes were taken which informed the writing in this paper.

At various stages of the project, these synthesis findings have also been presented at full team meetings, with collaborative discussions on how the findings might be refined to better represent a broad account of the PAR experiences of the Climate-U network.

We have called these initiatives PAR-inspired, because a key part of the Climate-U PAR work has been to critically engage on the possibilities, constraining and enabling factors for universities conducting participatory action research towards climate justice. As the following discussions make clear, localised interpretations of PAR and localised traditions of community engagement also shaped the work, with a strong tradition of Freirean methodologies and pedagogies of alternation in Brazil, or the Fiji Vanua Research Framework (Nabobo-Baba, 2005) that works with and through indigenous Fijian philosophies and deep cultural values related to knowledge and sustainable community building.

Table 1 offers a summary for reference of each of the fifteen institutional PAR initiatives. It summarises their sites of impact and climate actions, and gives a list of indicative impacts, drawing on the categories of impact identified by the typology of change in our systematic review of the types of evidence of university responses to the climate crisis (Nussey et al. 2023, pp. 38-9). These categories

include epistemic, ethical, and behavioural changes, institutional changes (e.g., to policies or curricula), structural changes (to physical infrastructure of universities), and changes that can be defined as 'atmospheric' (i.e., directly contributing to reductions in GHG emissions). As discussed above, we have described these impacts as 'indicative' at this stage, as the PAR initiatives and MEL phase of the study is ongoing, and different initiatives varied in the degree to which they have directly measured the impacts of their PAR.

As Table 1 shows, there were some synergies in the focus of the different PAR initiatives and their concomitant sites of impact. Broadly speaking, the Climate-U PAR initiatives were divided equally between the eight universities whose work centred in climate-actions based in communities, aiming to bridge this work into universities, with another seven universities whose work focused on institutions, bridging into communities.

Figure 1 further collates the work of the PAR initiatives into four broad sites of impact, in participatory engages with:

- i. Social movements and social enterprises – this was the focus of the PAR initiatives of three universities in Brazil engaging with communities and social movements working towards socio-ecological justice (UFPA, UFOPA and UFPR), as well as the PAR initiative TISS, Mumbai, which partnered with two social enterprises working with climate-vulnerable Tamil communities in South India.
- ii. Coastal communities – this was the focus of all three institutions in Fiji, as well as the PAR initiative coordinated by DUCE in Tanzania.
- iii. Campus greening and institutional operations – this was the focus of University of Passo Fundo (UPF, Brazil) as well as University of São Paulo (USP, Brazil).
- iv. Participatory curricular reviews – this was the main focus of all three institutions in Kenya, as well as TISS Hyderabad and Satya Terra Bhinneka in Indonesia. In the case of the first four, these curricular reviews were accompanied by climate actions and greening activities.

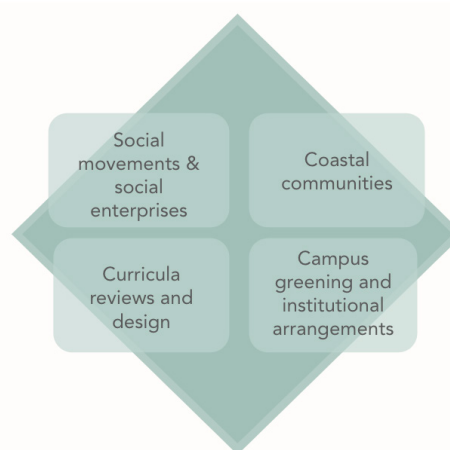


Figure 1. Sites of impact of the Climate-U PAR initiatives

⁵ <https://www.climate-uni.com/tools>

Table 1: Climate-U PAR-inspired Initiatives

Institution	Site of impact	Climate action	Indicative outcomes & impact
University of Passo Fundo (UPF), Brazil	Academic community and operations, students & engagement opportunities	Establishment of a Green Office, coordinating diverse activities including 14 mini projects on environmental & sustainable education, recycling, rainwater harvesting and reforestation.	Increase in student and community understandings of the climate crisis and sustainability issues; public awareness raising; emissions reductions through recycling & tree planting; changes in student sustainability behaviours
University of São Paulo, Brazil	Academic institutional practices combined with diverse local communities	9 mini projects coordinated by Interdisciplinary Climate Investigation centre (INCLINE) on environmental education, waste management, bio-indicators, serious-games, land use and occupation & climate mitigation.	Increase in understandings of climate crisis amongst university students, teachers and students, and general public. Enhanced agency of young people to act as climate champions. Reductions in emissions through energy and water monitoring in universities, and tree planting in a municipal school. Institutional changes through climate researchers' network.
Federal University of Pará (UFPA), Brazil	Formation of Collectives of Territorial Governance (COGTERs)	Advocacy and activism in relation to two COGTERs, involving mobilisation against corporate environmental exploitation with indigenous and <i>quilombola</i> (traditional African Brazilian communities) communities in the Amazon.	Institutional transformations through greater engagement of the university with climate justice, and the defence of life, human and non-human in its territories. Agency of traditional peoples through action against environmental and climate-impacts in their territories.
Federal University of the Western Pará (UFOPA), Brazil	Strengthening the creation of eco-circular forest bioeconomy collectives	Series of training workshops with leaders and representatives of socio-productive chains, community representatives and school (pupils & teachers). Establishment of a new Digital Sustainability Square.	Awareness raising through community-level workshop and use of social media. Collaborative working in construction of affective map.
Federal University of Paraná (UFPR)	Strengthening articulation of social movements in their rights and connections with the climate emergency	Building a collective analysis through dialogue of rights, violations, climate impacts and experiences of resistances; equip vulnerable communities with tools to advocate for their interests; building joint data.	New epistemologies of the climate emergency grounded in community practices and resistances; comprehensive understandings of climate injustice; student awareness through production of knowledge that engages in meaningful dialogue; amplification of voices of marginalised groups. Institutional changes through curriculum.

Table 1 continued overleaf



Institution	Site of impact	Climate action	Indicative outcomes & impact
University of the South Pacific, Fiji	<i>Solesolevaki</i> (communal planning) with a coastal community (Vatutavui)	Restoration of watershed, planting of 1000 native trees, mangrove restoration & documenting of traditional ecological knowledge in 'big books' for schools; provision of a greenhouse to store native seedlings	Community awareness about the risks of slash & burn; skills in planting and tending native seedlings; work to legitimise traditional ecological knowledges; emissions reductions through reduced burning and tree planting
University of Fiji	Coastal community	<i>Drua</i> (traditional Fijian double-hulled sailing canoe) voyage with staff and students aiming to build traditional climate mitigation knowledge	Awareness and skills of university faculty and students, as well as community members; work to legitimise traditional ecological knowledges; public awareness; institutional transformations through wholesale shift in approach to teaching and learning
Kenyatta University, Kenya	Mainstreaming climate change into curricula & developing green campus operations	Establishment of a Green Education Hub (GEH) at Kenyatta University; integration of climate change through two modules into the Growing Leaders Programme (GLP), a course for all final-year students	Gains in student knowledge and understanding; student skills in leadership, communication, negotiation and climate advocacy through participation in GEH activities; new institutional connections through GEH; behavioural changes and emissions reductions through afforestation practices
Kisii University, Kenya	Curriculum review, campus operations & community engagement activities	Design of a new university common course for all first-year undergraduates; institutional energy use prompts to influence behavioural changes to reduce energy consumption and contribute to decarbonisation; improved cooking stoves and micro-gasifiers community outreach projects	Gains in student knowledge and understanding; institutional changes through curriculum and climate-responsive leadership contributing to decarbonisation; emissions reductions through energy saving measures, improved cooking stoves (reducing deforestation)
Kenya Methodist University (KeMU)	Curriculum review & community engagement activities	Climate change mainstreamed into university common courses (environmental science and environmental health); greening activities including tree planting, composting of organic waste and recycling	Gains in student knowledge and public awareness campaigns (with local education systems); action-based learning; institutional changes through new curriculum and new community engagement policy; emissions reductions through tree planting
Tata Institute for Social Sciences (TISS), Hyderabad campus, India	Curriculum revision & set of new modules: 'Climate Futures'	Integration of climate justice into university curricula and student dissertation topics; youth-led initiatives ('plogging'); proposed sustainability office	Increase in student and public awareness of climate justice; environmental consciousness; sustainable practices (students as active agents of change). Institutional changes through new curricula and campus operations responses to the crisis.

