

People in Conservation

Biodiversity Conservation and Livelihood Security



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Index

Opening Words

1. Updates and Information

- *Kathmandu's Medieval Water System: Defining Sustainability.*
- *A concrete threat to Mula-Mutha's future: Pune riverfront project.*
- *Global indigenous rights group says Indian gov't's Great Nicobar project will annihilate Shompen tribe.*

2. Perspective

- *A little push for ecological restoration.*

- *Thinking Like an Ecosystem.*

- *Tides of Thought: Integrating Science and Spirit in Marine Bioregionalism.*

3. Signs of Hope

- *Ecosystem Restoration Communities- John D. Liu.*

4. Case Study

- *Rooted in People, Restoring Forests Through Collective Action (Specially Written).*
- *Fostering Community-Based Conservation Through Knowledge And Experience Sharing.*

Special Issue on Ecological Restoration

Opening Words

The earliest use of the word was restore - restoren, Middle English - was recorded around c.1300 meaning to give back, to heal, to cure. At the core of the work of restoration, hence, lies care and the fundamental inclination to reciprocate in ways that heal.

The loss of connections that humans are experiencing in their relationship with other humans, more than human species, nature, and even faith have led to the perverse exploitation of the very and only home that they have on this planet. The absolute destruction of our outer ecological systems are a reflection of the fractures in our inner ecology. To even begin the work of ecological restoration, one has to begin at mending their relationship with care and connection and learn how to do it collectively.

Many inspiring stories of restoration illustrated here range from inner-outer ecology, ancient water systems, documenting knowledge of native species and creating a database on resources for those intending to work on restoration, conserving marine ecology from a bioregional perspective, the role of community participation in local governance in conservation and restoration and so on.

To understand what is legitimate ecological restoration, one would need to cultivate the habit of asking questions that unravel the interconnected web of issues. One such case that presents itself for critical consideration is that of Pune's Riverfront Development Project. At face value it would appear to be a commendable initiative to clean and restore the river ecosystem of the city, but after a deeper peek into the data shows a grim picture of mindless development without ecological responsibility, creating more damage than its claims of restoration.

This edition tries to explore not only the cogs and wheels of restoration but also whether anything and everything should be considered for restoration.

Arnaz

Updates and Information

Kathmandu's Medieval Water System: Defining Sustainability

By Salam Rajesh

In between these relatively interesting narratives is the traditional water management system that is visible in Manipur's Liyai Khullen village in northern Senapati District. The principle adopted by the village is as similar to the Hiti system of Kathmandu and the Dawuhan system of Cetho. The crystal clear water flow is channelized through aqueducts and stored in water tanks like the Dhunge Dhara of Kathmandu.



The wide expanse of Manigala, the namesake of Mangal Bazaar in urban Kathmandu city is a mind-boggling space full of humans mingling like myriad ants at work, seeking to satisfy themselves with glimpses of Nepal's medieval history of monarchs and their glorification of the gods – both of the Hindu and the Buddhist mythologies.

The imposing temple structures reveal a fascinating network of ancient water management systems intertwined across the temple complexes, providing continuous flow of water supply for the population in the city, and well hidden from the eye.

The Dhunge Dhara or the medieval stone waterspouts at Dhobighat in the city are a thread of water points connected to one another through a covered labyrinth of water ways. The Dhunge Dharas located at Patan in the southern part of Kathmandu city are added wonders amidst the impressive medieval temples and palace structures built by various dynasties who ruled the Kathmandu valley during periods of Nepal's medieval history.

As the Himalayan country's history unfolds, it is said that the Lichhavi dynasty who ruled the Kathmandu valley in the medieval period developed two important trade routes, one linked to Lhasa in Tibet and the other heading to India, and these historic passages converged at the Manigala.

What is fascinating about the Hanuman-Dhoka Durbar Square, a prominent feature of intricate medieval architecture at Patan, is the story of a stream known as Hakha Khushi that used to flow in a south-north direction in the ancient times and which had since disappeared.

The relevance of the story finds reflection on the occasion of the annual ritualistic festival in May when two massive Bungadyah's chariots are pulled across the square. Everyone who attends the chariot-pulling festivity has to take off their shoes when progressing over the square in the belief they are crossing over the ancient stream that used to flow there.

The intrigue is in the belief of an ancient stream that once flowed in the square and the existing structure of the Dhunge Dharas that continue to provide water supply for the local population uninterrupted through time. As explained by Rishi Amatya, a local medieval history scholar, a hidden network of pipeline connects with all water tanks located in the square. This water supply network is a marvel in itself.

The waterspouts are protruding iron cast pipes elaborately ornamented with legendary figurines of characters from Hindu mythology. Each figurine – crocs, fish, birds – have their own tale to tell for the inquisitive visitor at the Dhunge Dhara.

Fauzan Ali Ikhsan et al. (2022) in their paper 'Water Sustainability Concept of Hindu Javanese Community Settlements toward Global Climate Change Resilience in the Indonesia Mountainous Area' (<https://www.researchgate.net/publication/365988865>) reflects that, "Ancient civilizations have shown that traditional settlements have had local wisdom in managing water. For example, people in the mountainous region of Kathmandu in Nepal have a water management method called Hiti".

Fauzan insists that the Hiti system symbolizes the relationship between the mountains-springs-settle-

ments-farm fields, forming an organic environment ecosystem that is well balanced. In addition to maintaining physical water continuity, the Javanese Hindu community in Indonesia maintains spiritual tradition of Dawuhan to contain the spirit of its people in maintaining water sustainability, as similarly as in Kathmandu's Patan locality.

This understanding is in line with the Hindu teachings embraced by the Javanese Hindu community in Indonesia, Fauzan writes, emphasizing the concept that in continuing with life, people must always maintain the fundamental relationship between Man-God, Man-Man, and Man-Nature in order to create harmonious life.

The Dhunge Dhara of Kathmandu and the Dawuhan of Cetho are amazingly similar. The water system of Kathmandu in Nepal and that of Cetho village in Indonesia share that sense of water sustainability to sustain human life, and both are transfixed within temple complexes.

