



Fig. 1
River Akalappuzha in
Kerala, India. By the
authors.

Stories from Akalapuzha

Reading Rivers as Systems and Places

Naeema Ali¹, Inge
Bobbink², Monica Veras
Morais³, Amina Chouairi⁴,
Amritha P K⁵ and Anjana
Bhagyanathan⁶

Kerala's rivers, lakes, backwaters and beaches are central to the state's ecological, economic and socio-cultural identity. Renowned both as tourist destinations and as vital spaces for local communities, these water bodies have long served as settings for stories that reflect Kerala's unique relationship with water. This essay emerged from a field visit to Kerala, where the editorial team of this book was invited by the National Institute of Technology Calicut through a graduate of the Circular Water Stories (CWS) lab, who had worked on the Kuttanad Kayalnilam Agrosystem. During the visit, the team conducted a workshop with Indian colleagues and students. Presented as a diary, the essay reflects on these exchanges and explores how shared experiences and local perspectives contribute to an understanding of Kerala's water landscapes.

1 Ir. N. Ali, Witteveen+Bos,
United Arab Emirates;
naeema.ali9@gmail.com
0000-0002-3498-3397

2 Dr ir. I. Bobbink, Department of
Urbanism, Faculty of Architecture
and the Built Environment,
Delft University of Technology,
the Netherlands
0000-0002-3130-7369

3 Dr ir. M. Veras Morais,
Department of Urbanism,

Faculty of Architecture and the
Built Environment, Delft University
of Technology, the Netherlands
0000-0002-0223-7429
4 Dr ir. A. Chouairi, Landscape
Architecture and Spatial Planning,
Department of Environmental
Sciences, Wageningen University
& Research, the Netherlands
0000-0003-3218-0782

5 Dr Amritha P K, Department
of Architecture and Planning,

National Institute of Technology
Calicut, India
0000-0002-2503-7120
6 Dr Anjana Bhagyanathan,
Department of Architecture
and Planning, National Institute
of Technology Calicut, India
0000-0002-2596-7619

[https://doi.org/10.59490/
mt.213.108](https://doi.org/10.59490/mt.213.108)

Water is a leading character in the Booker Prize-winning novel *The God of Small Things* (Roy, 1998) and in other popular novels, such as *The Covenant of Water* (Verghese, 2024). They depict water as a visible or invisible force that channels the lives of communities living beside it, connecting the past, present, and future. However, from a sustainable development perspective, Kerala's water bodies stand at a crossroads. A recent census by the Union Jal Shakti Ministry or Ministry of Water Resources for India reveals that out of Kerala's 55,734 water bodies, more than 9,000 are abandoned, with many suffering from encroachment and pollution. Back in 2008, the state's own Water Resources Department identified and recognised the need to adopt an 'integrated, multi-sectoral approach to the planning, development, and management of water resources'. In this light, we ask:

How can we shift from viewing rivers as isolated water bodies to reading them as living systems shaped by, and shaping, communities that live along their margins?

This question was at the heart of the Kerala Netherlands Water Dialogue, a four-day workshop hosted at the Department of Architecture and Planning at NIT Calicut, and curated by the CWS Research Group. The workshop brought together students, researchers, and academicians from Kerala and the Netherlands as well as key knowledge partners, including the Kerala State Tourism Department and the Netherlands Innovation Network in India (NIN). Participants explored Akalapuzha (Figures 1 and 2), a lesser-known arm of the river landscape in Kerala, illustrating the complex interdependence between water and local communities.

A CONFLUENCE OF WATER STORIES

The workshop tested the CWS research methodology for reading complex water systems and understanding their impact. Originally developed within the Landscape Architecture master track at the Delft University of Technology, the CWS approach is rooted in site specificity, emphasising that different sites have unique characteristics and require different design approaches. However, the Illustrative Method (Bobbink et al., 2022) is versatile and can be applied to water-sensitive areas worldwide, particularly in regions where the relationship between people and water is visible and critical for development and people's lives.

The workshop aimed to provide students with hands-on experience in analysing water systems. The drawings we refer to as water stories illustrate the interactions between various elements of the riverscape. We collected water stories on crabs, clams, birds, mangroves, fishermen, locals, tourist boat operators, brackish and fresh water, and the saltwater barrier, all living together along the river. Any attempt to understand the river is also an attempt to understand its unique relationship with it. Water stories are intended to serve as tools for stakeholder discussions, helping authorities, administrators, local communities, designers, and planners develop informed visions and policies for the area, grounded in a river system perspective.

Fig. 2
The picturesque landscape of Akalapuzha. By the authors.



WHAT IS A WATER SYSTEM PERSPECTIVE?