Table 1 continued overleaf

Institution	Site of Impact	Climate action	Indicative outcomes & impact
Tata Institute for Social Sciences (TISS), Mumbai campus, India	Community initiatives around seeds (Hooga Seed Keepers, HSK) & climate-impacted households (Goodliving.eco, GLE)	HSK strand: Community seed festival & school seed club supporting knowledge exchange around heirloom seeds. GLE strand: micro-mobilisations around housing with female-headed climate-impacted households	Increase in student awareness and capacity for action research towards meaningful climate initiatives; rich insights into the vulnerability contexts and everyday struggles of climate-impacted female-headed households; raising public awareness around local and traditional knowledge on seed conservation and farming.
Dar es Salaam University College of Education (DUCE), Tanzania	Action-based learning through culturally rooted initiatives in coastal communities	Planting corals supporting reef restoration; planting and caring for mangroves for regeneration of coastal land; climate change awareness campaign targeting primary school pupils	Increase in knowledge, skills and attitudes of community members including male and female coral planters, primary school pupils & mangrove conservers. Enhanced awareness of PAR and climate justice in DUCE + sense of agency. Institutional changes through events to foster public dialogue.
Satya Terra Bhinneka, Indonesia	Curriculum development	Development of a new Education for Sustainable Development (ESD) module	Increase in student knowledge and skills in conducting PAR and shifting student practices around the climate crisis. Institutional change through formation of new university and new module.



These different sites of impact are of course not the only synergies between the different PAR initiatives. Cross-cutting themes around intersectional understandings of power that attend to gender, caste and racialised identities; indigenous and traditional ecological knowledges; and forms of activism all emerged as key ideas in Climate-U knowledge exchanges. These different themes will be discussed in more detail in the following part of the working paper, which considers in depth each of the five conditions for PAR to enhance universities' contributions to climate justice.

Our experience in working with PAR-inspired methods and approaches has led us to conclude that PAR is fundamental, a necessary pathway for universities to advance to climate justice. We have framed these conditions as contributing to climate justice, understood as connecting environmental and social claims to justice, through aims towards recognition, redistribution, reparation and regeneration. In this sense, the work of universities responding to climate justice concerns through PAR expands the scope of the importance of PAR, which has hitherto more broadly been focused on predominantly social concerns (Nussey et al. 2022; Boni, Lopes-Fogues and Walker, 2016). A climate justice theoretical lens to monitoring, evaluating and learning thus places a broader set of demands on the processes associated with PAR in universities.

Within this climate justice framing, our collective analysis has generated five conditions which both enhance the PAR process and are enhanced by the process. We see these conditions as situated in ongoing university practices, aspirations and arrangements – in many contexts, as this report will discuss, the PAR process was enabled by pre-existing relationships, partnerships, or institutional arrangements, for example. We see this as a strength of the PAR approach, which aims not to generate entirely new encounters, but to work cyclically within them (Climate-U 2021). Drawing on this cyclical analysis, therefore, which is characteristic of the reflexive processes of PAR, we see these conditions as cyclical – each enhances the other and is inter-connected. In this sense, the five conditions that we offer in this working paper are not to be interpreted as a normative order for how things work, but more an interconnected set of elements that constitute an enabling environment for PAR towards climate justice, and that together scaffold and guide the cycles of reflection of planning, action, observation & reflection that constitute the bases of PAR processes. This enabling environment is presented in Figure 2.

While we thus do not see the conditions as sequential, we do see them as having reinforcing characteristics – universities interested in working with PAR approaches cannot just pick one or two in isolation. The different PAR initiatives of the Climate-U network have highlighted that it is when they are brought together that the strongest forms of systemic change can happen. Each of the case studies presented in this working paper shows both the interconnections between the five conditions, and the ways in which each individually represents an entry point into PAR processes – through partnerships in the case of Dar es Salaam University College of Education (DUCE), Tanzania; through co-production in the case of Tata Institute of Social Sciences (TISS,

Mumbai campus), India; through immersion in the case of the University of the South Pacific (USP), Fiji; through agency in the case of Kenyatta University, Kenya, and through transformative institutions in the case of the University of Passo Fundo (UPF), Brazil. Through the combination of defining and exemplifying each of the conditions, we hope that this working paper may be of interest to other universities concerned with transforming their practices and structures in response to the climate crisis.

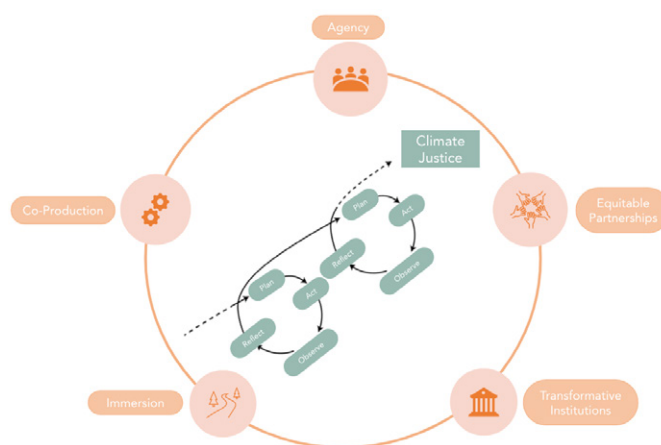


Figure 2. Five conditions for PAR to enhance universities' contributions to climate justice.

Condition 1: Equitable Partnerships

Being able to establish equitable partnerships is critical for universities to be able to advance climate justice. PAR literature emphasises the need for universities to forge partnerships with groups experiencing dispossession and marginalization. In the context of climate change, this is particularly important, as the impacts of climate change are disproportionately impacting vulnerable communities, who tend to be excluded from climate related research, learning and public engagement initiatives led by universities. In our experience, researchers involved in the Climate-U network have often faced a lot of resistance and challenges within their own university settings to integrate partnerships with marginalised communities in the universities' climate actions.

Beyond the establishment of partnerships with marginalised groups, PAR literature also calls for the need to create equitable conditions within which these partnerships take place. It emphasises the need to acknowledge that there are power relations shaping partnerships, and that it is critical to put in place support systems that make these collaborations more equitable. In this section of the report, we outline the various strategies that the teams from the universities involved in Climate-U have put in place to establish, nurture and sustain these partnerships, while also building support systems to make them more equitable.

Our first finding around forging equitable partnerships relates to the importance of diversity, and the breadth of the range of actors which we found sustained the PAR projects. This diversity highlights the importance of not only equity and a continuing attendance to power relationships within the work, but also the importance of strategic stakeholders, and the value of the stakeholder analyses which were conducted at the start of each PAR engagement (Climate U, 2021). Reflections in meetings highlighted that responding to diversity within partnerships requires consciousness not only of researcher positionality (Kitagawa, 2022), but further of the intersectional positionings of the PAR group members. Some of these intersections were context-specific, such as caste (in the two Indian cases) or indigeneity (in cases in Brazil or Fiji). Others, such as gender, socio-economic status and age, applied to all the cases, to a greater or less extent. Within institutions, questions were raised not only of identity-based social locations such as gender and caste, but also related to the ways in which institutional hierarchies exist along other lines, such as the existing of permanent vs fixed-term contracts, years of service and titles.

