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Environmental Humanities - An ENGAGE-ing Pedagogy and Praxis

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ABSTRACT

Environmental Humanities (EH) is an emerging domain, with humanities taking the forefront in critically exploring nature-culture interactions, and making us cognizant of what is not natural in nature. Drawing insights from (and beyond) political ecology, EH enables us to perspectivize and interpret the world from a more-than-human perspective towards "multispecies flourishing," and takes a transdisciplinary approach to not only understanding the world but also transforming it. This write-up provides an overview of environmental humanities as a dynamic domain, and an ever-expanding and enriching frame of mind and movement, a conviction to collectively see and comprehensively understand complex and coupled socio-ecological systems within the contemporary context of the global environmental change. Using examples from three empirical case studies – as part of three international projects (being) executed by the interdisciplinary team pursuing EH at IIT Kharagpur, this article makes the audience enter into the exciting world of EH where findings are generated and actions are enacted along application of wide range of multi-modal approaches and their intersections – from arts-based pedagogies and ethno-visual immersions to participatory mapping and multi-stakeholders' plurilogues and exchanges. The article demonstrates why and how EH is an engaging pedagogy and praxis through which possibilities of a just and desirable Anthropocene can be crafted.

Setting the Context

"Environmental Humanities – you are offering this to BTech students affiliated with a wide range of natural sciences and engineering domains from computer science to architecture, physics to aerospace, impressive! But, is there any hope during the Anthropocene?" interrogated the expert, well versed in quantification, convinced in welfare economics, yet disenchanted in nation/state-led initiatives along his more than four decades of training in development studies. Drawing random examples from a wide range of topics such as inappropriate assessment frameworks to (qualitatively) evaluate the Clean India Mission to politics of aerosol loading in the pan-Arctic region, his declensionism was the direct outcome of his learned disillusionment, exacerbating with contemporary human-induced planetary spoilage and its cross-scale connections and complexities. I immediately counted on Anna L. Tsing (2019) and responded, "Yes, we are in the Anthropocene. We need to acknowledge catastrophe, but also imagine possibility." Possibilities – in the forms of collective concerted actions, by garnering "radical hope," as John Lear (2006) proposes against "ontological certainty of the scalable hope of modernist or monotheistic optimism" (193) and through recognition and accommodation of multiple registers of knowledge and (more-than) human (curious) collaborations, intra-actions, and enactments.

But who are the actors and the audience? What is the time-space and cultural scales to gauge and imbibe the undisciplined wavelength of Environmental Humanities (EH)? What is EH after all, and why and how is it relevant, and for whom?

While commenting on political ecology, Paul Robbins (2013) says that it is a "community of practice." Drawing insights from (and beyond) political ecology, EH is etched with similar notional and praxis-oriented pathways. In the 'About the Series' section of *Routledge Environmental Humanities* book series, the editors talk about engagements "…with contemporary environmental challenges through the various lenses of the humanities…to explore foundational issues in environmental justice, multicultural environmentalism, ecofeminism, environmental psychology, environmental materialities and textualities, Traditional Ecological Knowledge, environmental communication and information management, multispecies relationships, and related topics" (Slovic, Adamson, and Masami ongoing).

EH thus emerges as a dynamic, expanding, and enriching frame of mind and movement, with humanities taking the forefront in critically exploring environmental/nature-culture issues, making us cognizant of what is not natural in nature. Yet, at the same time, there is awareness and acknowledgment of humanities' limitations to analyzing and apprehending environmental trajectories, awaiting technical investigations relying on laboratory experiments, simulation tools, sophisticated GIS, and big data. The key motto and rationale of EH is collective seeing and comprehensive understanding of complex systems (Norgaard and Baer 2005). And this in turn calls for a sharp transdisciplinary twirl apart from and along with interdisciplinary pursuits. After all, land, water, poverty, migration, disaster, resilience, etc. cannot be adequately tackled by specific individual disciplines! Even integrative disciplines evolved along cross-fertilized compatible and complementary hard and soft sciences fall short in offering nuanced and in-depth frameworks to unravel these multi-layered, multi-dimensional issues, constantly shifting within space-time realms. "They