The word 'puzha' in Malayalam translates to 'river,' a natural body of water that flows across land towards the sea. Nevertheless, to truly understand a river such as Akalapuzha, we must look beyond its physical flow. Imagine standing on its banks and seeing not just a river but a living, breathing system—a network where water, land, and life interact in complex ways. This is the essence of the water systems perspective. Most people view a river as just a channel through which water flows. However, the water system perspective encourages us to recognise the intricate forces shaping the river and its surroundings. This is about understanding the diverse ecosystems that thrive along the river, the communities that depend on it for their livelihoods, and the varying qualities of water that sustain life. Picture all of these elements as characters in a story, each playing a crucial role in the narrative of the river.

This perspective is the core of the CWS approach. By adopting this view, we move beyond seeing a river as merely a physical entity within its catchment area. Traditional river and water management disciplines often focus on topography, climate, and geology but overlook the influence of human activities, including construction, agriculture, fisheries, transportation, and tourism. Authorities and planners usually neglect these dynamics, focusing only on the visible water body. However, understanding the river as a system also entails acknowledging the human impacts on its flow and health. In densely populated regions, such as Kerala, it is essential to understand how natural and human forces shape rivers and incorporate this into spatial planning policies. This comprehensive approach enables the creation of resilient, multifunctional, and innovative solutions tailored to the unique dynamics of a river and its surrounding environment.

A JOURNEY ALONG THE AKALAPUZHA RIVER

In understanding the river through its stories, we see not just water, but a powerful force that binds us all — shaping our past, defining our present, and guiding our future.

The Akalapuzha River flows unnoticed in the coastal landscapes of Kerala and is mainly overshadowed by the more famous water bodies in the surrounding region. The river plays a critical role in the daily lives of local communities, offering invaluable insights into the complex relationships between water, culture, and livelihoods. Although the Kerala State Tourism Department is only beginning to explore ways to develop a river for localised tourism, growing interest from local communities has already led to the construction of small-scale jetties for houseboats and water tourism. (Figure 3)

Fig. 3
Small-scale jetties and structures along the shoreline used to attract local tourists. By the authors.



However, the unregulated use of water bodies for tourism can lead to unsustainable development, with ecological consequences, such as the clearing of mangrove forests, that disproportionately affect local livelihoods. The Akalapuzha River was selected for application to the CWS methodology. This decision was driven by the need to understand the river's dynamics from both environmental and socioeconomic perspectives, ensuring that any development considers the river's ecosystem and the communities that rely on it.

Sixty-four third-year students from NIT Calicut conducted an in-depth analysis of the river's tidal waters, natural resources, and the diverse communities that depend on them. The outcome was not a conventional master plan or design intervention, but a comprehensive exploration of life surrounding the water, a process that recognised rivers as systems rather than isolated bodies of water (Figure 4). Whether it was a bund constructed across the river to divert freshwater to the paddy fields and for domestic

Fig. 4
The backwaters from the hills to the sea. By the authors.

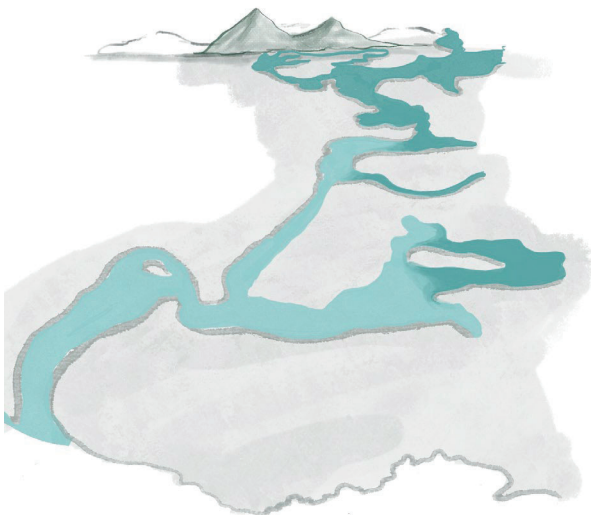


Fig. 5
Overview map of the stories along the river. By students of the National Institute of Technology Calicut (NIT Calicut).

purposes or fish traps laid for daily catches, the flow of water and human activities are inextricably linked, each influencing the other in ways that are often similar to unseen currents.

The illustrative methodology of the CWS lab was central to students' exploration. By translating the river's complex dynamics into vivid drawings, students can weave together tangible and intangible elements: natural features, local practices, and the broader ecosystem. These drawings were more than an analytical lens: they were stories that captured the river's life and legacy, providing a narrative that resonated with the community's traditions and practices.

Through fieldwork, community interviews, collaborative design sessions, and roundtable discussions, students created water stories that reflected Akalapuzha's rich cultural tapestry (Figure 5). These stories also illustrate local practices such as fishing techniques and indigenous construction methods, which embody the principles of sustainability, resilience, and circularity honed over generations (Figure 6). The CWS approach transforms complex data and observations into compelling, relatable stories that connect stakeholders, ranging from local communities to planners and policymakers. At the heart of the CWS approach, this work goes beyond academic research.