Our experience in several cases was that representation from marginalised and vulnerable groups, particularly in the context of work focused within universities, required more intensive engagements, and a clear rationale for involvement, as researchers from TISS (Hyderabad campus) reflected in their final report:

Ensuring representation of diverse student groups, particularly those from marginalised or vulnerable communities, was difficult due to varying levels of engagement and participation. These students had various new commitments and jobs so reaching out to them was a challenging situation. Without adequate representation, the curriculum might not fully capture the concerns and experiences of all students. This can lead to a curriculum that lacks inclusivity and relevance to the lived realities of those most affected by climate justice issues (Katyaini et al. 2023).

In all contexts, the diversity of the PAR actors involved in partnerships thus posed significant challenges but also held significant importance for universities' contributions to climate justice. As the following case study highlights, in many of the Climate-U initiatives, 'bridging actors' (McCowan 2020) such as alumni or community-based organisations played a central connecting role that helped navigate these challenges of inclusion, engagement and participation.

Case Study 1: 'Opening a Pandora's Box' - following seeds (TISS Mumbai)

The TISS Mumbai participatory action research initiative was a collaboration and partnership between diverse, interconnected actors, including faculty and students at the Centre for Livelihoods and Social Innovation (CLSI), School of Social Work, two social enterprises (Hooga Seed Keepers and Goodliving.eco) that were

founded by two alumni of the CLSI, and grassroots-level community actors and collectives engaged with the two social enterprises. Both Hooga Seed Keepers (HSK) and Goodliving.eco (GLE) were located in Tamil Nadu, South India, an area highly prone to extreme weather events. Both had specific aims to mobilise climate-vulnerable populations - farming communities in the case of HSK and climate-impact households in the case of GLE – and to connect social and ecological justice.

Bringing together Conditions 1 and 5 for universities' work to foster climate justice, these partnerships were enabled by institutional transformations at pivotal points through the projects. The mission and approach of the CLSI, which emphasises co-production with marginalised and climate-vulnerable communities, was instrumental at the start. Students are mentored to nurture and practise the values of justice, care, and solidarity towards creating an empowered, inclusive, and more equitable society in the context of emerging complex problems such as climate change. In this regard, students get plenty of opportunities to engage with vulnerable groups and marginalised communities in designing and developing people-centred solutions through their embedded classroom learning with rigorous, reflective fieldwork and in the Livelihood Innovation Lab. The partnerships with alumni, shaped by these institutional values, became key levers by which students were connected with communities.

Linked to Condition 2 for universities to foster climate justice, co-production in the case of TISS Mumbai was supported by specific methodologies that helped foster deeper understandings between university and community members, and which supported processes by which communities shaped the research agendas. Some of these worked through translation as mode and metaphor for new engagements around the climate crisis, particularly in the Tamil language, in which PhotoVoice was instrumental to elicit understandings that were grounded in community experiences. As researchers reflected,

The critical question that guided the whole inquiry was "how does climate change affect you as a person, your family, communities, surroundings, plants, animals etc.?" However, the translation of climate change was initially too vague for these children. As non-Tamil speakers, we mistakenly translated climate change into 'kalanilai matram', which hinted at seasonal changes to the children, rather than 'paruva nilai matram', which was connected to climate change as such. It was after the first round of photo taking that we realised this mistake. The children were more aware and shared their understanding of different flora, their unique qualities, and their uses. They took photos of Tulsi, a herb for relieving cold and flu-like symptoms, and another plant that could reduce pimples.





Figure 3. "Tulsi is good for health" – Student PhotoVoice activity

They also explained the health benefits of water collected in the stems of banana plants. They were concerned about water scarcity and its impact on dried crops. Though they could not comprehensively explain their inferences on climate change, they were eager to explain the entangled nature of their everyday lives in an ever-changing environment. They knew considerably about the local environment, though climate change was quite difficult for them to articulate in the same manner.

In the case of the work of TISS Mumbai, Condition 3, around socio-spatial and epistemic immersion, was also supported by specific methodologies and by time in the community that was enhanced by the bridging work of the social enterprise established by former TISS students. This was grounded in a posthumanist approach to following seeds, opening space for epistemic humility from the university students and researchers to listen differently to community accounts of the climate crisis, and to understand more deeply the intersectional structural contexts constraining and enabling the agency of humans and seeds in a more-than-human world, as the researchers reflected:

We began our journey by exploring the close entanglements between seeds and humans from a post-human perspective. We were curious to understand the different sites of entanglement and practice. Following 'seeds' from a posthuman lens also allowed us to explore how diverse commodity frontiers constrain the farming of heirloom varieties and, often, their dispossession and displacement. Further, as we progressed with our journey, we also realised the complexities involved in ethical adaptation, primarily due to the intersectional structural contexts constraining and enabling the agency of humans and seeds in a more-than-human world.

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.

In addition to opening new spaces for the agency of both human and non-human actors, associated with Condition 4, the intensive processes of immersion that following seeds fostered also led to transformative institutions, both within and outside the university. This included seed clubs and seed banks within community schools engaged in the PAR, and a series of seed festivals with farmers and heirloom seed keepers. These seed festivals became a space to exchange forms of applied knowledge, and to recognise the dispossession associated with mass production and promotion of non-regenerative seeds. As one farmer told, "as we lost our seed banks, we lost our rights and freedom."



Figure 4. Knowledge sharing between university actors and farmers during the seed festival.

The seed festival became an active space facilitating seed sharing, the exchange of traditional knowledges and solidarity between seed keepers, university staff and students. In a new form of academic conference situated in the community, linked to Condition 5 around institutional transformations, agriculture students were exposed to these heirloom varieties of seeds for the first time. As one student reflected, "our curriculum trains us only to deal with hybrid seeds and farming. There is a disconnect between the curriculum and contexts in the field. A gap between theory and practice too. This needs to be addressed."



Figure 5. Agriculture students getting exposure to a heirloom variety of okra for the first time, after the Dialogue Conference.

As this case study highlights, in the TISS Mumbai initiative it was alumni who acted as bridging actors between community and university members. In other contexts, it was the university actors themselves who acted as a bridge, brokering community needs which were generated through the PAR process by facilitating connections with other powerful actors and agencies. In the case of Fiji National University, for example, through the PAR process the university PAR group members were able to listen to the agenda and aspirations of the community of Nadaro where their PAR was based, and connect Nadaro's development committee with representatives of the Ministry of Forestry, Agriculture and iTaukei Affairs, supporting outcomes such as solar lights and water tanks for the village, as well as restoring a footbridge that had been destroyed as an impact of climate change. They were also able to foster connections between social and ecological justice outcomes, in which the socio-economic impacts of the crisis were explored and mitigated through support for youth employment as well as workshops aimed to address gender-based violence. This community-level work is ongoing, through connections with the church and non-governmental organisations.

The final set of partnerships that enhanced PAR outcomes, particularly through magnifying the public awareness dimensions of the initiatives, was the media. In some institutions, such as TISS (Hyderabad) in India, journalists were members of the PAR groups directly. In others, media were invited to participate at strategic moments in the process.



Figure 6. Media reporting on Kenyatta University's Environment Day.

At Kenyatta University in Kenya, for example, journalists were invited to the launch of their Green Education Hub, raising the profile of the work and supporting more engagement on questions of the climate crisis. For others, such as in the case of DUCE, Tanzania, reporting on the PAR helped to support recognition and epistemic justice, as the communities' indigenous knowledges were placed in the centre.

To a greater or lesser extent, each of these diverse partnerships pre-existed the PAR processes associated with the Climate-U project but was further enhanced and sustained by the engagements. Each of these partnerships was entangled in socio-political power relationships around climate, knowledge and action. Attendance

to power within these partnerships, and opening space for community actors themselves to set agendas and co-define actions, is the specific focus of Condition 2 around co-production.

