Q3 2024 | Issue #04

KONRAD ADENAUER STIFTUNG

ART!CULATE

- The Sinking Town of Macabebe
- Bangladesh's Coastal Life
- Cambodia's Political Reforestation
- Vietnam's Hmong Struggle

Climate Change

ADENAUER FELLOWSHIP

KONRAD ADENAUER STIFTUNG

Konrad Adenauer, Turkey, 1954.
Photographed by Ara Güler.

Konrad Adenauer Stiftung (KAS) Media Programme Asia

Named after Germany's first chancellor, Konrad Adenauer, the Konrad Adenauer Stiftung (KAS) Media Programme Asia was established in 1996 to promote a free, responsible and ethical press in Asia. The KAS Media Programme Asia therefore connects leading journalists with one another, collaborating with colleagues and partners worldwide. The overarching goal of our work is to promote and support Asian media institutions and journalists in the development of professional journalistic standards in the region, to support young journalists as best as possible throughout their careers, and to advocate and promote the importance of media as an integral part of democratic and liberal societies.

The Adenauer Fellowship

The Adenauer Fellowship is a scholarship programme offered by the KAS Media Programme Asia to support journalism education in the region. The KAS Media Programme Asia partners with several educational institutions in Bangladesh, India, Pakistan, and the Philippines. For more information about applications and application deadlines, please visit: https://adenauer.careers

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Foreword

Our world is facing a lot of problems and crises, such as wars, terrorism, extremism, demographic challenges, inflation, pandemics, global warming, and perhaps the most pressing challenge of our time: climate change. As unprecedented environmental shifts become an undeniable reality, it is more crucial than ever to engage with the narratives, research, and personal stories that bring the climate crisis to the forefront of our collective consciousness. But we must not forget that there are other challenges and that, for example, maintaining healthy market economies with secure jobs must go hand in hand with the goals of climate protection. Both climate protection and economic stability or development must be pursued equally. This is why we must look to innovative answers for the future instead of peddling apocalyptic descriptions of the environmental situation or calls to abandon technological achievements.

In this fourth issue of *ArtIQulate*, we continue our commitment to exploring the multifaceted impact of climate change across the globe. Our contributors have embarked on investigative journeys, revealing the effects of environmental degradation on often-neglected communities, ecosystems, and economies. You will read about the struggle of the Hmong people in Vietnam as they work to preserve their indigenous corn seeds. Their argument: 'Indigenous corn embodies the spirit of ancestors and can mobilise entire communities to protect their territories, lifestyles, and traditional indigenous knowledge systems.' You will journey to Cambodia, where the delicate balance of conservation and development poses profound questions about the future of one of Southeast Asia's last great wildernesses. You will witness the resilience of communities in the Philippines as they transform environmental challenges into opportunities for sustainable development. And there are many more topics besides. From the melting glaciers of the Himalayas to the threatened biodiversity of Southeast Asia's rainforests (threatened by renewable energy, by the way!), these stories aim to illuminate the urgency of the situation and the innovative solutions emerging in response.

We would like to thank all the authors and photographers for their contributions. *ArtIQulate* is more than a magazine; it is a platform for dialogue and action. We believe in the power of storytelling to inspire change, and we are proud to feature voices from diverse backgrounds, each one contributing a unique perspective. The magazine begins as the magazine ends—our mission at *ArtIQulate* is never complete. In the next issue of *ArtIQulate*, we will once again be offering exciting articles from across Southeast Asia.

We invite you to engage with the content, share your thoughts, and join us in this vital conversation. We look forward to your reactions to this issue as well as your suggestions for the next one. Enjoy reading! ■

Ansgar Graw

Director,
KAS Media Programme Asia

Ansgar Graw is the director of the Media Programme Asia at the Konrad-Adenauer-Foundation Ltd. in Singapore. The journalist and former TV host has published numerous books on Donald Trump, international affairs and German politics, amongst others, and has a strong focus on business journalism through his work with the German media outlets Die Welt (e.g. as correspondent in Washington D.C.) and The European.