The Dawuhan of Cetho is fused with the Cetho Temple complex located in Cetho village of Karanganyar in Indonesia. The settlement of Hindu Javanese community within the Cetho Temple area is an ancient settlement that still survives on the western slopes of Mount Lawu. This resounds with the Hindu, and Buddhist, community who are settled in the Manigala area of Kathmandu through periods of medieval history.

Amazingly similar is the concept in the natural flow of the springs. At Cetho, the belief is that in the ancient times, the water from the Pundisari springs was distributed equally to settlements using water pipes made of bamboo stems connected in a series. The water was distributed to several water points called Kalibaku located within the settlements, utilizing the principle of gravity, that is, water flows from an upper to a lower point. That also is the principle of the Dhunge Dhara of Kathmandu.

In between these relatively interesting narratives is the traditional water management system that is visible in Manipur's Liyai Khullen village in northern Senapati District. The principle adopted by the village is as similar to the Hiti system of Kathmandu and the Dawuhan system of Cetho. The crystal clear water flow is channelized through aqueducts and stored in water tanks like the Dhunge Dhara of Kathmandu.

An interesting concept within these ancient beliefs is that the traditional settlements in the mountainous regions are most vulnerable to climatic impacts. The concept on the threat of water security in supporting the life of traditional settlements particularly in tough mountain regions appears to have long existed even before the present-day worry on the impacts of the triple planetary crises on food and water securities.



As Fauzan et al. writes, the mountain ecosystems with high slope characteristics tend to experience more complex impacts of climate change. One of the perceived impacts is the change in the hydrological cycle caused by changes in precipitation patterns in Earth's atmosphere. Changes in the hydrological cycle cause changes in the balance of regional ecosystems, including agricultural productivity and the livelihoods of the region's population, Fauzan notes.

Ecosystems relying on groundwater for some or all of their water needs are collectively referred to as groundwater-dependent ecosystems (GDEs), and although GDEs occur across many biomes, they are of greatest concern in table plateaus and drylands, where near-surface water availability is limited compared to humid environments, notes Melissa M. Rohde et al. (2024) resonating on the reasoning of Fauzan et al.

Kathmandu's and Cetho's water sustainability systems hinge on this scientific assessment of ecosystem valuation. On this note, the United Nations Environment Programme (2021) reflects that biodiversity and ecosystems provide ecosystem services that benefit human economies and well-being, and where over half of the global gross domestic product – US\$ 44 trillion as of 2021 – is moderately or highly dependent on nature's services.

Again, on this very note, the World Wildlife Fund (2021) assessed that Indigenous peoples and local communities (IPLCs) own and manages at least 32 percent of the global land and associated inland waters, and of which it is considered that 80 percent is still in relatively good condition. This, of course, is significant as in the case of the longevity of the Hiti system of Kathmandu and the Dawuhan system of Cetho, and of Liyai Khullen.

Source: <https://thefrontiermanipur.com/kathmandu-medieval-water-system-defining-sustainability/>

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A concrete threat to Mula-Mutha's future: Pune riverfront project

By Rahul Singh



*The riverfront project will worsen the flood risk of the Mula-Mutha river, which is already obstructed by sewage.
Picture courtesy: Rahul Singh*

The Pune Municipal Corporation is developing a 44-kilometre riverfront along the banks of Mula-Mutha river. Formed by the confluence of five rivers—Mula, Mutha, Ramnadi, Devnadi, and Pavana—the Mula-Mutha river runs through the heart of the city.

The Pune River Rejuvenation Project, also known as the Pune Riverfront Development (RFD) project, aims to beautify the riverbank through concretisation: building concrete embankments, walkways, and plazas. This has drawn opposition from Pune River Revival, a collective of residents and environmental activists. They argue that given the geography of Pune, a saucer-shaped city with a depression in the centre, building a riverfront should not be the project's focus. Doing so would obstruct the flow of the river.

Rivers plays a key role in maintaining groundwater levels due to their natural composition. Their beds and banks are usually made of porous materials such as soil, sand, and rock layers known as aquifers. If the water cannot easily seep into the ground due to concrete, groundwater recharge will be blocked. Angad Patwardhan, a young activist from Pune, says, "In the name of a riverfront, the river's banks are being covered with cement and concrete, which disrupts the natural water absorption process."

In addition, the detailed project report shows that the width of the river channels will be reduced—from 150 to just 90 metres in some places—which will lead to a rise in the water levels in surrounding areas.

Dinesh Kumar Gautam is the founder of Drishti Foundation Trust, an organisation working on the cleanliness of the Sabarmati River in Ahmedabad. Speaking about the need for contextualised development, he says, “The project has been designed along the lines of the Sabarmati Riverfront in Ahmedabad. But Ahmedabad and Pune cannot be compared, nor can the Sabarmati and the Mula-Mutha. Pune’s geography makes it a flood-prone city, so its riverbanks should be left unpaved. Otherwise, its aquatic life, plants, and biodiversity would be affected. This is why other major cities in Gujarat, such as Vadodara and Surat, have not implemented riverfront projects.”

The river’s flow is already obstructed by Pune’s sewage, increasing the flood risk; the proposed riverfront will make it worse. As per the Central Pollution Control Board, the sewage makes Mula-Mutha river among the most polluted rivers in Maharashtra. One city resident said, “The river water is dirty, and our homes are so small that we can’t even store enough clean water. My husband is a fisherman, but due to pollution and waste in the river, he has to travel 15 km away to Pimpri-Chinchwad for work.”

Source: <https://idronline.org/ground-up-stories/a-concrete-threat-to-mula-muthas-future-pune-riverfront-project/>

Global indigenous rights group says Indian govt’s Great Nicobar project will annihilate Shompen tribe

By Akanksha Mishra

Survival International's report warns that the Great Nicobar project jeopardises the Shompen tribe's isolation, exposing them to disease, exploitation & environmental destruction.



Shompen tribe | Survival International

New Delhi: The Rs 75,000 crore Great Nicobar Development Project threatens to wipe out the vulnerable Shompen tribe in the Nicobar Islands, according to a report by UK-based Survival International. Released Monday, the report highlighted that the Indian government’s plan to construct a mega-port, airport, defence bases and tourism parks on Great Nicobar Island would expose the approximately 300 surviving members of the Shompen tribe to disease, tourism, harassment and exploitation, while also destroying their forests and means of subsistence.