Fig. 6
Sunset view of the river, where people gather clams and local communities come together for leisure. By the authors.



Mapping was not about fixing the river on paper, but about tracing the layers of decisions, memories, and movements that shape it.

The students focused on three zones along the Akalapuzha River. Each zone presented a different context, allowing the students to explore the diverse dynamics of the water system. Through the mapping exercise, the students began tracing how bunds, sluices, fish traps, mangrove edges, and jetties intersected with the rituals of daily life. These drawings made the tension between natural hydrology and human intervention more visible. The mapping process became a means of unpacking how past decisions, often invisible in policy documents, have reconfigured the landscape with long-lasting consequences for ecology and equity. Rather than starting with top-down data, students began on the ground, mapping from experience, encounters, and intuition. In doing so, they laid the foundation for a new way of interpreting the river, one that is attentive to its scale, history, and many overlapping layers of use, meaning, and transformation. (Figures 7 and 8), respectively.

FIELDWORK BY THE RIVER

It is in the river’s shifting moods and layered margins that its complexity unfolds — Akalapuzha is not one place, but many.

The fieldwork component allowed the students to immerse themselves in the landscape and gather information. Students explored the brackish creeks, walked along bunds, observed salinity shifts at different times of the day, and stood under the shade of coconut groves to trace how the river lived within and around the community. They encountered not only the river’s physical characteristics, but also its many moods and margins: how it retreated during certain tides, surged with others, and nourished one bank while eroding another. This embodied engagement fostered a new kind of observation: attentive not only to species or water depth but also to the rhythm of everyday practices. By documenting the improvisations of local fishermen, the intricate roots of the mangroves that were home to crabs, and the textures of nets and coirs, the students gathered information shaped by place, experience, and perspective. (Figure 9)

Fig. 7
Maps showing changes in the Akalapuzha River landscape. By the authors.

Fig. 8
Maps produced during the workshop, showing the different elements of the Akalapuzha River landscape (top) and the students’ key observations (bottom). By students of the National Institute of Technology Calicut (NIT Calicut).