clearly represent transdisciplinary challenges." M.A. Max-Neef (2005) proposes three laws of transdisciplinarity based on the three pillars of – (1) levels of reality; (2) the axiom of the included middle; and, (3) complexity. He provides strong philosophical foundations in propagating the "transdisciplinary exigency" (Mukherjee et al. 2022) by not only "knowing" but also "understanding" the world. However, the transdisciplinarity that EH envisions is beyond radical epistemologies and towards an "engaged praxis" (Braun 2015) through "epistempathy" (Mukherjee 2022) deployed across the widely pervasive and all-encompassing Integration and Implementation Sciences (i2S) framework (Bammer 2013).

This write-up fleshes out an EH journey along three projects by our interdisciplinary team committed to pursue solution-centric research, convinced in the dictum of transdisciplinarity as a 'way of life' (Rigolot 2020) towards a desirable Anthropocene.

Engaging with the EH Agenda: Empirical Presentations from Three Projects

1. *The Adi Ganga*

Our ongoing work on the Adi Ganga-Tolly's Nullah are outcomes of a two-decade journey of exploring, mapping and encountering the river-canalscape, making us attentive to pluriversal human accounts and more-than-human agencies imperative to reify this ecosystem (Bhattacharya et al. 2023) beyond superficial restorative and beautification attempts.

While the severely polluted water tract and almost stagnant flows beneath the Alipur Bridge on the way to the National Library or the Naktala, Kudghat, Garia stretch confirmed her existence only as a sewerage conduit used and exploited by the vicissitudes of ever-expanding urbanization, few unused boats on the clogged-muddy riverbank spoke otherwise, indicating her variegated forms of historical existence – "…the past disconnected from the present and posterity, and confined in some records and documents which are no more significant, and memories fading away with age and contexts" (Mukherjee 2020: xi).

Archival research that included consultation of colonial archives in the form of revenue, public works and engineering data, complemented with conventional ethnography was time consuming yet prerequisite to comprehend critical understandings about the route, rise, and decline of the river-canal system – colonial 'acts of improvement' (at times) causing impediments to her natural flows and interactions, when the colonial 'calculus of rule' (D'Souza 2002, 2006) was prioritized over other existential realties, essential for shaping identity and agency.

The EqUIP project funded by EU-ICSSR enabled the methodological expansion from (conventional/mainstream) ethnography (qualitative interviews and group discussions) to 'ethno-graphy' (combining interviews with sketches). As an interdisciplinary environmental social sciences research team, the project provided us with an exciting opportunity to combine integrative disciplines, approaches, methods, and techniques. The methodological shift was also philosophically and phenomenologically promising! The river-canal ecosystem evoked the efflorescence of interactive-immersive-innovative-inclusive ways of narrating her own story – otherwise suppressed, cornered, and unnoticed in mainstream narratives as part of "deliberate amnesia" (Bhattacharyya 2018) or inadequate trainings and

exposures to the "art of noticing" (https://vimeo.com/98663761).
These fresh and new onto-epistemological encounters and exposures made way to viable pathways of exchanges and engagements to collectively understand this rich, complex, and diverse riverscape towards meaningful, sustainable and resilient restorative strategies, accommodating plural actors, agencies, and enactments. The IIT Kharagpur-SEARCH seven-day workshop witnessing conversations among academia and practitioners and on-site and classroom sessions for emerging architects, efforts to trace and track varieties of activism (Mukherjee, Bhattacharya, and Bose 2022) delineating diverging and converging interests of social stakeholders and power equations in designing urban ecoscapes – can be considered as important steps to debate, discuss, and discard top-down technocratic approaches using comprehensive and 'pluralistic water' perspectives (Evers et al. 2017).