** “In my opinion, such major infrastructure projects are not appropriate... The Shompen may be few, but their knowledge of the island’s forests is unparalleled. Let them remain as they are,” Triloknath Pandit, former director of the Archaeological Survey of India, was quoted as saying in the report.

Survival International is a global non-governmental organisation working for the welfare of tribal and marginalised communities across the world. It released the report titled *Crushed: How India plans to sacrifice one of the world’s most isolated tribes to create “the new Hong Kong”* Monday. The report

was compiled to be presented to the United Nations Committee to End Racial Discrimination (CERD).

Citing news reports, expert testimonies, and the Indian government's own Environmental Impact Assessment (EIA) report on the Great Nicobar Project, Survival International sought to raise awareness and urged the Indian government to immediately abandon all plans for the development.

Quoting the 2022 EIA conducted by Indian authorities, the report noted that the government was aware that 'any disturbance in the natural environment' of the Shompen tribe would jeopardise their survival. Currently, there are fewer than 500 residents on Great Nicobar Island. The proposed development project aims to increase this number by nearly 8,000 percent to 6,50,000 permanent residents.

Nonetheless, the government has chosen to proceed with the project.

The Shompen tribe

The Andaman and Nicobar Islands are home to several uncontacted tribes, including the Jarawas, Sentinelese, and the Shompen. These groups have largely remained isolated from the rest of the world, including other Indians, making them especially susceptible to disease through contact with outsiders.

The Shompen tribe, which comprises only about 300 individuals, has been classified by the Indian government as a Particularly Vulnerable Tribal Group (PVTG). They subsist on hunting and gathering and are indigenous to Great Nicobar Island—precisely where a massive development project now threatens their ecosystem, flora and fauna, and may result in the settlement of over 600,000 people from mainland India.

"The survival of the Shompen people depends on their isolation from outsiders," the report quoted Dr Mark Levene, genocide historian, as saying. "The result of the development project will be psychic collapse and a lingering death."

It is not just environmental degradation and exposure to new diseases that threaten the Shompen tribe. Most members have lived for centuries without external contact, and their ways of

life differ significantly from those on the mainland. By increasing tourist access to Great Nicobar Island, the report warned, the Shompen risk heightened racial discrimination and harassment.

"There is also a considerable risk of 'human safaris' being conducted among the Shompen, as has happened for years to the Ang (formerly known as Jarawa) people of the neighbouring Andaman Islands," the report stated.

Violation of international laws

Survival International pointed out that, since the Shompen are uncontacted, there was no effort to obtain their free, prior, and informed consent for the Great Nicobar Project. Proceeding without their consent, the project violates the UN Declaration on the Rights of Indigenous Peoples, as well as the International Convention on the Elimination of All Forms of Racial Discrimination—both of which India is a signatory to.

The report unequivocally called upon the Indian government to halt the Rs 75,000 crore development project on Great Nicobar Island. It also recommended that the territory be designated as a Tribal Reserve and that original rights be restored to the Shompen tribe.

Source: <https://theprint.in/environment/global-indigenous-rights-group-says-indian-govts-great-nicobar-project-will-annihilate-shompen-tribe/2590929/>



2. Perspectives

A little push for ecological restoration

By Arjun Singh



If we need to bring back a large number of native species, how do we grow them in the first place?

Land degradation is a serious problem that is affecting countries across the globe. India has pledged to restore 26 million hectares of degraded land under the Bonn Challenge. Native plants play an important role in ecological restoration projects. These are plants that have established complex relationships with mammals, birds, insects, and fungi, found in that area. Over and above this, they have learnt to cope with the soil conditions and even vagaries of the climatic conditions prevalent in the area, and once established, do not need support in terms of watering, fertilisers or any other human intervention. They are our best bet towards creating climate-resilient natural ecosystems and landscapes. A lot of these lands have a sparse presence of native plants, and in many cases a systematic reintroduction can help restore and bring the ecosystem back in balance. While plants produce 1000s of seeds, the chances of a single seed to become a healthy mature plant would be 1 in a 100, as they struggle to find the right climatic conditions and ecological niches to prosper. This works well for established ecosystems, but when restoring degraded landscapes, each seed counts, given the scale of planting that needs to be done.

This is why there is a need for reliable knowledge of the right conditions that can aid and nurture these seeds to saplings. It was in April 2023, when Paul Blanchflower, Director of Auroville Botanical Gardens and Steering Committee member of the Ecological Restoration Alliance-India, had the idea that we could make an open source database for seed germination for different native plant species across India. Auroville Botanical Gardens was already working on a database for the plants that they work with. Yet, data entry and compilation can be messy and complicated. By August 2023, there was a solid approach that was planned out, and the idea was introduced to the larger community, via the monthly community meetings that we held.



The message for this was further spread through the members WhatsApp group, emails and newsletters. A follow up call was scheduled in September 2023, to introduce the people who were interested in contributing to the plan. While it started off with a base sheet, changes were suggested by people on call and incorporated into the common Google Sheet.

From then on the group met once or twice till November 2023, and hoped to have shared the initial version with the larger community during the Restoring Natural Ecologies conference. Unfortunately, a little more polishing was required before the sheet itself could be usable. While the germination database was slowly being built up, in March 2024, during the ERA-India monthly webinars, a discussion on the need for reliable germination database, sparked the interest of Gaurav Mehta, Head Marketing, PR, Corporate Communications &



CSR, DCB bank, and extended their support to the project. This extended support meant that a person could come on board, and clean up what had already been collated from the community, and add to it by digitising germination methods that were listed across publications. This also meant that the final output could be better designed and made more accessible to the larger community.

The strength of the seed germination database comes from members of the alliance, nursery managers, restoration practitioners and native plant enthusiasts contributing their experience of germination onto a public platform so that more people can benefit and learn. In turn helping the process of ecological restoration across large swathes of degraded land.

The seed germination database is the first example of something that started from an idea, went to a monthly community call, had a few supporters and contributors who came together to make it happen, and the organisation leading the effort finally got extra support, to make the database more accessible and finally published on the platform.