Condition 2: Co-production

Beyond the establishment of partnerships, the Climate-U initiatives demonstrate that universities need to co-produce actions if they are to respond to the twin crises of social and climate injustices. Co-production is referred to here as the process through which knowledge and actions are generated through equitable collaborations. This means creating mechanisms through which those that are most vulnerable and impacted by the current climate emergency can take part meaningfully in the processes of setting research agendas and generating knowledge and responses to climate change. Co-production emphasises that while communities' knowledge is critical to address climate change, it is also key to facilitate mechanisms that enable other knowledges and stakeholders to inform learning, research and responses to climate change. For academic actors, it means, for example, having the pedagogical expertise to generate action-learning initiatives that facilitate knowledge exchange between students and marginalised communities affected by climate change, that also takes on board expertise from other relevant policy and technical stakeholders. In practice, co-production is a challenging journey, and academics often have little opportunity to develop such skills of engaging equitably with diverse communities. As a result, when such initiatives take place, they can be isolated and/or unsustainable, and they run the risk of reproducing extractive practices where communities are approached as laboratories of learning with little benefits to them and their struggles. Therefore, having in place relevant ethical guidelines as well as methodologies and training opportunities for the professional development of academic staff for co-production are key conditions that can enhance the capabilities of universities to nurture and advance equitable partnerships.

From the experiences of the Climate-U initiatives, for the processes of co-production to advance climate justice, they need to build trust as well as solidarity among diverse actors, which often involved situating the PAR in long-term partnerships where relationships and rapport have built over time. These processes also need to draw on a range of methodologies that are consciously designed to enable meaningful translation between ecological and social conditions, and among different types of knowledge. These questions are discussed in more detail in the following case study.

Case Study 2: 'In this journey together' - co-production with DUCE, Tanzania

The PAR initiative of Dar es Salaam University College of Education (DUCE), Tanzania, worked through partnership with three CBOs (community-based organisations) in two coastal communities along the shore of the Indian Ocean to co-produce the aims of the PAR and set the agenda for the focus of the work. Building



on Condition 1, this initiative built on pre-existing relationships between the community and the university, as the secretary of one of the CBOs noted: "we are already partners because you care about us. You supported our participation in the International Year for Artisanal Fisheries and Aquaculture celebrations and now you are here to work with us." This approach to partnership was seen as the "spirit and attitude of our DUCE partners. While we knew that they possess lots of environmental knowledge and could easily dictate on what to do with the mangrove restoration, they did not. Instead, they were always encouraging us to use our indigenous knowledge and experience." In the same vein, a second CBO emphasised, "we knew the expertise and experiences of our DUCE partners in designing and facilitating climate change awareness workshops and campaigns, but they did not dictate. Rather, they listened to our ideas and strategies and helped in sharpening them. Eventually, we trusted in ourselves."



Figure 7. CBOs collaborate with DUCE researchers in participatory budgeting.

It is this 'spirit and attitude', and the ways in which 'trust in us' became 'trust in ourselves' through the PAR process, that we see as instrumental to the success of the PAR initiative and fostering space for Condition 2 around co-production. The relationships were built on 'care' and respect, of 'listening' and of troubling constructions of expertise as resting in 'scientific' rather than indigenous knowledges. The CBOs were able to set the agenda and design three distinct but inter-related projects around the impacts of the climate on coastal communities, focusing on mangrove and reef restoration, and a climate campaign for local primary schools.

Epistemic justice was thus not only fostered through listening, but through the co-production of designing and putting into place these climate actions. As the third CBO shared, stressing the difference between PAR and extractive forms of research, "let you know that, before you, we received many researchers and supported them to conduct their research, but they have never come back to share their research findings. [...] You have come not only to share feedback, but also to collaborate with us to find solutions. We are in this journey together."

The metaphor of the journey became instrumental to understanding the DUCE PAR process, as community and university actors

travelled together. Speaking to Condition 3 for universities' PAR engagements, these embodied experiences within the community included spatial immersion on the water, travelling by boat to plant coral and restore the reef.

For community and university actors alike, these immersive experiences fostered agency and new opportunities for learning, opening spaces for forms of epistemic justice that allowed community members to see themselves as 'knowers' and troubling notions of expertise. As one female community member reported, "I am happy that I have been given many opportunities to learn and participate in restoring coral reefs. I now consider myself an expert."



Figure 8. Learning to attach corals to bricks for coral reef restoration.

For the female researcher who travelled with the community, this visit was equally transformative, allaying her fears of swimming and travelling by boat, but further giving her the skills to conduct justice-informed inquiries: "In our previous research project, I struggled to understand how people's value systems inspired or constrained their climate actions, but now I have learned well and can effectively conduct inquiries about social and ethical issues underlying climate actions." In relation to Condition 4 around agency, the PAR process thus fostered not only community-level and collective forms of agency, but the agency of the researchers themselves, supporting them to do things differently within their work.



Figure 9. Community members diving to place the bricks with corals onto the sea bed.

In relation to Condition 5, this process of learning also bought the indigenous knowledges of the community back into the university, reshaping institutional arrangements through what we are calling 'catalytic events', in which understandings of the climate crisis and

ways to act are refigured through the PAR process. In the DUCE case, the catalytic event was a public dialogue on climate change, in which community actors were given a platform supported by powerful actors within the university (such as the DUCE principal) and by the press. As one CBO secretary emphasised, this event both provided a "showcase" for their indigenous knowledges, but also helped to sustain the intervention, as media reports raised its profile. The event, like the seed festival in Case Study one, thus opened space to sustain new ways of working and being, giving the PAR process itself a form of agency.

In the case of DUCE, pre-existing relationships that were founded in time and trust were instrumental to the co-production process, supported by a theory of change which drew on socio-cultural framings of the central importance of indigenous knowledges. The experiences of the Climate-U PAR initiatives in other contexts further highlight the importance of theoretically informed methodologies for fostering co-production. In the case of the three Brazilian universities which were engaged in PAR initiatives in partnership with communities and social movements, methods of co-production also aimed to bridge gaps between forms of knowledges and to build solidarity with marginalised actors. For researchers at the Federal University of the Western Pará (UFOPA), this included the application of a 'mandala of knowledge', which drew on a Freirean pedagogical proposal of articulation, integration and the interaction of knowledge around global bio-economies, recognising systemic injustices and collectively producing solutions. These processes of alternation and articulation were also central to the work of researchers at the Federal University of Pará (UFPA), whose methodologies aimed to bridge 'university time' and 'community time', alternating between the two spaces to co-produce knowledges around territorial governance.



Figure 10. Applying the mandala of knowledge.

The relationship between co-production and epistemic justice, linking Conditions 2 and 3, was recognised not only by our researchers but also stressed by community members of the PAR initiatives. As one of the leaders of a social movement engaged in the initiative PAR in the Federal University of Paraná (UFPR) emphasised:

"It's very important that it's also brought within the great universities, within the schools, right, also so that

it's understood that Indigenous Peoples have a role not only there in this struggle for their existence, but it's for the existence of all of us." (Juliana Kerexu, Cacique of the Tekoa Takuaty, February 10, 2023⁶, cited in Schwendler et al. 2023).

For the researchers in UFPR,

The realisation of such an undertaking necessitates a profound transformation of the university, moving away from the belief in its exclusive possession of valid knowledge. One effective approach to foster this knowledge exchange involves the university extending beyond its traditional boundaries, actively engaging with communities and social movements in a process of mutual learning and teaching. (Schwendler et al. 2023)

These forms of mutual learning and teaching, as the researchers in UFPR highlight, are not insignificant, but require a 'profound transformation'. Condition 3 considers how to foster such transformations in more detail, by considering the question of immersion.

Condition 3: Immersion

The literature on Participatory Action Research has outlined the importance of outsiders deeply immersing themselves in contexts and conditions of social exclusion and marginality. This process of immersion is advocated as a tactic to generate new sensitivities and awareness about particular social conditions and diverse values-systems. The 'journey through the margins' can disrupt potential hierarchies in processes of knowledge production, creating opportunities for marginalised voices and experiences to be expressed and recognised in their own terms. Within PAR literature, immersion is promoted not as a way of 'outsiders' to become one of the 'insiders', as embodied and structural power asymmetries are always present. Instead, it is advanced to situate knowledge exchange and collective action from the position of the oppressed. As a result, immersion can enable the recognition of silenced experiences and processes, while also triggering empathy and new understandings of the drivers and experiences of oppression and emancipation.