2. *Practical Empirical Implementation Project on the East Kolkata Wetlands*

The 12,500 hectares East Kolkata Wetlands (EKW) is a fascinating feat of engineering and indigenous technologies showcasing one of the best lessons of wise use resource recovery practices, integrating robust hydrological interventions and locally adaptive techniques and tactics of sustainable use of ecosystem services. The evolution of EKW is rooted within the rich history of the making of urban nature spanning across colonial and contemporary times – what has been described as "sustainable flows" the city and her wider ecological infrastructures.

The wetland ecology is a vivid illustration of more-than-human entanglements and agencies, collectively determining successful fish harvests in wastewater. The functioning of the system is ensured by (un)expected and dynamic interactions between technological apparatuses and social arrangements, human participations and non-human involvements, evident through the different stages of simultaneous fish production and cost-effective municipal sewage treatment, assuring survival and sustenance of the city and the wetlanders.

However, this space is also the bone of contention surrounding the vested interests of various lobbies –construction mafias, the state, civil rights agencies, environmental NGOs and other local actors stratified along their positionalities, ambitions, and relationship to the wetlands. Through the application and efficacy of the HUPE (historical urban political ecology) framework, Mukherjee (2020) maps the converging ambitions of multiple stakeholders, fostering 'exchange flows' among them towards greater understanding of connected wetland components and concerted actions. But what could be the practical templates to achieving these egalitarian dialogue and interactions (Freire 1996) – the small coordinated steps in reaching the destination through a scientific-democratic, participatory process promising collective agencies and actions?

It is within this context that our Practical Empirical Implementation Project (PEIP) on EKW becomes relevant and eye-opening, unveiling avenues towards multiple ways of knowing and exploring the wetlands, forging multispecies justice. To advance Sustainable Development Goal 11 of the United Nations i.e., making cities and human settlements inclusive, safe, resilient and sustainable, the Global Center of Spatial Methods for Urban Sustainability (SMUS), Action 4 – 'Exchange' funded Practical-Empirical Implementation

Projects (PEIPs) to understand and apply an ethnovisual toolkit to critically map urban spaces. Facilitating conversations between academia and practitioners, the larger agenda of the initiative is the production of a roadmap for a future research agenda on urban sustainability with the aid of spatial methods. Against this global call, our specific PEIP aims to effectuate SDG 11.4 i.e., strengthening efforts to protect and safeguard the world's cultural and natural heritage by getting familiarized with multiple and conjoined elements and aspects of the rich and complex EKW.

It involves and elicits combined participation and engagements of academia, community-based organizations, cooperatives, government agencies, and statutory bodies to co-explore and ethnographize wetlands for greater awareness and understandings on the mutual interdependence between the urban and its wider environmental surroundings. Through the exposure to and application of 'ethno-graphy' – an interactive-immersive method integrating conventional ethnography (qualitative interviews) with graphical/visual components such as participatory photography, videography, and cartography, school students from wetland schools are co-learning about wetlands with researchers from IIT Kharagpur, taking that knowledge and sharing it with the practitioners to qualitatively enhance their social competence while they function within everyday spatial and institutional realities dotting this wastewaterscape.

This has been a stimulating exercise unfolding (un)known terrains, trajectories, technologies, techniques, and mechanisms imbricating the more-than human tapestry of Kolkata's wetlands through phenomenological immersions, scientific exchanges, and participant observations along transdisciplinary engagements – dismantling barriers between academia and practitioners, trainer and trained. The macro roles of microorganisms such as coliform bacteria have been documented along with the entrepreneurial zeal of women from fishing households in weaving carpets and mats using ecosystem services from wetland flora. Beyond many meanings of this living systems infrastructure, the students have captured (through vibrant photographs) multiple shades of wetlands, transecting *bheris* (wastewater ponds) and conversing with fishers, cooperative members, and government project managers under the scorching heat of the sun, and submerging in her soundscapes during lonely sunset hours.