The project became possible because of the contributions of: Abhishek Ghosh, Abinaya Ravichandran, Ajay Gupta, Aparna Watve, Aruna Gamuz, Asiya Khan, Atin Chatterjee, Diya Banerjee, Fazal Rashid, Kartikeya Sharma, Kiran Baldwin, Kshama Bhat, Makarand Datar, Naina Kumar, Noopur Borawake, Padmavati Dwivedi, Paul Blanchflower, Priya Bhide, Sagar Datir, Sayali S, Somil Daga, Vijay Kumar S, Vinod Shankar, and Vivek Awasthi.

The current version of the database as of now has entries for seed germination methods from Ananas Nursery, Auroville Botanical Gardens, Department of Forest & Wildlife- Delhi, Grassleela, Pranjal Nursery, Rao Jodha Desert Rock Park, Sangam, The Forest Way, UPVHA, and Uttarayan Wildlife. The seed germination database has been supported by DCB Bank. The database itself holds over 1000 entries in total and people can use it to germinate over 465 species.

Source: <https://era-india.org/blog/a-little-push-for-ecological-restoration-by-arjun-singh/>

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Thinking Like an Ecosystem

By Seetha Ananthasivan

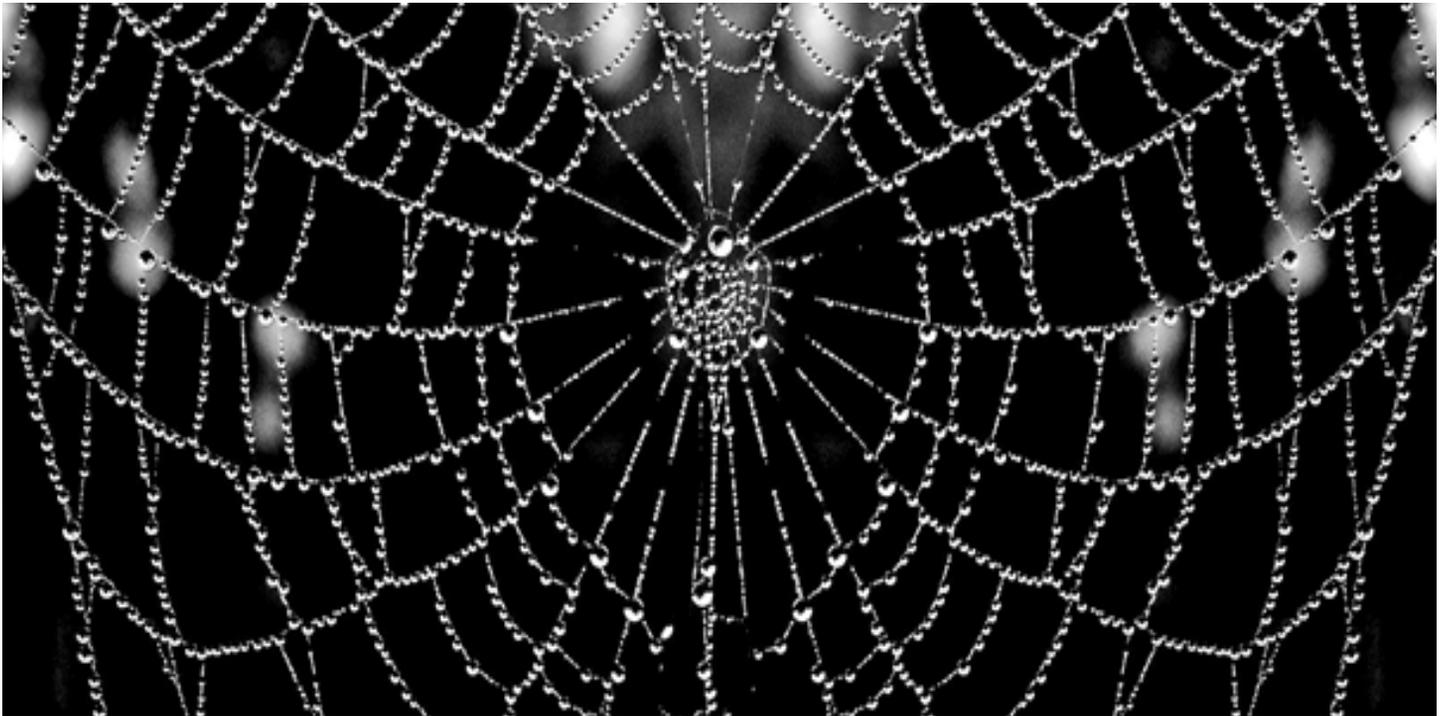


Photo Courtesy: Mike Raube-Boyer (flickr)

Sustainable Living is not heavy stuff all the time. We will transition into a more wise and sustainable civilisation when quite simply we learn again to love nature. When we learn to be part of the world of plants and trees and buzzing bees and so many creatures going about living their lives – much more happily than us humans!

Every species and eco-system emerges on earth, evolves and grows following some principles. Sometimes they go extinct, collapse or renew themselves differently too.

Human beings have been around on Earth only for about 2 million years – if you count from the time when we stood up on our feet and called ourselves Homo Erectus. The Earth was formed about 4.6 billion years ago, and life is supposed to have emerged about 3.5 billion years ago.

If humans came on earth only 2 million years ago, Nature has been evolving life for 3,498,000,000 years before humans! Let's also not forget that Nature produced us – we are part of Nature, we are Nature too.

If Nature with her ecosystems kept life going on Earth for such a long period – her rules, her principles of sustaining life must be really the most important things to learn. But strangely we don't get to learn much about Nature's principles in school or college. That's a huge disconnect!

By neglecting to find out and live by principles of Nature – which provides our living context for all time – we seem to have created so many ecological crises for ourselves – climate change, water famines, land, air and water getting polluted and people overcrowded in cities that is consuming our resources like crazy. When we go into a school, college, organization or community, we are supposed to learn their rules and follow them. Even a family has many unwritten guidelines to live by. So don't we need to have some common understanding of Nature's principles so even children can understand how we can live with ecological wisdom?