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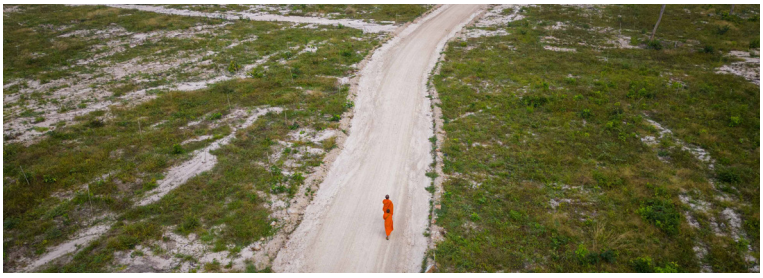
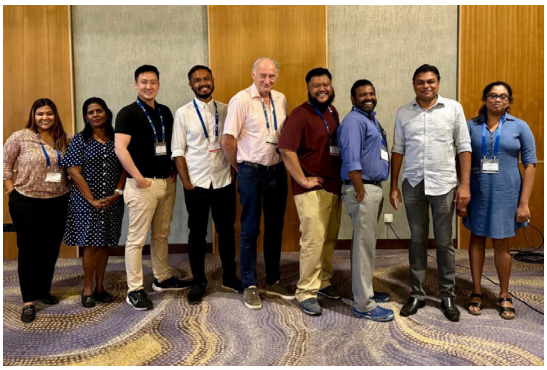


KAS Media Programme Asia Events

AI Exchange Roundtable - Artificial Intelligence, Quantum Computing and Media

Singapore, KAS offices
20.02.2024

What happens when the latest stage of the digital revolution, i.e. AI, pairs with the most powerful computers, as quantum computers? We discussed this with interesting speakers at a luncheon conference in our Singapore office. Dimitrios Angelakis, entrepreneur and Professor of Quantum Physics (Greece and Singapore), as well as Olaf Gersemann and Pascal Roski from Axel Springer SE (Germany), one of the largest publishers of digital news worldwide, presented their concepts and shared their experiences. Academics and journalists from Singaporean and German media discussed with them. One conclusion of the debates: AI has already become an integral part of most newsrooms. Those who refuse to embrace these innovations are also likely to fail their business.



Data Journalism Workshop

Kalutara, Sri Lanka
01.03. - 03.03.2024

If you have data, you can prove your stories. And if you can present your data in a well-organised graph, you can add a visual layer to the narrative that supports and underlines your story. “Data Journalism” was the topic of a workshop in Kalutara, Sri Lanka, at the beginning of March. In cooperation with the Center for Investigative Reporting Sri Lanka and the Burmese company Thibi, a consultancy specializing in the visualization of data, more than 30 journalists were trained in handling data, graphics programs and visualization tools. How do you create graphics, how do you prepare your stories interactively, how do you filter your data, how do you check the reliability of sources? The participants developed concepts for stories; the best of them will be supported in their implementation as part of a mentorship program following the workshop.

Artificial Intelligence Bootcamp

Siem Reap, Cambodia
22.03. - 24.03.2024

AI is supposed to provide answers. But at the moment, it raises many questions: Is Artificial Intelligence a threat or an opportunity for our industry? How can ChatGPT help us journalists without us losing control of our knowledge and our readers losing trust in our media? Which AI-based software programs can we use to find important facts in volumes of documents? How do we check whether an article was written by AI or whether photos and films were artificially generated or modified? Under the guidance of trainers from India, Myanmar, the Philippines and Singapore, 35 journalists tackled these questions at an “Artificial Intelligence Bootcamp” in Siem Reap, Cambodia in March 2024. The result: there are many time-consuming, boring compulsory tasks in journalism. If we delegate them to our robot colleagues, we have more time for thorough, investigative journalism. And bottom line: No computer program can replace the human being.

Jilson Tiu is a freelance photographer and photojournalist. He contributes to various corporations and NGOs in both print and online platforms, local and abroad. His personal work revolves around environmental and social issues. He loves black coffee.

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Cyclists race for the 1st place in UCI Gravel Philippines in Bongabon, Nueva Ecija, Philippines. Cycling boomed during the pandemic due to lack of public transportation and mental health issues caused by the lockdowns, resulting in a new cycling era around the world.

Photograph by Jilson Tiu, 2021.

Rooh'an Pooash: Flowering the Souls

Reviving Water Bodies with a Centuries-Old Tradition

Panzath Nag, a small village in the southern Kashmir district of Islamabad, has been protecting its spring for centuries. However, pollution and industrial encroachment are threatening its existence.

Written by
Mounis Bin Muzafar Khan

Photographs & Captions
Mumin Gul

This project was done in collaboration between Mumin Gul and Mounis Bin Muzafar Khan.