3. *ENGAGE-ing in, for, by, and with the Sundarbans*

The first encounter of the IIT Kharagpur team in January 2021 with the (Indian) Sundarbans during the post-first COVID wave of the lockdown period was eye opening. Our boat navigated from one island to the other and reached Kumirmari island village on day three. This village appeared to be special and unique in terms of willingness and keenness of villagers, especially women to share their stories of resilience against climate change in the form of coupled socio-ecological challenges such as frequent cyclones, breaking of embankments, salt water intrusion, etc. They narrated their own experimentations in inland fishing in their household ponds against increased risks of tiger attacks and stringent legal enclosures in mangrove-based fish and crab harvesting during the recent times. Though they were convinced about the viability of inland fishing in household and cooperative village ponds and cooperative canals, yet, they were aware about inadequacies in the experimentation process as an outcome of their lack of scientific training escalating

productivity.

Our team was overjoyed and awestruck to sense community agency and anchorage in the soil of Kumirmari. They were not mere victims or passive spectators of climate change but coping actors, using innovative techniques and improvisations to earn livelihoods, awaiting transformation to adaptive managers with demand-driven small interventions and support from other actors such as scientists, non/government fisheries departments and agencies, and grassroots volunteers.

A practical template to work together commenced through our very first interactions itself, preparing us to co-design and develop a collective pathway of vision and actions.

The outbreak of cyclone YASS in May 2021 in the midst of the pandemic and the knowledge to action (K2A) small grants opportunity for projects with potential to translate academic research into tools and processes that support awareness, advocacy and transformation of the UN Sustainable Development Goals (SDGs) under the aegis of Swissnex, elicited the morale and motivation of our to actuate action research in Kumirmari – one of the most remotest islands in the south-eastern Block of Gosaba – isolated, ignored, and bearing the brunt of indifference from the state. However, these most vulnerable islands are now gaining the limelight in international debates and discourses on climate change with 'managed retreat' offered as the only solution to save the islands and islanders from the evils of climate change. The K2A project had very limited funding provisions, but it expanded our vision and motivated each of the actor groups to come out of their own cocoons and collectively engage in solution-oriented research to demonstrate why retreat is top-down and 'staying' is the most desirable option for the communities who had co-habited the islands with other (in)animate species and were aware about the tricks and rules of the game.

Through the project, we applied ethnography and organized knowledge coproduction workshops to harness stakeholders' awareness, participation, involvement, and engagement to finally co-create a training module documenting assembling scientific knowledge and situated adaptive practices shaping inland fishing in Kumirmari. The project followed multi-methodological formats to extract information from a 'participatory systems mapping' (Barbook-Johnson and Penn 2021) including trust-building exercises between academia, practitioners and user groups. The prototype training module was ready within a year but the community wanted us to validate it through hands-on experimentation with a selected village pond as the validation space. The ongoing participatory could draw international recognition with systematic planning of large-scale interventions in Kumirmari and with larger pool of funds and networks in transboundary Sundarbans that can be considered as the continuation of the journey which started on a sunny day of January 2021 in the Sundarban Bari of Kumirmari, where we assembled and talked to each other for hours, agendizing 'epistempathy' as part of our spontaneous exchanges.

Establishing and Executing the Transdisciplinary Imperative

The EH is spreading and spanning across university curricula, with EH teaching, "…centering on how the field is being defined, shared concepts and ideas, interdisciplinary

pedagogies, and the centrality of experimental and public-facing approaches to teaching" (O'Gorman et al. 2019). Hard core academia and outreach, arts-based pedagogies, ethnovisual immersions, multi-stakeholders' exchanges enable EH researchers to embrace expansive and egalitarian perceptions and perspectives – where, beyond an Anthropo-centric worldview, we develop and nurture critical faculties to acknowledge and appreciate more-than human interactions and intra-actions that shape, and in turn, get shaped by (more-than) planetary systems (Jones 2011).

EH provides exposition to the unexposed, recognizes macro roles of microorganisms, and most importantly, not only establishes and attests the "transdisciplinary exigency" (Mukherjee et al. 2022), but also acts as an enabler to craft viable transitions through multi-modal methodological experimentations to convey storylines of complex ecoscapes that prevail and persist as coupled human-ecological dynamic systems.

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