Figure 11. Participatory activity with school students living at the frontlines of the climate crisis in Brazil: 'my home, the school, the river, natural events & their consequences'.

6 We have given the name of this participant of the study with her consent, citing words which were spoken at a public event.

For the universities involved in the Climate-U PAR initiatives, the immersion of academics and students in communities experiencing the impacts of climate change was a way to promote the sensitivities and awareness about the interconnections between social, political and environmental processes related to climate change. In this sense, the emphasis of the immersion experience was on the experiences of oppression as well as people's relationship to their natural and physical environment. Immersions of Climate-U partners involved collective journeys to understand and experience social as well as ecological systems. In this sense, immersion is a key condition to take research and action of climate change to the 'frontlines' of experiences of climate injustices. These 'frontlines' are the places where the changes taking place to the environment are interconnected with processes reproducing and deepening social injustices. Frontlines are also the places where the responses and experimentations are taking place to mitigate and adapt to climate change in more socially just ways.

As we have discussed above in case one, epistemic immersion can be seen as "opening a Pandora's Box" (Santha et al. 2023), revealing the root causes of the climate crisis and connections between climate, social and ecological justice. In our experience, a diverse set of methodologies fostered these processes of epistemic immersion. This included role-playing activities, to enhance the understanding of different perspectives through a climate-justice lens (Katyaini et al. 2023), or methodologies such as creating a spider's web using a ball of rope, which aimed to highlight interconnections and build solidarity between members of climate-impacted households, students and faculty, as each was given the opportunity to express their voice, aspirations and concerns (Santha et al. 2023).



Figure 12. Using participatory methodologies to build solidarity with climate-impacted households in Tamil Nadu, India.

Immersive processes are thus both relational and socio-spatial. In our reflections on immersion in the Climate-U PAR initiatives, the idea of a journey as both mode and metaphor emerged as a particularly powerful one. PAR participants in DUCE (Tanzania), for example, reflected on the potential of 'travelling together', both metaphorically through the PAR process, and literally through their maritime journeys to plant corals.

The power of journeying was clear too within the PAR initiative of the University of Fiji, which centred around a celestial navigation programme for University of Fiji interdisciplinary staff and students,

on a Drua voyage to areas in the vicinity of the university's Saweni campus. The Vice Chancellor the University of Fiji, the Drua voyage was a guiding metaphor through which wholesale transformation of the university could be launched, more deeply aligning their education strategy in response to climate justice, fostering student agency through engagement with traditional ecological knowledge and practices, and meaningfully shifting teaching and learning processes:

"For the University of Fiji in particular, the Drua holds significance for reasons such as exploration of new islands, migration as well as inter-island trade and transportation. It has allowed transfer of indigenous traditional knowledge across the Fiji Archipelago, cultivating unity and a connection between the people and their cultural heritage. It is not only the reality but a metaphor for change. At COP23, which was chaired by Fiji, the Drua was used as a symbol of resilience and unity. It is an example of Fijian skills that exemplifies the resilience of the ancient cultures of the Pacific in the face of adverse impacts of climate change. Because of its significance, traditional knowledge on building and sailing the Drua needs to be documented for record and to ensure the tradition is kept alive.



Figure 13. Navigation by Drua, University of Fiji.

Using the concept of Drua, the University of Fiji embarked on a journey to realign its education strategy in building an appropriate knowledge-based society with a Fijian flavour, and providing quality holistic knowledge to the University community; staff and students alike. To do this, the University of Fiji is proposing to intersect the metaphors of the 'Drua Voyage' (a journey) and the ancient Indian educational concept of 'Gurukul' (holistic education) adopted by the founders of the University of Fiji, the Arya Pratinidhi Sabha, as its educational philosophy. This will provide the direction in higher education adopted by the University in these challenging times." (Shameem 2023).

Journeying together was also an essential moment of understanding for the researchers from the University of South Pacific, as the following case highlights.

Case Study 3: Solesolevaki - communal planning with the University of Fiji

The PAR initiative of the University of the South Pacific in Fiji was based in the coastal community of Vatutavui, working through Indigenous Fijians' cultural values of respect, reciprocity, care and cooperation. Solesolevaki⁷ was an integral part of the PAR, which aimed to restore the watershed of Vatutavui through planting 1000 native trees, connecting social and ecological justice by simultaneously addressing climate change and providing clean drinking water for a community disconnected from government services, and whose groundwater was deteriorated through local sugar cane production. The native trees were also felt to be able to provide shade, add minerals and contribute to overall soil fertility.



Figure 14. Learning more about native tree planting at Vatutavui community, Fiji.

In relation to Condition 1 around partnership, the PAR initiative of the University of the South Pacific aimed to connect with the full Vatutavui community, including men, women, youth and children. This ambitious aim was shaped by circumstances – the initiation of this PAR during the COVID-19 pandemic and 'stay home' policies meant that the community were more present, fostering deeper connections with the outside members of the PAR team, and deeper immersion through iterative visits. Before the native plants were sown, the USP Research team followed the Community Engagement Protocol (c.f., Climate-U 2021), and traditionally requested the vanua⁸ Vatutavui for the implementation of the USP PARG Activities. After the Vanua Vatutavui's approval, Veitalanoa⁹ and Talanoa¹⁰ were conducted to find out the communities' perception of climate change, its causes, how it is affecting their vanua, what they are doing to address these issues and what they recommend as best practices. Gradually, through the course of

these visits, the participants in the veitalanoa rose from 26 to more than 120 (representing over a quarter of the village community). Speaking to Condition 2 around co-production, these extensive discussions with different members of the community helped to generate collective aspirations and focus on the restoration of the watershed as the site of impact.



Figure 14. Veitalanoa with Vatutavui community members.

On one of their first visits to the village of Vatutavui, the USP researchers also undertook a long walk with elders to the top of a near hill, so that the village elders could explain how the community had been relocated more than three times. This immersive journey, speaking to Condition 3, helped foster far deeper understandings of the socio-economic context of the village of Vatutavui, and connections with the climate crisis. The current proximity of the village directly onto the water's edge was further raised by the women of the community in a veitalanoa as a key concern related to the climate crisis, as the sea had already claimed parts of the community boundary, affecting the food supply for the community households, and in turn led to a rise in domestic violence. For the women of the community, replanting mangroves was a socio-ecological concern. In veitalanoa with men, women and youth, emphasis was placed on the recognition of fading traditional cultural practices and knowledges around farming, as well as fishing practices.



Figure 16. Walking with Vatutavui elders and discussing the relocation of their community.

7 A socio-cultural concept that loosely translates to 'no man is an island', solesolevaki includes communal planning, implementation and monitoring of any chosen activity.

8 Land, sky, ocean and everything in it and how they relate with each other.

9 Indigenous Fijians' culturally acceptable way of communal sharing of information in the Vosa Vaka Viti Fijian language.

10 Indigenous Fijians' culturally acceptable way of sharing information between two people in the Vosa Vaka Viti Fijian language

In response to these early engagements, the USP researchers were also able to broker connections to the Fiji Government's Ministry of Forestry, providing native seed plant seedlings and one of their soil technicians in soil testing and selection of the planting sites, working with the Vatutavui elders. When the USP team returned a month later, some plants had been destroyed with the rising temperature. The elders of the community recommended that the plants be replanted and covered with dry leaves and grass to provide moisture, with small fences around them to protect from animals, drawing on their traditional knowledge and practices. Through the consistent visits and talanoa, these intergenerational learnings were shared, and adjustments made to enhance the PAR. Opening space for agency within the PAR in this way contributed to both community ownership of the process, but also to more equitable relationships with the ministry who might otherwise have been constructed as the sole experts in the tree planting process.