Nestled in the foothills of Pir Panjal range in Qazigund, often referred to as a gateway to the beautiful Vale of Kashmir, lies Panzath Nag. The small village is known for its numerous mini springs, from which the name 'Panzath Nag', or 'land of 500 springs', comes from. The sound of cascading water fills the air, creating a serene and peaceful atmosphere. The landscape is a convergence of sparkling streams and glistening pools, all originating from different sources. Water flows from every direction, converging into one grand spectacle.

According to local Zahid Ahmad Rather, the spring has three sections, and each one is designated

A group of locals from nearby villages making their way to the Panzath Spring to catch fish. Photograph by Mumin Gul, 2023.

to specific villages. 'D'rain Soth, Wampur Soth, and Panzath Soth are for each village bearing their names,' he added.

Every year, the residents celebrate festivals associated with the spring, also known as Nag Mouj, 'mother of all springs'. People from all age groups come together to participate in an annual spring cleaning and fishing event, breathing life into a cherished tradition locally known as Rooh'an Pooash, or 'flowering of the souls'.

Visitors both young and old join the collective celebration. Mohd Khalil Niyavoo, an elder from the community, claims this tradition to be 900 years old. 'My great-grandfather used to teach me about the village, and had informed me that when he was a kid, this tradition was taught to him by his grandfather, [who] learnt it from his,' he recalled.

During the cleaning festival, over 200 enthusiastic individuals gather around the spring, armed with their wicker baskets, nets, and carrier bags. They enter the water body as one to clean the spring. The constant movement stirs up the silt, and the collective effort effectively removes the stubborn weeds that have taken root. The water is rejuvenated, reflecting the community's commitment to preserving their natural environment.

'The flow and levels of water are naturally maintained; we [have] never experienced flooding, even when we live in close proximity to the water body. However, in winters, the water level is down, but the water in the spring turns warm instead of cold, we can see vapours on the surface of water. When spring starts in the month of March, the water cools down and is refreshing throughout the summer,' Niyavoo added.

This extraordinary feature of the village has for years made it a popular destination for nature-lovers, attracting locals and tourists alike. Panzath Nag is surrounded by rivulets, thick coniferous trees, and towering Himalayas—all of this has fostered

the locals' deep connection with the natural world. This sense of belonging has, many believe, contributed to the preservation of the local environment.

The convergence of the water springs is also responsible for the rich biodiversity in Panzath Nag. The abundance of water has created a haven for numerous plant and animal species. The surrounding forests teem with life, and the songs of birds and insects fill the air.

Each spring in Panzath Nag has its own unique characteristics. Some are renowned for their crystal-clear water, perfect for drinking or refreshing oneself. Others are believed to possess healing properties, with locals and visitors submerging themselves in these natural pools to rejuvenate their bodies and minds.

'It is believed that if you drink water from this spring, you are blessed, and all your health issues and ailments [will be] resolved,' local Khursheed Ahmad Atari said.

The springs are an integral part of the village's culture and folklore, with numerous tales and legends associated with their origins.

'We have heard a lot of Wan-Wun (wedding songs) during nights. It has been happening for a long time, and we know it's the fairies that do it," said Abdul Rashid, who works in the water supply department.

Fishing also serves as a clever ruse to entice participants into the water. While the main objective is to clean the spring, the act of fishing has been ingeniously woven into the tradition. Fishing has become an integral part of the festivities, made special by this once-in-a-year event.

Freshly-caught, local fish are considered a delicacy, and the anticipation of enjoying this culinary delight further fuels the participants' enthusiasm. The clinking sound of the baskets and the vibrant colours of the nets create a mesmerising scene as the crowd wades into the water. Excitement fills the air, and the spirit of camaraderie permeates every corner of the spring. Each catch is a triumph, a testament to the collective effort that has gone into revitalising this cherished water body.

Among the participants, it is the children who are the most thrilled. Their faces light up with unbridled joy as they immerse themselves in the spirit of the

Local villagers attempting to catch fish in a wicker basket in Panzath, Qazigund. Photograph by Mumin Gul, 2023.

festivities. For them, it is not only a day of cleaning and fishing, but also a day of adventure and discovery. Haji Abdul Salaam, the village head, spoke about the origins of this tradition: 'When the village elders decided to clean the spring, they realised that the water was too deep to clean with shovels and tools. They decided to bring people together and let them spend time in the water.'

It worked, because the water and the life in it is considered sacred, and fishing is prohibited throughout the year except for one day: the day of the festival. Salaam believes his village to be one of the most beautiful places in the valley, but one that has been ignored by the authorities.