All of Nature, all ecosystems seem to follow the same principles – and our bodies are eco-systems too – the easiest place to observe for ourselves

and understand them. Thinking like an eco-system is what we need to do- but so many centuries of gradually moving away from Nature has meant that intuitively thinking like Nature is difficult for most of us. But it is possible – the best way to make a beginning is to spend as much time as we can in or near forests, water bodies, farms or watching the sky, trees or animals. Another way is to understand some of the principles or aspects of ecosystems or Nature, such as diversity, incessant flow of resources and energy, interconnectedness, infiniteness, mystery and much more.

Nature is diverse – our bodies have thousands of kinds of cells and about a thousand kinds of bacteria. Can we accept and value diversity – also in our minds, our families, class rooms and societies? In a field where just one crop is grown, the land gets degraded in a few decades or less, while land with a rich biodiversity of plants and trees as well as insects, birds and other organism will thrive and get “rich” with life.

Nature is always in flow – flow of energy, flow of resources, flow of thoughts and feelings. As long as life exists in a creature or organism there is flow, communication, relationships. There are cyclical flows and flows of self-regulation.

Life is about processes much more than about things and objects. When we respect this flow in ourselves and between ourselves and other people and ecosystems, we experience life more vibrantly; we feel more healthy and joyous.

Another principle of Nature is interconnectedness, closely aligned to flow. Every cell in the body connects with others. If we have a terrible pain in one toe, the whole body knows and responds. Sometimes just one key species being killed or a foreign species being introduced can wreak havoc in an ecosystem. We have several kilometers of blood and lymph vessels and nerves running all over our body doing a magnificent job of interconnections. Our brain-minds too are capable of incredible interconnections. They help us experience greater wellbeing when we connect with the people, Nature and other creatures around us.

Nature is energy – both potential and kinetic energy. All our lives 24/7 our entire body, every cell in it is pulsating with energy. When we are alive we have energy to move, to eat and do many things. When we die, this energy to move disappears, but we disintegrate and go back into the earth to either provide minerals for plants to grow or become food for other organisms. So too in groups and organisations we create, we need to learn from Nature how to keep energy alive – not for the profits of the top, though, but for the wellbeing of everyone!

Nature is also infinite, mysterious and never fully knowable – hence we can call it sacred too. We have 3 trillion cells and 30 trillion bacteria in our bodies. We are yet to know fully how our body functions – but not following principles of Nature we have messed it up a lot! All the human inventions and discoveries have unfortunately given humans an excessive arrogance. We need to understand again that civilisations that have been sustainable for thousands of years have ingrained in them a culture of valuing Nature as sacred. We in India are fortunate to have such a culture – so let us revive a sense of sacredness about Nature and Mother Earth!

Nature is so complex that many people spell out her principles differently. And there is much much more to understand – So this is not a perfect, neat set of principles, but something convenient for us to help re-imagine and re-design our lives if we want to try to harmonize with Nature.

Imagining ourselves as an ecosystem and as part of an eco-system is a great way to enjoy and love life with a serene acceptance. Just spend some time every day - listening to the birds chirping away, watching insects going about their business or play often with pets or little children. There is so much we can learn from them about thinking and living like an ecosystem – which will be living sustainably on our planet too.

Source: <https://bhoominetwork.org/article/thinking-ecosystem>

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Tides of Thought: Integrating Science and Spirit in Marine Bioregionalism

By John Kurien, D. Nandakumar and Nalini Nayak

While Western perspectives often focus on the “what” and “how” of the coast and ocean, Eastern perspectives delve into the “why”—the deeper meanings and spiritual significance beyond the observable. In this article, the authors propose that integrating these two perspectives – empirical knowledge and spiritual insight – creates a narrative for marine bioregionalism that is both scientifically compelling and emotionally resonant.

When writing the paper on marine bioregionalism for the South Asia Bioregionalism Working Group, titled “Webbing a New Net,”^[1] we began with a compelling epigram by Carl Safina about the coast.

Safina writes, “The coast is an edgy place... It is a place of tide and tantrum; of flirtations among fresh and saltwater ... of tense negotiations with an ocean ... (the coast) roils with power and sometimes a terrible beauty. The coast remains youthful, daring, uncertain about tomorrow.”

Safina’s words capture the dynamic interplay between land and sea—a place of constant transformation, tension, and unpredictability, embodying the essence of change and interaction.

We then commenced our paper with a quote by Peter Berg from his essay “Bioregional Cultural Awareness,” who writes, “All life on the planet is interconnected ... there is a distinct resonance among living things and the factors which influence them Discovering and describing that resonance is a way to describe a bioregion.”

Berg’s reflection moves us from the tangible to the intangible, suggesting that the essence of a bioregion lies not just in its physical attributes but in the interconnectedness and resonance among all life forms and their environments. Discovering that resonance is key.

These two reflections—Safina’s vivid, dynamic coast and Berg’s call for recognizing interconnected resonance—invite us to think more deeply about how different cultural traditions perceive the coast and the sea and how these perceptions can inform our understanding of marine bioregionalism. The coast, with its “tense negotiations” and “terrible beauty,” is not just a physical space; it is a meeting ground for varied interpretations—scientific, spiritual, descriptive, and metaphorical.

As a response we decided to explore, rather randomly, some texts, poems, and statements from writers around the world. We quickly noticed a distinct difference between Western and Eastern orientations. Western writers often emphasize the



Place of tide and tantrum. Pic by John Kurien.

physicality and materiality of the sea, while Eastern writers lean towards its spiritual and metaphorical significance. This divergence likely arises from broader cultural, philosophical, and historical contexts. However, it also reflects the distinct ways in which these societies variedly experience and relate to the sea.[2]

Tides of Thought

Western writers, particularly those from traditions rooted in naturalism, romanticism, and modern science, often adopt a descriptive and empirical approach. For them, the coast and the ocean are tangible realities to be explored, studied, and documented. This perspective is grounded in Enlightenment ideals of reason, discovery, and the desire to categorize the natural world.

Writers like Rachel Carson, Henry Beston, and Carl Safina focus on the ecological dynamics of coastal and marine environments, reflecting an environmental awareness and a call to stewardship grounded in scientific understanding. Their approach mirrors Safina's description of the coast—youthful, daring, and based on a careful observation of the natural world's patterns and changes.

Conversely, Eastern writers—particularly those from Asian, Middle Eastern, and Indigenous traditions—often use the ocean as a metaphor for broader existential, spiritual, and philosophical ideas. The sea becomes a symbol of the unknown, the infinite, or the divine—a reflection of the inner landscape of the soul or the mysteries of existence.