Fig. 7

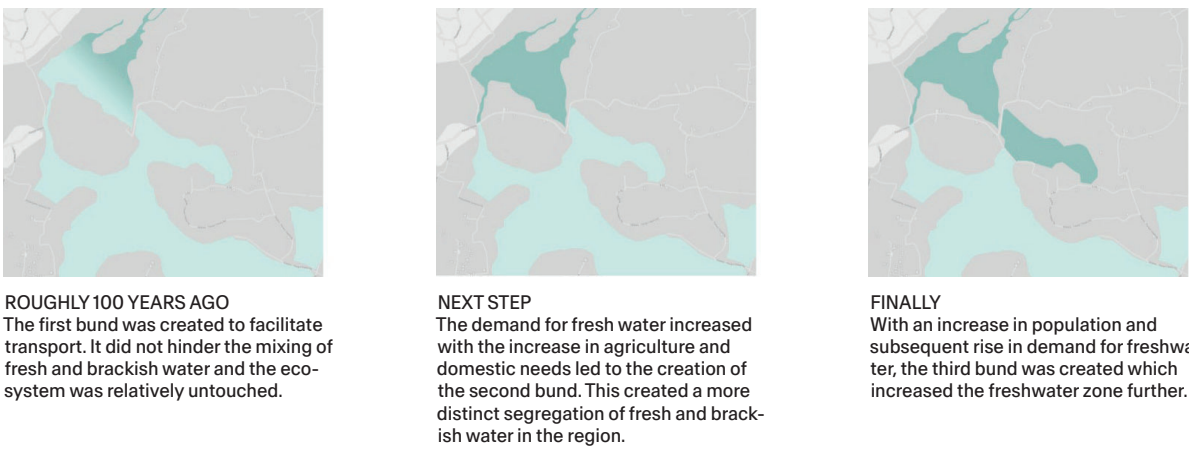
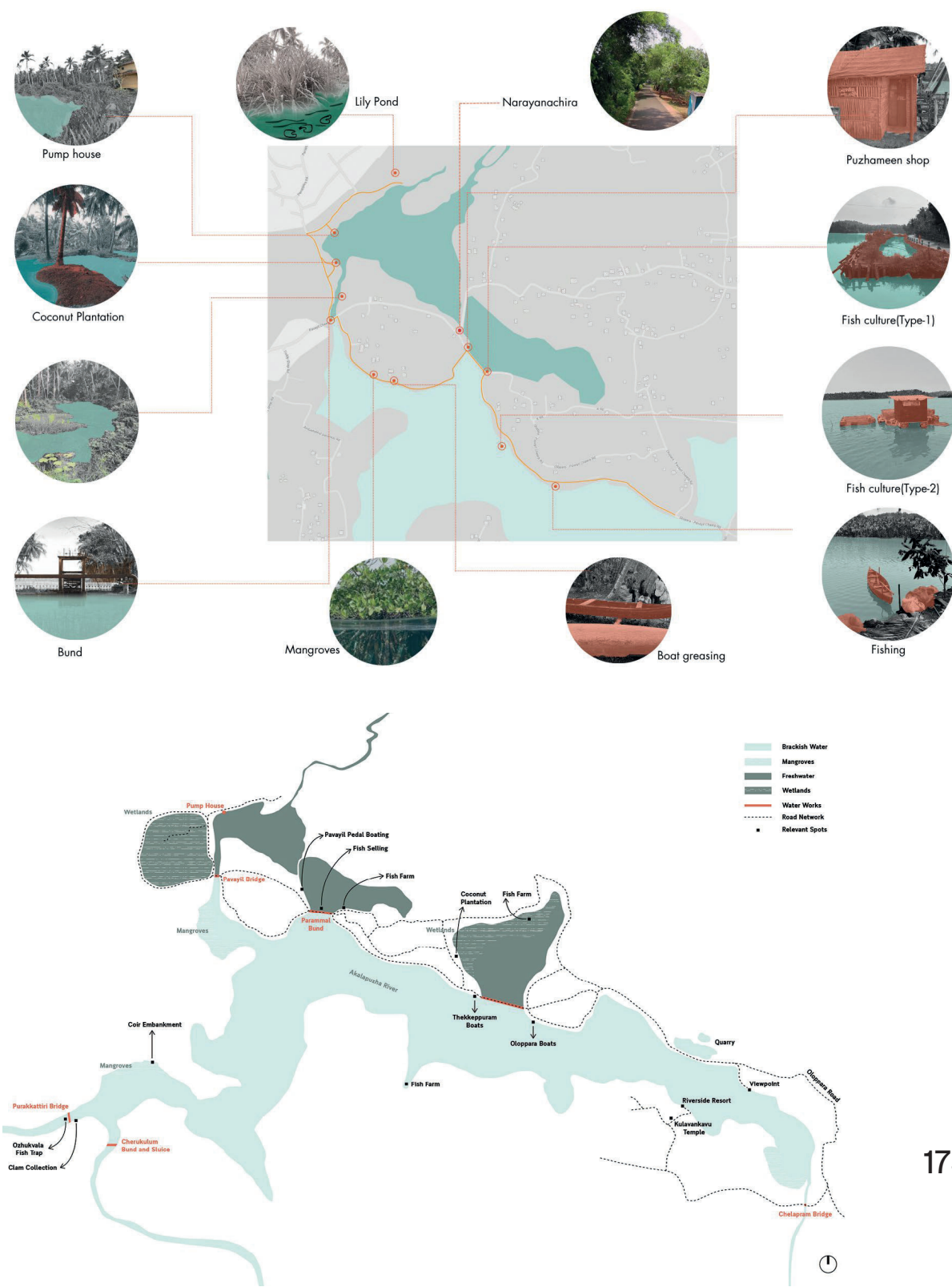


Fig. 8



These weren't just stories — they were lived experiences, passed down through families and formed by years of working with and making money from water.

One of the most potent parts of the workshop was listening to not-so-hidden voices along the river. These are not just stories; they are lived experiences, passed down through families, and formed by years of working with and making money from water.

By engaging with local stakeholders, such as residents, fishermen, farmers, and local communities, the students gained insights into the river's socio-economic and cultural dimensions. These interactions enabled the students to gain a nuanced understanding of the challenges involved in managing a water system that is deeply intertwined with the livelihoods and traditions of the local community. These conversations pushed the students to rethink what counts as knowledge. The riverbank became a meeting ground, not just for land and water, but also for people with different roles, memories, and views. It showed that understanding a river means listening to those who live by it, working with it, and carrying its changes daily. (Figure 10)

The construction of bunds to separate freshwater from saltwater reflects human dominance in these landscapes. This raises the question of whether they are landscapes of coexistence or exploitation. (Figure 11 and 12), respectively.

WEAVING NARRATIVES

By bringing drawings, stories, and observations together, the students learned to tell the river's story without simplifying it.

The students participated in collaborative design sessions, in which they synthesised their findings into comprehensive water stories. The students used a combination of drawings, diagrams, and maps to convey their ideas, ensuring that the narratives were accessible to a broad audience and pushing boundaries beyond the discipline of landscape architecture.

By documenting what they observed during their field visits, students captured not only the technical aspects of the water system, but also the deep cultural connections that sustain it. The resulting visual essay offers a glimpse into the students' creative process, revealing the role of water in everyday practices and shifting livelihoods based on the changing conditions of the river. Each drawing depicting traditional fishing practices or construction techniques reveals how sustainability and climate resilience are embedded in everyday life along a river. Living documents invite reflection,



Fig. 9
Students collecting information on site and documenting their observations through photographs and sketches. By the authors.