'We can clearly see how murky the water has become, as silt and waste are being washed away. Now we don't need to clean the water till next year. This is our way, and it has been going on for centuries,' he stressed.

The very next day, in every home, the comforting aroma of homemade wheat flour rotis fills the air, as the women skilfully knead and shape the dough. While the women busy themselves in the kitchen, the children venture into the lush surroundings, collecting vibrant flowers that will later become part of a ritual. As the sun starts to descend, the hour of a congregational prayer arrives, where men, women, and children gather to seek solace in their faith. In this tranquil moment, the villagers come together to offer heartfelt prayers for peace, prosperity, and protection.

After the daily prayer, the men and children make their way to the respective ancestral graveyard. The children follow in the footsteps of their fathers and grandfathers, each step a poignant reminder of the passage of time and the enduring bond between generations. Arriving at the grave sites, the men and children kneel, clutching the flowers they collected earlier in the day. With each delicate petal placed, they pay homage to the departed. This marks the end of the festivities.

'In this heartfelt act of remembrance, the village finds solace and strength,' one villager commented.

The villagers of Panzath Nag have learned to harness the power of the springs for their daily needs. The water is channelled into an intricate network

Villagers attempting to catch fish as many watch from the bank of the stream in Panzath, Qazigund. Photograph by Mumin Gul, 2023.

Locals praying in Sheikh Aftab Sahab's shrine at Panzath, Qazigund. Photograph by Mumin Gul, 2023.

> "Recognising the significance of their natural treasure, the people of the village have taken steps to protect and preserve it. [...] Their efforts have been rewarded, as the springs continue to thrive."

of canals and channels, providing irrigation to the surrounding agricultural lands. The fertile soil, nourished by these abundant waters, yields bountiful crops like rice, corn, and vegetables native to the region.

The village has become self-sufficient, relying on the springs for sustenance and prosperity. Further, the spring provides an essential supply of water for over 35 villages along its path, as well as a number of fish hatcheries. In addition to giving local communities a means of support, these fish hatcheries help to preserve and replenish the local fish population. Hatcheries have contributed to the economy by promoting environmentally friendly practises and bringing attention to the value of protecting natural water supplies. They have also become hubs for environmental research.

The locals, however, claim that the majority of the springs have dried up as a result of pollution and encroachment. There are no official records of the

springs that once poured out from the village, which makes proving this difficult. This highlights the importance of the cleansing festival.

Faiz Bakhshi, a renowned environmentalist, said that the tradition of this systematic method with which the people of Panzath Nag clean their source of water annually is extremely important and can be applied to many waterbodies like these in the valley.

'Due to siltation, the aquifers get blocked, and the waterbody turns stagnant and eventually dies, so when the people from Panzath Nag move around in their spring, churning it, the silt and weeds are lifted from the bottom and the running water carries it all away, which clears the aquifers and keeps the springs of Panzath Nag alive. This method is a testament to how one small step can make a difference for generations to come,' he explained.

Recognising the significance of their natural treasure, the people of the village have taken steps to protect and preserve it. They have implemented strict conservation measures to ensure that the springs remain untouched by pollution or human interference. The community has embraced sustainable practices, avoiding activities that could harm the delicate ecosystem. Their efforts have been rewarded, as the springs continue to thrive. ■

Mounis Bin Muzafar Khan is a visual artist and documentary filmmaker with a passion for storytelling, a strong dedication to justice, and an eye for detail, based in Indian-administered Kashmir.

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Mumin Gul is a documentary photographer and filmmaker from Indian-administered Kashmir. He is passionate about creating in-depth documentary photo and film projects on social issues, history, the environment, culture, and memory. His photographs depict his emotions and the harsh realities of his homeland. His work largely focuses on people, and has been published in *Vice Asia, TRT World, Boomlive,* and *Musee Magazine*.

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Weaved Hope

Flint Osric T. Gorospe

Thousands of water lily plants cover parts of the lake in Barangay Takungan, Pililla, Rizal. Photograph by Flint Osric T. Gorospe, 2023.

Water lily plants were overcrowding the waters of the Municipality of Pililla, Rizal, until local groups organised various initiatives to turn a profit from the infestation that once damaged the local fishing industry.

This article was first published on Medium.