Writers like Tagore, Kamala Das, Rumi, Khalil Gibran, and A.K. Ramanujam often transcend the physical attributes of nature to explore themes of unity, freedom, and the divine. In their works, the sea is not merely a subject to be described, but a medium through which deeper spiritual truths are conveyed. This resonates with Berg's idea of the interconnected resonance among living things, where the ocean becomes a symbol of deeper, universal connections and truths.

While Western perspectives often focus on the "what" and "how" of the coast and ocean, Eastern perspectives delve into the "why"—the deeper meanings and connections beyond the observable. However, there are overlaps where these perspectives inform each other. The descriptive can lead to the spiritual. This is seen in the works of



Coast – a space where empirical knowledge and spiritual insight can coexist. Pic by John Kurien.

Thoreau or Aldo Leopold, while the metaphorical can be rooted in keen observations of nature, as in Indigenous oral traditions. For instance, the Onge, Great Andamanese, and Nicobarese stories of sea gods and spirits reflect both a spiritual worldview and empirical knowledge of tides, seasons, and marine life. Similarly, ancient Tamil Sangam literature describes the 'neithal' (coastal) landscape with both poetic metaphor and empirical accuracy.

Both approaches offer valuable insights. Together, they provide a more comprehensive understanding of the coast and ocean, encompassing both their tangible, physical realities and their intangible, spiritual significance. The coast, in its "tense negotiations" and "interconnected resonance," becomes a space where empirical knowledge and spiritual insight can coexist and inform one another.

Integrating Science and Spirit

Blending these perspectives creates a more holistic approach to marine bioregionalism, where science and spirituality coalesce. Western, science-based approaches emphasize data-driven strategies like Marine Protected Areas (MPAs), sustainable fisheries, and pollution control, which are crucial for understanding marine ecosystems. Meanwhile, Eastern perspectives add a cultural and spiritual dimension, viewing the ocean as a living entity with which humans share a reciprocal relationship. Combining these views fosters a deeper sense of stewardship, where conservation becomes both an ecological necessity and a moral duty. Initiatives that integrate local ecological knowledge with scientific expertise often achieve better community support and sustainability.

This blended approach also extends to creating inclusive narratives and policies. Western writers' detailed descriptions can effectively advocate for policy changes, while Eastern metaphorical approaches can inspire broader cultural shifts and engagement. By intertwining the "tense negotiations" of Safina's coast with the "interconnected resonance" of Berg's bioregion, we can create a narrative for marine bioregionalism that is both scientifically compelling and emotionally resonant.



Ocean becomes a symbol of deeper, universal connections and truths. Pic by John Kurien.

In education and public awareness, blending empirical lessons with experiential, story-based learning offers a more rounded understanding of coastal ecosystems. Similarly, marine and coastal spatial planning can benefit from recognizing both scientific insights and sacred cultural landscapes, integrating ecological and spiritual values.

Overall, this co-evolutionary approach to marine bioregionalism combines practical stewardship with ethics of care, leading to more adaptive and culturally resonant conservation practices. It offers a more balanced and inclusive path towards discovering the resonance needed for a deeper conceptual clarity for marine bioregionalism. We believe that by acknowledging both the "tide and tantrum" of the coast and the "distinct resonance" of interconnected life, we can better navigate the complexities of marine environments and foster a more profound sense of connection and responsibility.

Source: <https://radicalecologicaldemocracy.org/tides-of-thought-integrating-science-and-spirit-in-marine-bioregionalism/>



3. Signs of Hope

Ecosystem Restoration Communities- John D. Liu

For over 30 years, ecologist and filmmaker John D. Liu has been restoring degraded landscapes around the world, proving that no individual is too small to make a difference. John: "As soon as you put a stop to ecological depletion, the forests come back."

All natural systems have been perfected through an evolutionary process since the Earth was created 4,6 billion years ago. If we scale this back to 46 years, human beings have only existed for four hours... "Yet we think we know it all and we can dominate nature", says ecologist, filmmaker and landscape restoration expert John D. Liu. "Fortunately, nature has the ability to regenerate itself. So as soon as you stop depleting a landscape, for example by discontinuing intensive livestock farming, an area will restore within a few years. Then the water cycle returns, soil becomes fertile again, toxins are filtered out of the ecosystem and biodiversity increases."

Forever grasping

"The chance that you end up on a planet with a highly oxygenated atmosphere, a freshwater system, fertile soils and plenty of biodiversity is incredibly small. We truly live in paradise", John says. Nevertheless, we keep prioritising materialistic desires over the natural systems that sustain life on earth. "This is a fundamental flaw in our economic system, which has turned humanity into an ecological weapon of mass destruction." Moreover, because we continuously keep grasping for more, we are making ourselves fundamentally unhappy. "We have created this gaping hole of desire that we will never be able to fill. Therefore, landscape restoration is not just a way to restore the earth. It also heals our soul."

The Loess Plateau

In the early 1990s, John works as a journalist in China, his father's homeland. Shocked by the environmental pollution around him, he trades in his successful career as a reporter and starts making nature documentaries. "This is how I ended up at the Loess Plateau in 1995, an area the size of

Belgium", John says. "Back in the day, it was one of the most severely degraded landscapes in the world. Everywhere you looked, you saw these barren valleys, like little Grand Canyons, which had been shaped by the heavy rains. But not a drop of water had remained behind, because the area was bone dry."

This makes him realise that even landscapes with sufficient rainfall can turn into deserts, if we deplete the soils long enough. "In a healthy ecosystem, the roots of plants and trees work as sponges: they absorb and capture water", John explains. "But when the soil is left completely barren, for example after deforestation, this sponge effect vanishes and the fertile top layer of the soil washes away with every subsequent rainfall, leaving the area increasingly eroded and degraded."



*The Loess Plateau, before and after the restoration works.
Photo by: Commonland*

After 20 years of restoration works, the Loess Plateau is now green, fertile and bountiful, as we can see in John's documentary *The Lessons of the Loess Plateau*. But also in Ethiopia, Jordan and many other countries John has proven that large-scale landscape restoration is possible. "It's actually very simple", he says, "no landscape is doomed to degrade, because that's not how nature designs ecosystems. Therefore, degradation is almost always caused by human depletion. Once you put a stop to that, you can pretty much restore any area."