Fig. 10
Site interviews were at the heart of the field visit. Conversations with fishermen, farmers and residents helped students understand what the river meant to each of them. Photographs by students of the National Institute of Technology Calicut (NIT Calicut).

Fig. 11
Cross-section showing a typical bund used to separate freshwater for agricultural use. By students of the National Institute of Technology Calicut (NIT Calicut).

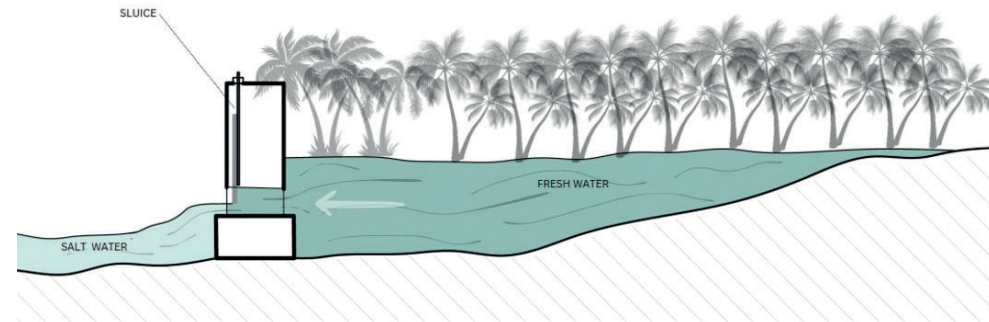


Fig. 12
Section showing life on either side of the bund. By students of the National Institute of Technology Calicut (NIT Calicut).

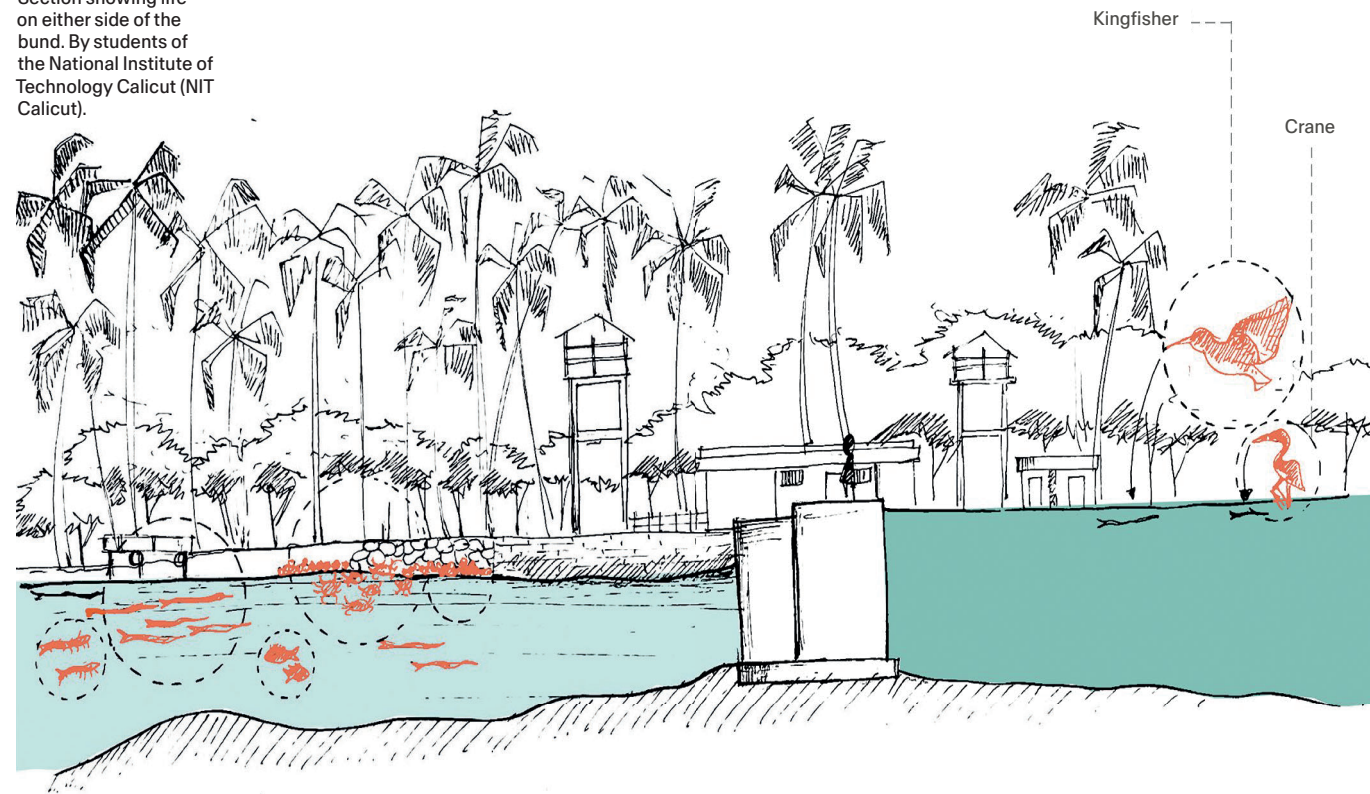
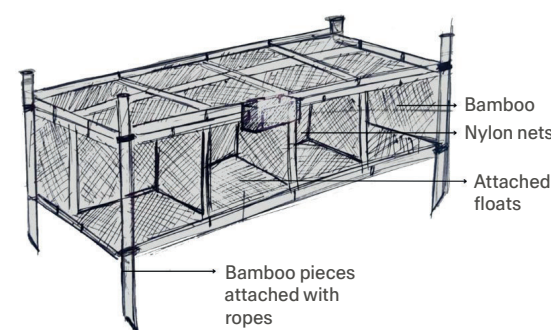