Flint Osric T. Gorospe is a development journalist based in Rizal, Philippines. He covers stories related to the informal sector, labour, religion, and education. He is a Konrad-Adenauer Stiftung Media Programme Asia fellow with a Diploma in Visual Journalism from the Asian Centre for Journalism in the Ateneo de Manila University.

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Despite their beauty, water hyacinths, popularly known as water lilies, are now considered pests due to their rapid growth and invasive nature, affecting different bodies of water in the Philippines.

In Pililla, Rizal, thousands of thick water lily plants cover parts of the lake, rendering boating and fishing nearly impossible. Maintaining aquaculture is also made challenging as the water quality degradation continues. In 2020, the Department of Environment and Natural Resources (DENR) partnered with the fisherfolk around Laguna Lake to collect water lilies, for they harbour disease-carrying mosquitoes and deplete oxygen levels that may result in fish mortality.

Upon witnessing these problems, the community-based association, Progresibong Kababaihan ng Pililla (aka Better Pililla Women's Multi-Purpose Cooperative, or BPWMPC) also reached out to fisherfolk associations in the municipality, offering ideas that could help solve their problems with water lilies. BPWMPC, being one of the beneficiaries of water lily-processing workshops under the Villar Social Institute for Poverty Alleviation and Governance (Villar Sipag) Foundation, officially launched their handicraft-making project as one of the staple livelihoods of their group in 2022, transforming dried water lily stalks into handbags, coasters, cellphone holders, and sling bags for sale.

Since then, BPWMPC has partnered with the fisherfolk associations in Pililla in harvesting and drying water lily stalks that they then use for their handicraft products. For Ramil Casquete, President of Bantay Kalikasan Lawa at Dagat (BAKLAD), BPWMPC's initiative helped the fishing industry in the community to thrive. 'Malaking bagay po 'yung nangyaring recycle na 'yan, nawala na po 'yung pinaka-volume, dami ng water lily [sa lawa] kaya nakakapaghanapbuhay na po kami kahit papaano.' [This recycling initiative has been a huge help, for it lessens the large volume of water lily (in the lake), that's why our livelihood can now continue.] ■

President of the fisherfolk association in Barangay Takungan, Angelito Marciales, trims the newly harvested water lily stalks.
Photograph by Flint Osric T. Gorospe, 2023.

Members of Better Pililla Women's Multi-Purpose Cooperative weave dried water lily stalks to make an eco-friendly mat.
Photograph by Flint Osric T. Gorospe, 2023.

Hundreds of dried water lily stalks are handwoven by a member of Better Pililla Women's Multi-Purpose Cooperative.
Photograph by Flint Osric T. Gorospe, 2023.

Members of Better Pililla Women's Multi-Purpose Cooperative transform dried water lily stalks into handbags, coasters, cellphone holders, and sling bags.

Photograph by Flint Osric T. Gorospe, 2023.

A couple of fisherfolk prepare the newly caught fish for delivery. Their catch has improved within a year after the implementation of the water lily handicraft project.

Photograph by Flint Osric T. Gorospe, 2023.

Risking the 'Final Frontier' of Biodiversity in the Search for Renewable Energy

Anton L. Delgado

Thon Soukhon, who has been a ranger in Virachey since the forest became one of Cambodia's first national parks in 1993, leading a patrol within the protected area. He calls it 'Cambodia's gem'.
Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

As Southeast Asia races to cut reliance on fossil fuels, Cambodia turns to one of its last relatively-untouched landscapes for renewable energy. Leaked documents revealed plans for the construction of hydropower dams in the dense borderland forest of Virachey National Park. But is this energy really 'clean'?

This article was produced in collaboration with *The Japan Times* and *Southeast Asia Globe*, with support from *The Pulitzer Center's Rainforest Investigations Network*.

As monsoonal rains rust the charred skeleton of a logging truck, vines wrapped around the blackened vehicle seem to drag it deeper into the wilderness. Not far from the truck, located down an old logging trail, rangers in Cambodia's Virachey National Park conduct a biodiversity survey within the protected area, much of which is unexplored. The dense forest is one of the last relatively-untouched landscapes in the fast-developing Mekong region.

'Logging and poaching are an issue, but the park has a way of protecting itself,' said Thon Soukhoun, who has been a ranger since the forest became a national park in 1993. 'Nowhere in the country is like Virachey. It is Cambodia's gem.'

Nestled in the Kingdom's northeastern corner on the borders of Laos and Vietnam, Virachey is among the first of Cambodia's forests to be declared a protected area 30 years ago. At more than 3,300 square kilometres—nearly five times the size of the capital, Phnom Penh—it was the largest national park in the country at the time.