Read the full article here: <https://re-generation.cc/en/pionier/john-liu-ecosystem-restoration-camps/>



4. Case Studies

Rooted in People, Restoring Forests Through Collective Action

By Neha Negi and Mahesh Kale



*Plantation Drive in Progress by Local Residents
Picture Credits: Deepak from Himal Prakriti*

In the Gori River Basin, located in the upper Himalayan terrain of Uttarakhand's Pithoragarh district, lies the Sarmoli-Jainti Van Panchayat, covering 35 hectares. The forest is home to diverse flora, including oak (banj), rhododendron (buransh), and deodar, along with patches of grasslands and shrubs. Fauna commonly sighted in the area includes Himalayan musk deer, barking deer, leopards, and a variety of bird species like the Himalayan monal and koklass pheasant.

In 2000, the people of Sarmol Jainti saw that their sacred lake, Meser Kund, was slowly dying. They also noticed the forests around them were thinning. The Van Panchayat had always supported their daily needs like fodder for cattle, fuelwood for cooking, and warmth in winter. But over time, they began to see its bigger role. It helped protect slopes and provided a steady water source for three nearby Gram Panchayats.

The community came together to protect and manage their forest by combining traditional knowledge with democratic decision-making. They

elected a representative council, ensured women's participation, and established rules to guide sustainable forest use and conservation. Over the years, they have worked with government schemes and civil society initiatives to revive degraded patches, protect wildlife habitats, and improve local water sources. Building on this foundation, in 2022, they launched a plantation drive focused on regenerating both native broad-leaved species and traditional timber trees, such as Deodar, Surai, Banj Oak (seeds), Wild Cherry, and other ecologically significant varieties, that had often been neglected in fast-track afforestation efforts. Their goal was not simply to increase tree count, but to restore ecological balance, biodiversity, and long-term access to sustainable wood resources.

The plantation drive was led by local youth in close collaboration with villagers, using a structured and participatory approach. In Sarmoli, a survey was conducted a week before planting to gauge interest and determine how many saplings were needed, typically between 100 and 200. Based on local knowledge, they dug 1x1 meter pits for each sapling, a traditional technique previously used for fruit trees and passed down by elders to ensure better root development. Native species were carefully selected for planting, including Wild Cherry, chosen in part for its evergreen characteristics. The plantations were timed with Harella, a festival in Uttarakhand that marks the onset of the monsoon and is widely believed to improve survival rates thanks to favorable climate conditions. Youth leaders also mobilized efforts in other Van Panchayats, where similar drives were carried out under local leadership, reinforcing a sense of shared responsibility. While the ratio of Deodar to Surai was roughly 75:25, the species mix was adjusted to suit the ecological context of each planting site. More than just an afforestation effort, the drive became a collective conservation initiative anchored in local stewardship and ecological care.

One of the challenges the community faced was the unauthorized relocation of saplings. In some instances, individuals collecting fodder unintentionally moved newly planted trees to their land, which disrupted the restoration process. Rather than respond with reprimand, the



Preparing plants for field deployment

Van Panchayat focused on building awareness, encouraging people to allow the saplings to grow undisturbed within designated forest areas. Meanwhile, the youth took on an active role in expanding the initiative beyond Sarmoli. They reached out to sarpanches in neighbouring Van Panchayats, sharing their experience and motivating others to launch similar plantation drives. This outreach not only strengthened participation across villages but also led to the development of nurseries in other communities, reinforcing the foundation for long-term forest regeneration.

One of the key insights from the Sarmoli-Jainti experience is that ecological restoration rooted in community participation takes time, patience, and mutual trust. This work didn't unfold overnight;

it took years of steady effort and shared learning to build relationships, deepen ecological understanding, and reconnect with the forest. The process grew slowly through the lived experiences of women, the creation of shared rules, and emotional ties to the land. When people begin to feel a connection with nature, conservation becomes second nature, less a task, more a way of life.

This approach not only helped revive slow-growing native and timber species but also encouraged afforestation as a shared responsibility, fostered nursery-based livelihoods, and enhanced forest biodiversity. Through traditional knowledge, community care, and mindful planning, the people of Sarmoli-Jainti are nurturing a forest that stands to benefit generations beyond their own.



Banjh Oak seeds for distribution

Acknowledgement: Special thanks to Deepak Pachhai from Himal Prakriti for his valuable insights and thoughtful guidance during the site visit.

Some information in this case study has been referenced from the Community Conserved Areas portal, accessible at <https://www.communityconservedareas.org>.

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Fostering Community-Based Conservation Through Knowledge And Experience Sharing

By Neema Pathak Broome and Esha Joshi from the Conservation and Livelihoods Team at Kalpavriksh Environment Action Group

Across the world indigenous peoples and local communities have conserved natural ecosystems for cultural, religious, political and livelihood purposes. Increasingly, such areas are being declared formally as 'Community Conserved Areas (CCAs)' with specific rules being formulated by communities for their governance and management. Since the late 1990s, Kalpavriksh has been working with local communities across India to facilitate and support their conservation efforts through the declaration and management of CCAs. As a founding member and the India co-ordinator of the ICCA Consortium, we also network with organizations and individuals involved with CCAs at the global, international, national and local levels.

One of our major engagements has been in the state of Nagaland, where, in partnership with local organisations, we focus on research, documentation, advocacy, facilitating visibility and awareness about CCAs, promoting dialogues on CCAs and engaging with CCAs on ground to provide any need-based assistance. With over 432 CCAs, Nagaland has emerged at the forefront of a movement to recognise, preserve and strengthen indigenous people and local community-led conservation. Nagaland assumes a special position in the Indian sub-continent due to its biogeographic location, a rich assemblage of flora, fauna, and traditional knowledge, as well as its socio-cultural history. The rich biodiversity and abundant forest cover of the state is, however, threatened by several factors including deforestation, degradation of forest resources, change in land-use patterns, hunting and illegal trade of wild flora and fauna.