Fig. 13
Drawings documenting cage aquaculture and students presenting their work at the end of the workshop. By students of the National Institute of Technology Calicut (NIT Calicut).



Crab culture
Crabs are reared using the fattening process, where the offsprings are allowed to grow in a pond until the exoskeleton is hardened.

Details – Culture Unit

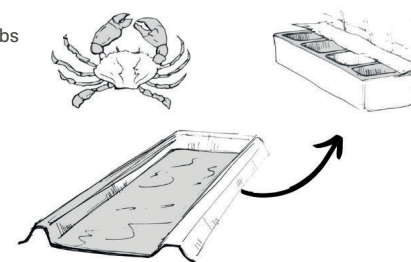


Breeding Process

Male and Female Crabs



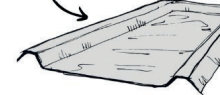
Sex-wise Segregation



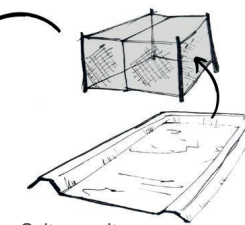
Breeding Ponds



Adult crabs



Breeding Ponds



Culture units

conversation, and further iterations. The power of the water stories lies not just in what they depict but in what they provoke: a reimagining of how rivers are seen, valued, and stewarded. (Figures 13, 14, 15 and 16)

WATER DIALOGUES

The workshop also featured a symposium titled 'The Kerala Netherlands Water Dialogue', attended by distinguished guests, including Dutch Consul General Ewout de Wit; Attaché for Science, Technology, and Innovation of the Netherlands Innovation Network - Sandra Kalidien; and Policy Adviser to the Dutch Embassy, Arun Thekedath. Dr. Inge Bobbink, an Associate Professor at TU Delft delivered a compelling talk titled 'Dutch Landscape and the CWS of the Netherlands'. Dr. Anjana Bhagyanathan, Assistant Professor at NIT Calicut, sheds light on the Traditional Landscapes of Kerala.

A roundtable discussion on the Role of Academia and Knowledge Institutions in Transdisciplinary Water Projects was moderated by Monica Veras Morais of TU Delft, Naeema Ali of Witteveen and Bos Architects Dubai, and Amina Chouairi of Università luav di Venezia, Italy. The discourse has delved into interdisciplinary approaches to address water management challenges.

The event provided a platform for meaningful exchanges of ideas and expertise and for collaboration between Indian and Dutch academia on water and climate.

A WAVE OF COLLABORATION

No one walked away from the river unchanged!

Over four days, what began as a design workshop unfolded into a deeper act of learning about water, places, and ways of seeing, reading, and designing with water. For the students, this meant shifting focus from individual sites to broader systems that connect bunds, mangroves, fish traps, and memories. For the community, it meant seeing their lived experience reflected not in plans or policies but in stories drawn from the ground up. Moreover, for the CWS team, it was proven that methods developed in classrooms half a world away could find meaning and relevance in water-sensitive areas elsewhere such as Kerala.

This was never just about a single river or lake. It was about reading the landscape as a network of flows and frictions: saltwater and freshwater, tourism and tradition, protection, and disruption. The students' drawings captured these nuances, not as problems to fix but as relationships to understand. In doing so, they began to view the river as a living system shaped by more than just hydrology, climate, and topography.

This workshop's ability to bring together diverse forms of knowledge and culture in the same space made it distinctive. A method developed in the Netherlands encountered a river in Kerala, and the encounter changed both. The result was not a master plan but something more durable: a way of thinking that cuts across disciplines and geographies.