Figure 17. Vatutavui youth tend newly planted trees through traditional ecological practices.

Although the Fiji's Ministry of Forestry assisted with providing seedlings, they too did not have enough. For that reason, the USP Team through the Climate-U Fund, built a greenhouse to store seedlings so they can be reproduced for future use and installed a water tank to collect water for irrigation in the green house and for use during the dry season. Reproducing plants in the greenhouse also meant restoring more totem plants for the Vatutavui people. As mentioned by one of the ladies 'Sa oti e vasagavulu vakacaca na yabaki, au sa qai raica tu vakadua na neitou kau' - 'It is after 40 years, then I see our totem plant for the first time.'

Transforming institutional arrangements (Condition 5), narratives around climate change are currently being collected into 'big books' (named after their A3 size) to foster climate literacy within primary schools, drawing on intergenerational indigenous and traditional ecological knowledges and practices. The books were written by the elders and children of Vatutavui in the Vatutavui dialect and translated in English by the USP Climate-U Team.

Immersion in many ways thus represents the centre of the PAR initiatives, and the longest phase of the PAR research. It builds

on the processes of developing equitable partnerships, and the enactment of co-produced aspirations. From the experiences of the Climate-U initiatives, it is through immersive experiences that the deepest understandings of the root causes of the crisis were made, connecting social, epistemic and climate justice, and revealing structural injustices. In the following part of the working paper, we explore how agency is one pathway through which local action and these broader structural challenges can be navigated.

Condition 4: Agency

Participatory Action Research is fundamentally about activating, supporting and nurturing the agency of collectives to bring about social change. While recognising structural conditions driving injustices, PAR processes focus on exploring ways through which local action can build pathways for broader societal transformations. In the context of climate emergency, this connection between local action and broader structural challenges is extremely urgent.

In each of the different Climate-U PAR initiatives, the question of whose agency, and towards what impacts, looked very different. While the agency of marginalised communities is often recognised in literature discussing PAR, there is less work that recognises the impact which students can have on fostering transformative change within their institutions (Nussey et al. 2023). In many discussions in universities participating in the Climate-U initiatives, students often demonstrated a sense of disempowerment in relation to climate change. Climate actions have often been promoted as isolated and palliative efforts, targeting behavioural change, putting on the individual the responsibility to live a more sustainable lifestyle, rather than emphasising mechanisms to influence how economies function or political decisions are taken. As a result, students have shown that they share an awareness of the broader social and political drivers of climate change, while at the same time finding it challenging to think about how local action could contribute to contest these structural drivers.

Having said that, Climate-U university partners have systematically identified among student unions and groups, as well as marginalised communities experiencing the impact of climate change, the energy and motivation to mobilise for climate justice. If PAR is to enhance the capabilities of universities to respond to climate change, they need to support and nurture this protagonism of climate struggles by students, often (but not always) working in solidarity with frontline communities.

Focusing on the agency of students and communities calls universities to work through the actors and processes of these stakeholders. Instead of creating parallel structures of representation, learning, research and public engagement activities, universities focusing on climate action need to understand and align with the time, motivation and processes of students and communities at the frontlines of the climate crisis. A key lesson learned from Climate-U partners is that when this alignment is successful, PAR processes have much more likelihood to generate lasting and meaningful change. Furthermore, Climate-U partners

have also identified the need for universities to be unafraid to take a political stand and enhance the agency of groups advocating for the structural transformations needed to advance climate justice.

In each of the cases, the work to foster agency drew on the previous three conditions – drawing on equitable partnerships, focused on co-production and marginalised groups setting their own agendas, and deepened by socio-spatial and epistemic forms of immersion. Through these conditions, the space for agency could be expanded. The question of whose agency, and towards what impact, was situated and deeply contextual. One of the mini projects in the University of São Paulo in Brazil (Ambrizzi et al. 2023), for example, focused on supporting the agency of young leaders in their 9th year of school living in a community alongside the Ajuá stream in the city subject to climate-affected flooding. University actors working with these students in participatory mapping, with particular emphasis on fostering participation of black ethnic and female students, opened space for these young people from the periphery to share their climate report with city officials on the issues related to climate extremes in their community. In this context, a clear link was built to action, supported by the trust and solidarity of the University of São Paulo PAR group members.

Two universities also set up new hubs for thinking about climate justice – the Green Education Hub at Kenyatta university (the focus of case study 4) and the Green Office at University of Passo Fundo (the focus of case study 5). These hubs offered key spaces of alignment and connection, as well as enhancing collective agency, as the following case study shows.

Case Study 4: Climate ambassadors – student agency and the Green Education Hub, Kenyatta University

Students were an integral part of Kenyatta University's (KU) PAR initiative, which brought students and faculty members from the institution together with county and national governments, and organisations including Pan African Climate Justice Alliance (PACJA), GIZ Kenya and United Nations Development Programme (UNDP). While the faculty members were interested in greening the university curriculum, the students' interest was developing activity-based learning. Incorporating the different views in the design and implementation of an appropriate intervention led to two parallel actions: a critical review of one of the university courses to incorporate content on climate change, and the establishment of a Green Education Hub to coordinate students' efforts in climate action. These activities together responded to student interest in developing deeper engagements with the climate crisis, across different modalities of the university. Speaking to Condition 5 around institutional transformations, these twin tracks of parallel actions also aligned with several of Kenya's legal frameworks advocating for the strengthening of educational institutions' traditional roles of teaching, research and community engagement to address the climate crisis. For example, the Environment Policy of 2013 and National Adaptation Plan (NAP) (2015-2022) propose

integrating climate change adaptation in national curricula and designing public outreach activities on climate action. This policy environment provided a useful lever in launching the PAR initiatives at KU.



Figure 18. Students organise on Kenyatta University's first Green Education Day.

The Green Education Hub was launched at KU on 11th May 2022. The Hub consolidates the numerous efforts carried out by the KU students' clubs on environmental protection and climate action. The Hub's activities include research on green education, climate change, and sustainable development. Materials that disseminate climate information, such as documentaries, photographs and art paintings, are housed and displayed at the Hub. The materials are used for teaching and learning purposes and broader dissemination of climate information. One of the primary roles of GEH is coordinating the implementation of the Green Education Day (GED) activities, in which greening activities provide the students with a platform to acquire skills for engaging in practical climate action initiatives.

The Hub works closely with several student clubs such as Kenyatta University Environmental Club (KUNEC), KU-UNESCO, Art Therapy, Swahili Stadia, KU Panthera Scouts, Skating Club, KU Birding Club, and Amazing Minds to co-create the teaching and learning materials. KUNEC is among the oldest student clubs at Kenyatta University, formed in 1992 and has been engaged in various activities such as tree planting, clean-ups and training students and the public on responsible consumption and production. KU-UNESCO focuses on advancing the circularity agenda by creating products such as bins from recyclable waste, while KU Birding Club sensitise the students on the importance of birds as key environmental indicators. Art therapy documents local and global environmental issues using portraits and paintings and uses them to raise public awareness. Swahili Stadia's primary activity is simplifying the complexities of climate change and environmental challenges by producing books in Kiswahili targeting learners in all training levels. KU Panthera Scouts and Skating Club and Amazing Minds support environmental conservation efforts and climate change advocacy activities at Kenyatta University by mobilising students to attend the events. The collaborations with each of these clubs was student-led, taking the research in directions not necessarily anticipated by the researchers.



GEH also gives a platform for individual students to have hands-on experience during Green Education Days. Over 200 climate ambassadors from all KU faculties have signed up to advocate green education during these days and other events. Among the activities during Green Education Days are themed climate change awareness walks, protests and educational sessions to raise awareness about climate change and encourage the university community and public to act. These are driven by the agency of the student climate ambassadors who have also shaped new forms of knowledge production and generation, through art, music and social media.



Figure 19. Student artwork displayed in Kenyatta's Green Education Hub.