Despite challenges, Nagaland's community conservation can serve as a model for local communities nationwide seeking to formalize long-standing conservation practices in their traditional habitats. This came to the fore during the second

author's visit to Ladakh in June 2024, facilitated by the Snow Leopard Conservancy - India (SLC), for a capacity building programme on 'Community-led and rights based conservation approaches'. During these workshops, local community participants expressed a desire to understand various dimensions of declaring natural ecosystems under their customary control/ occupation as 'CCAs'. This inspired us to facilitate a community exchange visit to Nagaland in November 2024. Village representatives from three Ladakhi villages - 'Tar', 'Saspoche' and 'Nyaraks', and members from SLC and Kalpavriksh participated in the exchange. The purpose of the visit was to shed light on the process of declaring CCAs, the formulation of rules and guidelines for activities within a CCA and the management of a CCA. The participants were a good mix of village elders, women, youth and researchers from SLC.

In the first part of our journey, we traversed through the rich landscapes of Eastern Nagaland during which we were hosted by the team from LEMSACHENLOK, a community based organisation. Along with visits to CCAs in Longleng and Noklak districts, the Ladakhi group participated in a workshop of nearly 50 CCAs from various eastern districts of Nagaland, hosted by Choklangan village. One of the objectives of the workshop was to discuss how community-based conservation could further the Sustainable Development Goals. The villagers of Choklangan district furthered this in letter and spirit. Every item utilised was sourced and made in the village, guests were put up in local homes and every item was made from local bamboo ensuring zero plastic use. All of this also generated significant revenue for the village economy. Overall, it was a unique opportunity to understand the diversity of approaches employed by various communities in championing biodiversity conservation through CCAs. For instance, several Naga communities discussed the efficacy of a blanket prohibition on hunting within the boundaries of the CCA as opposed to a seasonal prohibition, as well as the advantages and limitations of both traditional jhum and modern terrace farming. Valuable discussions

also took place on issues related to community livelihoods, changing land use patterns, the role of youth, women and elders in CCA governance, and management and biodiversity conservation potential of CCAs.

The Ladakhis also gained insights into how Choklangan village had used an integrated farming system combining Jhum and terrace farming; how their cultural activities are linked to the lived reality of the people; their water conservation efforts; their conservation of the habitat of Hoolock Gibbons, and their quest to integrate traditional knowledge and modern education in the village school run by the local youth. Many of these activities are led by the youth and women and are supported by LEMSACHENLOK.

The group from Ladakh in turn, shared the stories of their struggle with rapid and unregulated commercialisation, infrastructure development and tourism. It shed light on how these, as yet nascent, threats in Nagaland have the potential to disrupt local ecology, socio-cultural bonds and livelihoods.

The second leg of the trip, planned by our partners at Kenono Foundation, included visits to two of the oldest formally declared CCAs in the state, Sendenyu and Khonoma. In Sendenyu, a hike through the community reserve allowed the participants to understand, in depth, the governance and management mechanism of the CCA, and learn about various initiatives for livelihood generation, including community enterprises such as coffee cultivation and trade, and initiatives for creating awareness about local biodiversity among the local children.

Khonoma, as an iconic CCA in the state and consequently a hub for eco-tourism in the state, demonstrated effective methods for equitable tourism practices, including an impartial homestay booking system facilitated by village institutions rather than individuals, waste disposal techniques and increasing livelihoods options through involvement of locals as tour operators, tour guides and birdwatchers.

A pit-stop at the Hornbill Festival in Kisama village in Kohima between these two visits, proved fruitful in providing a macro-level view of Naga culture, food systems, languages, modern life and conservation initiatives. The Ladakhis also met with the office-bearers of the Nagaland Community Conserved Areas Forum (NCCAF), to deliberate on challenges faced by community led conservation initiatives, particularly, in light of a lack of state policy to support CCAs, and lack of consistent and regular legal, regulatory, advisory and financial support.. They also discussed how various protected area categories under the Wild Life Protection Act of India may not be the appropriate legal framework to support CCAs in the state. In light of Ladakh's demand for protections under the VI Schedule of the Constitution, the special Constitutional status of Nagaland under article 371A and its implications vis-a-vis conservation was also deliberated upon.

The topography, culture and legal protections available to Ladakh and Nagaland are starkly different. Yet, the connection to nature and the struggle to amalgamate or balance traditional wisdom and ways of life with the pressures of commercialisation and modernity unite them. While Nagaland has done it for the past few decades, the villages in Ladakh are just beginning the process of declaring their community commons as CCAs to protect them from over exploitation, bio-cultural diversity, address water scarcity and as a climate change adaptation mechanism. Tar village has become the first village in Ladakh to declare a CCA in November 2024.

Thus, the village communities in both the states, like in other parts of India, are contributing towards achieving the global Sustainable Development

Goals and various Targets under the Kunming-Montreal Global Biodiversity Framework (KMGBF) of the Convention on Biological Diversity (CBD). In particular they are contributing towards achieving Target 3, which calls for the effective conservation and management of 30% of all terrestrial, inland water, marine and coastal areas by 2030. Significantly, the Target stresses on recognising and respecting the rights of indigenous peoples and local communities especially, over areas traditionally occupied by them.

The state governments of Ladakh and Nagaland have no official policy on CCAs nor have they officially recognised CCAs and the role they play in the fulfilment of conservation goals such as Target 3. As such, customary commons, in general, and CCAs, in particular, in both the states face serious threats. Thus, the exchange visit was significant not only for knowledge sharing about various mechanisms for management and governance of CCAs, but also to identify key threats to community-led conservation in both the states. These included the lack of individual and community titles over land surrounding Ladakhi villages, the decreased autonomy in the absence of protections such as those provided through the Sixth Schedule and Article 371A of the Constitution of India and, the dangers of unregulated tourism and exploitation of natural resources. The trip also enabled both the communities to understand from each other various mechanisms they had employed to counter the threats and address issues faced by the communities.



A community fishery pond in Longleng District, Nagaland.



The team from Ladakh attended the 'A Camaraderie of Network of Eastern Nagaland Community Conserved Areas' Event organised at Choklangan village.



A community interaction on farming techniques at the Choklangan Village CCA.



Learning about Naga culture at the Hornbill Festival.



Discussing sustainable tourism and community-led management of CCAs with community leaders in Khonoma

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