The Akalapuzha River offers a new curriculum rooted in observation, exchange, and respect. It reminded everyone involved that the future of water lies not in grand plans but in how we learn to see and work together. Suppose that these collaborative currents continue to flow. In this case, they may help us imagine a future where water is not managed in isolation but

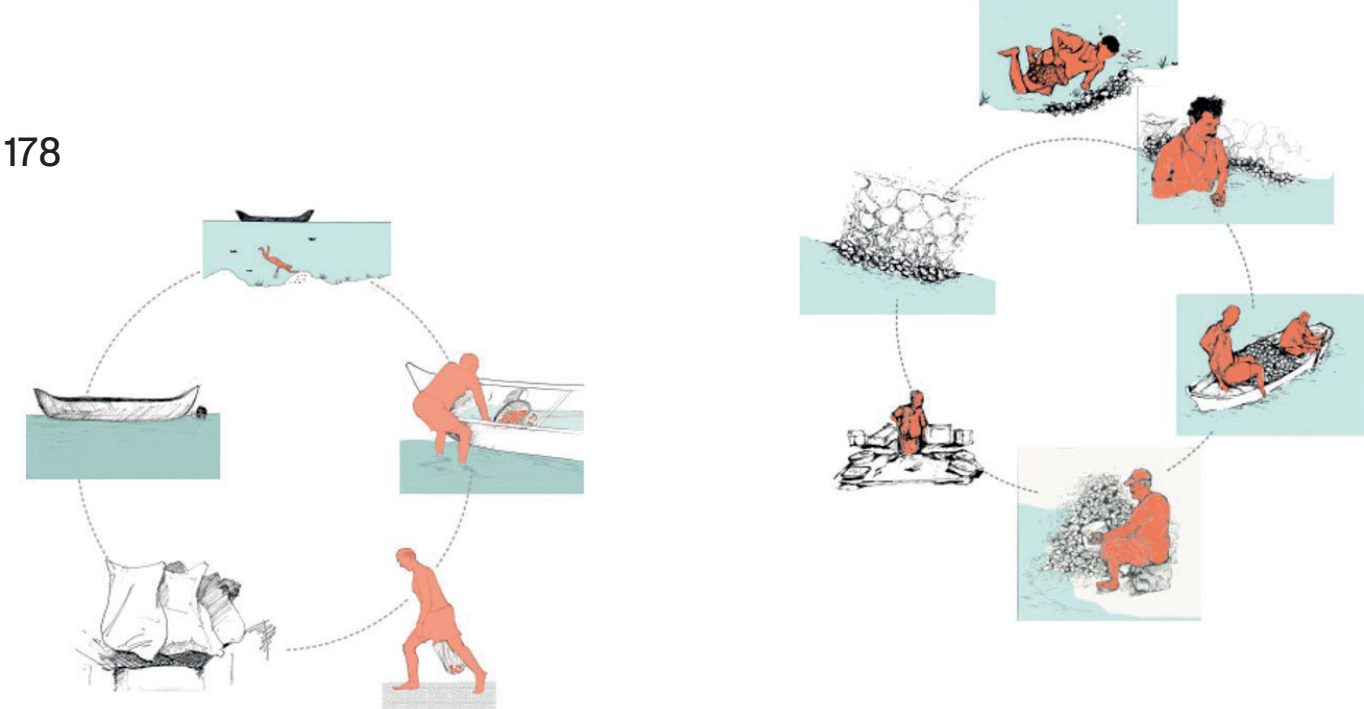


Fig. 14
Workshop drawings documenting (left) clam collection and (right) oyster collection. By students of the National Institute of Technology Calicut (NIT Calicut).