In all of the examples in the Climate-U PAR initiatives, it was the connection between knowledge and action that became so meaningful. These connections were not only meaningful for students and marginalised groups, but also for the research team. As a researcher in DUCE, Tanzania, explained, "this experiential learning...has opened my eyes" (Mazigo et al. 2023). For researchers in many of the different Climate-U initiatives, agency to develop new ways of working was fostered by the PAR process, building new arrangements that aimed towards climate and epistemic justice. The following part of the working paper considers these in more detail.

While agency is thus an important condition for enhancing universities' contributions to climate justice, it is not a sufficient one, and it is important that the responsibility for the success of PAR initiatives is not placed on those with the least power and resources. Our final condition, around institutional transformations, aims to also call into question some of the hierarchies and structural constraints on agency.

Condition 5: Transformative Institutions

As Climate-U academic partners started to mobilise PAR principles and methods to advance climate actions, and to reflect deeply on climate injustice within their contexts, it started to become apparent that they needed to bring about institutional change within their universities. Part of the preparatory work to the set-up of their climate action initiatives involved the analysis of the universities'

as well as governments' policies relevant to the role of universities in addressing climate change. It also involved the analysis of the universities' governance system, to assess the incentives as well as obstacles for the university to mainstream socially just climate actions. From these analyses it became clear that there is often a lack of coordination around the various climate actions undertaken by different academic actors, and there is not enough resource allocation to encourage climate actions that are student-led or co-produced with community actors. In this sense, Condition 5 around transformative institutions both signals the importance of responses to the climate crisis, but further to the ways in which meaningful engagements with processes associated with the previous four conditions requires profound transformations of the university. Transformative institutions were those which were willing to challenge ossified and hierarchical structures, and to build new ones. They were responsive to diverse needs and interests, and genuinely inclusive, beyond greenwashing or performative statements to diversity. Transformative institutions opened space for different types of actions and knowledges, new norms and procedures both in formal and hidden curricula, and new structures of governance.

Based on these analyses, university partners started to conceive of the PAR initiatives as a mechanism to influence and deepen their understanding around these institutional arrangements, processes and procedures. For some partners it involved creating a new entity within the university that could be addressing these institutional challenges and advancing new ways of working around this topic. It also meant setting precedents on these different ways of working, by funding and disseminating concrete innovative projects and initiatives. Furthermore, in some cases it also involved advocating for broader political commitments and policy frameworks that can create a more enabling environment for universities to generate socially just climate actions. A key learning for us has been that PAR principles and methodologies have put into focus that for universities to enhance their capabilities to respond to climate change, they need to put in place institutional arrangements, policies and procedures that support the development of partnerships, enable co-production, facilitate immersion activities, while nurturing the agency of students, staff and communities to bring about change. This completes the circle between the five conditions, in which transformed and transformative institutional arrangements are linked to each of the other four in dynamic ways.

Within these PAR initiatives, emphasis was often placed on pre-existing institutional values which could be deepened to further climate justice. In the cases of Kisii University and Kenya Methodist University, institutional leadership was also vital for aligning aspirations with actions: key members of the PAR group involved in the design and introduction of a new course included key members of senate, the academic decision-making body, and members with leadership positions at departmental levels. The visibility of the participation of these members in the PAR initiatives raised the profile of catalytic moments – such as the symbolic planting of trees – and potential shifts within the organisational culture of the institutions.



Figure 20. Vice-Chancellor of Kenya Methodist University, Prof. Gichoya, planting a native tree at Kenyatta University

Other research within the Climate-U work has highlighted the importance of policies as an enabling environment (Nussey et al. 2023; Molebatsi et al. 2023). Many of the Climate-U PAR initiatives bore out this analysis, drawing on diverse policies to support their work. This included policies at different levels and scales. At the institutional level, for example, KeMU's vision statement around "producing the next generation of professionals and transformational leaders" became key language to frame the curricular revisions that the PARG were undertaking. Others worked at regional levels and with distinct regional values. The community protocol and sites of impact which framed the PAR initiative by Fiji National University, for example, usefully articulated with the provincial council's five platforms of good governance, wellbeing, economic empowerment, climate change and conservation, and Vanua and traditional leadership. A final set of PAR initiatives engaged with international frameworks such as the Sustainable Development Goals (SDGs), as is the case of the University of Passo Fundo, below. Drawing on the framework to articulate the aims of the Green Office, and combining this work through PAR principles taken into the space of the university through students and faculties' agency and actions, became instrumental to the success of this PAR.

Case Study 5: University of Passo Fundo and the establishment of a Green Office

Through condition 5 - transformative institutions - the establishment of a Green Office at the University of Passo Fundo (Brazil) became a space of connection: first, between different disciplinary approaches to climate change and sustainability across UPF; second, as a space fostering horizontal interactions between staff and students; and third, between actors within and outside the university. This raised the profile of climate change education across the institution as well as within external spaces including local schools and communities. As a representative from local government, Secretary of Education, remarked at a stakeholder meeting (23/03/2022), "it certainly met expectations. Our school now has a cistern that can be used for teaching activities, making

observations, and developing scientific thinking." As another mini-project lead, focused on climate change education at farmers' markets local to UPF, highlighted, "it is through smaller actions that we are able to take the concepts of sustainability to the entire community. These actions are very important." The case provides evidence of raising public awareness of sustainability and the climate crisis amongst key local stakeholders, as well as amongst the student and staff body. The coordinating and connecting role of the Green Office was both able to create and support new forms of educational initiatives and to magnify existing work within the university and following the universities' mandate for community engagement.

Speaking to Condition 3 around immersion, the experience of UPF in creating a new space for climate and sustainability concerns within the institution particularly fostered socio-spatial encounters within the institution. Students and the wider community visited the medicinal garden, for example, learning about the use of different plants and experiencing the importance of urban gardens. In many of the different mini-projects, the physicality of this learning was emphasised by researchers. As one member of a mini project which used cubes to prompt discussion of the SDGs highlighted, "we believe that we have built important tools that arouse curiosity and in a playful way enhance learning for all ages. The SDGs cubes allow learning through touch and handling, allowing an open question on one side of the dice, stimulating the creativity of teachers and students."



Figure 21. Workshop led by UPF's Green Office using SDG cubes.

Linking to Condition 4 around agency, particularly agency of students, using PAR-inspired methods to set up the Green Office also opened specific space for students' aspirations and values to drive actions, for example around recycling - by allocating funding to PET bottle recycling or setting up an educational game with local public schools on the topic. As one female business student noted, "[It is important to me to] make a difference in the environment in which I am inserted...always aiming to improve the quality of life of ours and future generations".

One of the challenges of the Green Office as a site of impact, however, was how best to connect to most affected people and areas, and extending a focus on marginalised groups beyond the institution itself. As our researchers noted, related to the diversity of the PAR members, disadvantaged students' participation in the PAR waned over time, as they struggled to balance paid employment with the challenges of their studies. Thinking about ways in which the aspirations of these students in particular might differ from that of their peers might be one way to respond to this challenge. For the future of the Green Office, it would be important to continue to consider ways in which student agency and PAR-inspired engagements might shape the agenda of the work going forward.

In many of the universities, transformative changes to structures and spaces such as curricula or hubs was supported by catalytic events that drew on student agency and organising to raise the profile of climate justice and shift organisational cultures. These events made connections between campus operations and curricula, formal and hidden curricula, and action-based learning. In some cases, these were driven by community agendas, and involved immersion by the community into institutions. In the case of UFOPA, for example, participants from an Amazonian region where the PAR initiative was based travelled into the university, representing 'fireflies' for their community who were seen as knowledge-bearers within the institutional space.



Figure 22. Agroecology, climate change & peasant women's resistance seminar, Federal University of Paraná

In other contexts, the university pedagogies were reversed, as undergraduates in, for example, the Federal University of Paraná (UFPR), were taken outside of the university to participate in dialogues with a community concerning agro-ecological production, facilitated by the Landless Rural Workers' Movement (MST) in collaboration with Via Campesina¹¹, in the Contestado settlement within the municipality of Lapa. For researchers at UFPR, this important moment fostered a new form of knowledge production that reframed community members and organisers as bearers of expertise and knowledge, and engaged in meaningful dialogue with the resistance experiences of peasant communities.

11 An international collective encompassing diverse peasant social movements, including MST.

Finally, in the case of Kenya Methodist University (KeMU) there are also ongoing efforts to translate qualitative research with indigenous elders (Muchiri et al. 2023) into a library archive for students. In this sense, work is ongoing that focuses on epistemic justice, and a bi-directional approach to ecologies of knowledges.

For the coordinator of the PAR initiatives in UFPA, this was encapsulated in the slogan "Vamos Amazonizar a universidade!" – "Let's 'Amazonize' the university!" – and his writing in a poem inspired by the PAR work and the longstanding relationships which it drew on:

*the Amazonian lives, human and non-human, matter!
Amazon alive, it matters!
The lives of the peoples of the Amazon matter!*

*Our territories are continually threatened,
With the advance of illegal mining and logging,
With the impacts of large projects
With climate changes caused by business agents.*

*Down with managerial environmental protection,
We fight for climate justice,
Accountability of those who cause climate change,
Climate justice is not restricted to the environment,
Climate justice is a human rights issue!*

*Let's Amazonize the World!
With the Amazon Alive!
Let's Amazonize the University!
Learning from the people of the countryside, the waters
and the forests!
communities that are in the coastal area, and the university
can support us in this sense of building joint data that we
can fight, so that we get support for relocations if we have
to relocate, or, right, that the government does something
in this sense, that we do not have to do everything
ourselves, I think that's it. (September 2, 2022).*

(Poem by Professor Salomão Hage, Climate-U Associate Researcher, UFPA)

Concluding Reflections

The experiences of our Climate-U initiatives highlight both the importance of drawing meaningfully on PAR-inspired methodologies, but also raise many of their challenges. By their nature, universities are hierarchical institutions, in which internal dynamics and political frictions need to be carefully navigated. The interdisciplinarity of the climate crisis calls for critical-political stances that are fostered by PAR, and which broaden the scope of engagement beyond the technicist. But the historical and contemporary ways in which universities have contributed to the climate crisis mean that the transformations needed are profound.



Figure 23. Excursion to connect with nature, and discuss how climate change impacts biodiversity, human lives and livelihoods.

In our experience, PAR offers a pathway to begin to work with justice, in ways that move beyond greenwashing, and business-as-usual approaches.

Our experience has also highlighted the importance of understanding the university as an assemblage of actors not just spaces, meaning that what constitutes the ‘university’ is bounded in different contexts in different ways. Mapping entry-points into these spaces and pre-existing processes has been a critically important way to start. The experience of many of the Climate-U partners in working within and outside this space in alternating ways, and over different forms of ‘community’ and ‘university’ time, has also been shown to be central.

One of the questions that remains for us as a collective, is concerns around bi-directional learning, and the ways in which epistemic justice can truly be fostered. For us, this question is not just one of social forms of justice and deep access to universities as institutions, but of our relations with nature and the non-human. How are spaces for immersion of nature into the university created? Working with the five conditions outlined in this working paper, and aiming towards climate justice, has raised the centrality of this question, and in our view expanded the scope of the PAR methodology. This question will remain as we approach our MEL strategies, and as we reflect on the ways in which the types of change measured in Table 1 need to go further, and reflect the diagnostic, transformative and transgressive forms of learning that addressing climate justice calls for.

Acknowledgements

This study forms part of the Transforming Universities for a Changing Climate (Climate-U) research project, funded by the UK Economic and Social Research Council as part of the Global Challenges Research Fund. Thank you to Knema Gardner for design of this working paper.

References

- Ambrizzi, T., Rehbein, A., and Dutra, L. (2023) *University of São Paulo participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Brandli, L., Salvia, A., and Mazutti, J. (2023) *University of Passo Fundo participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Brasileiro, T., Gomes, L., Sadala, K., Gama, A., de Souza, L., Carvalho, E., Godinho, D., Cardoso, A., Amorim, E., Godinho, M. and Cardoso, J. (2023) *Federal University of the Western Pará Institute of Educational Sciences participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Climate-U (2021) *A protocol for participatory action research into climate justice: principles and tools*. Transforming Universities for a Changing Climate Working Paper Series, No. 3.
- Hage, S., Pereira, E., Barros, O., Lima, M., Castro, W., Tavares, G., Ribeiro, C. and Araújo, M. (2023) *Federal University of Pará participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Harjatanaya, T., Ferary, D., Sarhindi, I. and Meilani, R. (2023). *Interim Report: ESD Module Development at Satya Terra Bhinneka University*. Unpublished report, Climate U.
- Katyaeni, S., Nayak, B., Katyal, B., and Amlathe, A. (2023) *Tata Institute of Social Sciences (TISS Hyderabad campus) participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Kitagawa, K. (2023) *Researcher Positionality in Participatory Action Research: Climate Justice for Indigenous Communities*, Transforming Universities for a Changing Climate, Working Paper Series No. 13
- Lagi, R., Waqailliti, L., Veisa, F., and Robaigau, A. (2023) *University of South Pacific participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Mazigo, A., Mwita, E., Machumu, M. and Mayenga, J. (2023) *Dar es Salaam University College of Education participatory action research (PAR) final report*. Unpublished report, Climate-U.
- McCowan, T. (2020) *The impact of universities on climate change: a theoretical framework*. Transforming Universities for a Changing Climate, Working Paper Series No.1
- Nussey, C., Sanchez Tyson, L., Bogitini, L., Lange Salvia, A., Mazutti, J., Munene, K., Waqailliti, L., and Molebatsi, P. (2024, forthcoming). *Climate change in policy agendas and frameworks: what role for higher education?* Transforming Universities for a Changing Climate Working Paper Series.
- Muchiri, J. M., Mugambi, M., and Gitonga, P. (2023) *Kenya Methodist University participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Nabobo-Baba, U., Wong, J., Sarasau, M., Natuilagilagi, M., Toga, K., Vuetaki, L., Baleisomi, S., Bogitini, L., Gabriel, M. (2023) *Fiji National University participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Nabobo-Baba, U. (2006). *Knowing and Learning: An Indigenous Fijian Approach*. Suva: Institute of Pacific Studies, The University of the South Pacific.
- Nussey, C., Frediani, A., Lagi, R., Mazutti, J. and Nyerere, J. (2022) Building university capabilities to respond to climate change through participatory action research: towards a comparative analytical framework, *Journal of Human Development and Capabilities*, Volume 23, Issue 1, pp. 95-115.
- Nussey, C., Sanchez Tyson, L., Dandare, K., Perry, J. and McCowan, T. (2023) *How are universities responding to the challenges of the climate crisis? A systematic review of literature*. Transforming Universities for a Changing Climate, Working Paper Series No.14
- Nyerere, J., Kaburu, J., Opinde, G., Muthoni, P., Okinyi, R. and Mutuma, W. (2023) *Kenyatta University participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Sasidevan, D. and Santha, S. D. (2023) *Tata Institute of Social Sciences (TISS Mumbai) in partnership with Hooga Seeds Keepers and GoodLiving. Eco. Participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Schwendler, S., Teixeira, C., Isaguirre-Torres, K., Estades, N., Wisniewski, J., do Amaral, M., Guillermo, S., Garcia e Silva, V. and Tomal, V. (2023) *Federal University of Paraná participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Shameem, S. (2023) *University of Fiji participatory action research (PAR) final report*. Unpublished report, Climate-U.
- Shitandi, A., Awuor, F., Maobe, A., Maake, B., Oyaro, E. and Marumbu, E. (2023) *Kisii university participatory action research (PAR) final report*. Unpublished report, Climate-U.