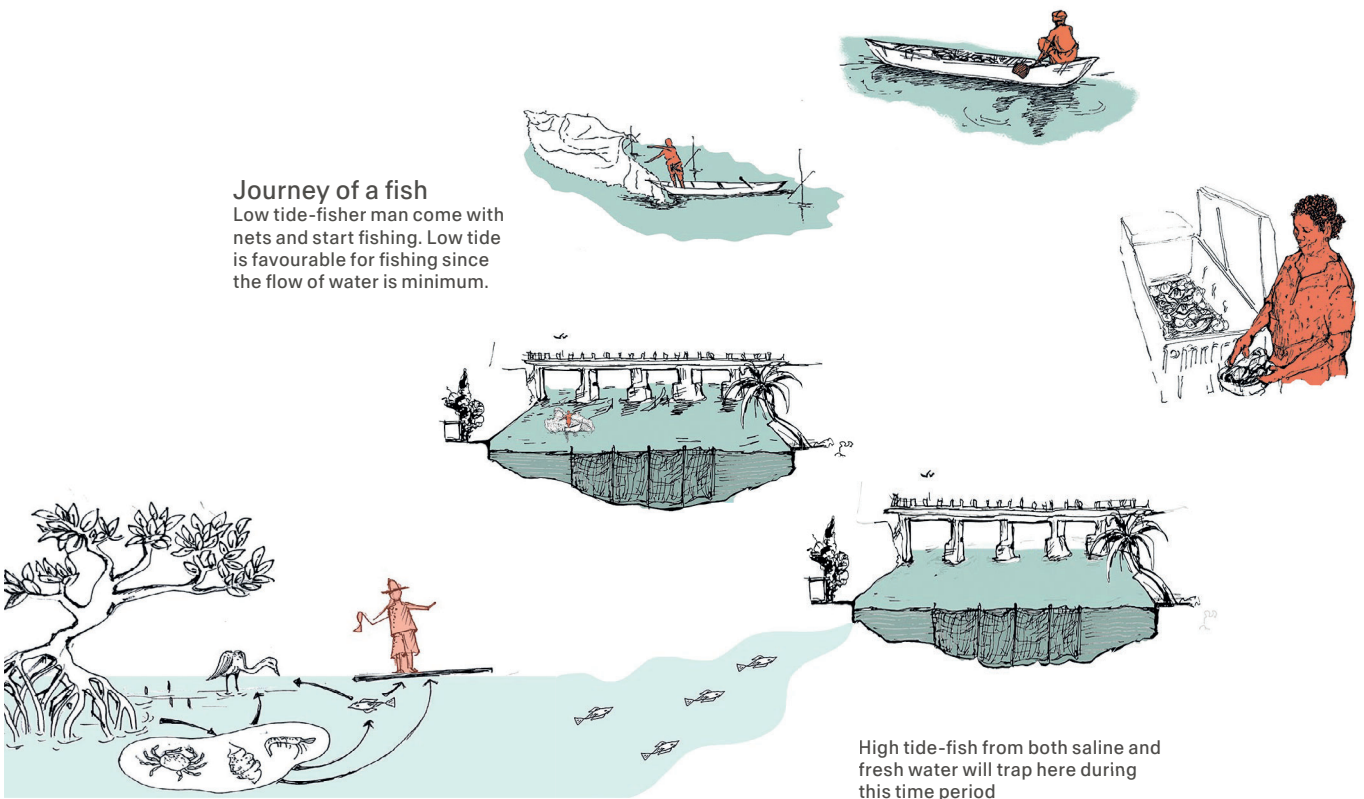
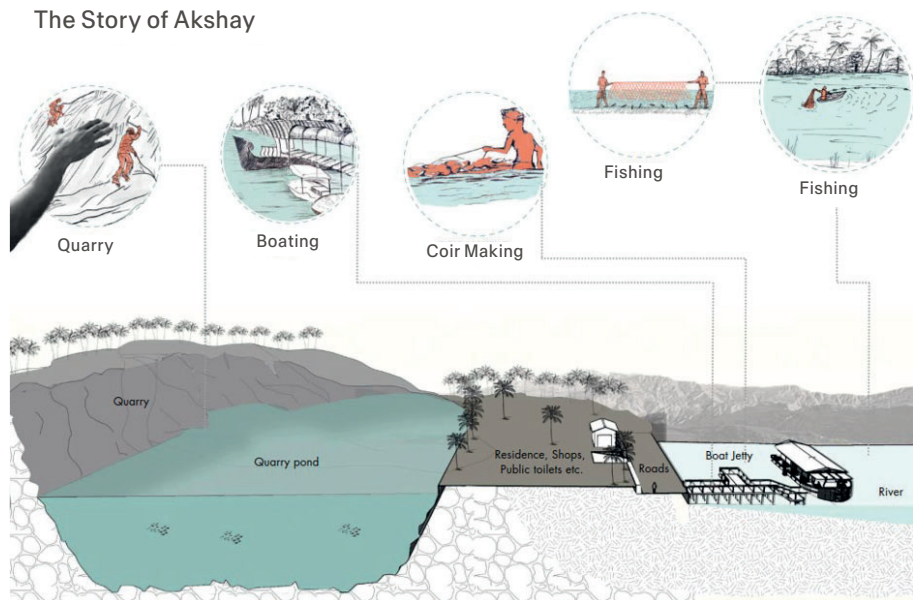


Fig. 15
Workshop drawing showing the journey of a fish. By students of the National Institute of Technology Calicut (NIT Calicut).

understood as part of the broader systems that sustain life. The hope is not just to replicate this workshop elsewhere, but to keep refining the way we listen to water, not only through science or design, but also through stories that make it legible, personal, and political.

Fig. 16
Drawings as a way of reimagining rivers from a systems perspective by interlinking multiple narratives. By students of the National Institute of Technology Calicut (NIT Calicut).



NOTES

Stories from Akalapuzha

- We gratefully acknowledge Dr. Mohammed Firoz C, Dr. Amritha P.K., Dr. Anjana Bhagyanathan, and the faculty and students of the Department of Architecture and Planning, NIT Calicut, for their valuable support in preparing and organizing the Kerala-Netherlands Water Dialogue workshop. We also thank Mr. Ewout de Wit, Mr. Dhoya Sneijders, Ms. Sandra Kalidien, Mr. Arun Thekedath, and Ms. Aleena Joseph, representing the Dutch Embassy, the Consulate General and the Netherlands Innovation Network in India, for their support and presence during the workshop.