But as Southeast Asia races to cut reliance on fossil fuels, partly through climate finance schemes, Cambodia is risking this regional biodiversity hot spot for renewable energy. Confidential documents and maps leaked to *Southeast Asia Globe* from meetings between developers and government officials this year indicate at least two hydropower projects within the park are quietly underway. These files show initial assessment work has begun at the dam sites in the core of Virachey, which is also a heartland for the indigenous communities along Cambodia's borders.

The sun sets on Virachey National Park's Veal Thom grasslands. Virachey is one of just two ASEAN Heritage Parks within Cambodia. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

> "To build a dam in this valuable area within the national park, you would have to create access roads, cut down trees and disturb wildlife. I would not call any energy coming out of that "clean"."
>
> **PABLO SINOVAS**
>
> Country director for the international conservation nonprofit organisation Fauna & Flora

To counter the thirst for development, researchers are monetising the national park in a different way: by putting a dollar sign on Virachey's value as a potential carbon credit project, in an attempt to prove that the protected area is worth more standing than felled.

The stakes of this trade-off are high. Dam construction will threaten endangered species by altering river flow and clear-cutting old-growth trees, according to environmentalists. The same leaked papers also indicate one of the dams will create a 215-hectare reservoir, flooding that section of forest. Conservationists also fear hydropower dams in Virachey may jeopardise hundreds of thousands of dollars' worth of conservation funding from the U.K. for the sake of 'clean' energy, the very definition of which they challenge.

'To build a dam in this valuable area within the national park, you would have to create access roads, cut down trees and disturb wildlife,' said Pablo Sinovas, country director for the international conservation nonprofit organisation Fauna & Flora. 'I would not call any energy coming out of that "clean".'

Pablo Sinovas, country director for Fauna & Flora in Cambodia, sets a camera trap in Virachey National Park with Ministry of Environment ranger Churt Thom. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

In the three decades since Virachey was made a national park, Cambodia has lost more than 30% of its forest cover. Protected areas, often only safeguarded on paper, have been deeply affected by this large-scale logging. While Virachey hasn't gone unscathed, the park's ruggedness protected it from the brunt of this deforestation. The forest is now known by Sinovas and other wildlife experts as the 'final frontier' for biodiversity in the Mekong region, due largely to its transboundary habitat for animals migrating across the triple border.

As development discussions continue behind closed doors, Chou Phanith, an associate professor specialising in environmental economics at the Royal University of Phnom Penh, is calculating how many tonnes of carbon dioxide Virachey can absorb and potentially sell as carbon credits. In Phanith's words, 'money talks.' If the forest is monetised before dam construction breaks ground, it could lead to a debate about whether or not Virachey is worth more standing than if toppled for hydropower, Phanith claimed. He pointed out that the dams are being proposed in one of the areas with the highest potential for carbon storage.

'If forest ecosystems do not have any economic value, policymakers and the private sector will always regard forest ecosystems as less important than development,' Phanith said. 'We calculate the economic value of a functioning forest ecosystem as part of a win-win strategy, where we don't always block development, but force sustainable and responsible development.'

The dam proposals in Virachey aren't entirely new. The first published document on energy production in the park dates back to a 2009 master plan for hydropower development in Cambodia, backed by the state-run Japan International Cooperation Agency (JICA). Miyoshi Asagi, counsellor for the Japanese embassy in Cambodia, stated that JICA's involvement with these dam developments ended when the masterplan was published.

In August, JICA announced that it was developing a new road map to clean energy for Cambodia. Asagi said she was 'aware hydropower plants have lots of debate' and that 'there are no projects in the pipeline for hydropower.'

An October report by WWF, released before the World Hydropower Congress this same month,

> If forest ecosystems do not have any economic value, policymakers and the private sector will always regard forest ecosystems as less important than development. We calculate the economic value of a functioning forest ecosystem as part of a win-win strategy, where we don't always block development, but force sustainable and responsible development.

CHOU PHANITH

Associate professor at the Royal University of Phnom Penh

found that the ecological toll of dams in the Lower Mekong Basin outweighed the rewards of renewable energy. The report stated, 'as hydropower development grows, the cascading nature of its impact could be wider and more significant than understood today.'

The dams in question are located on and named after the Prek Liang River. This waterway is a tributary to the Sesan River, which is part of Cambodia's 3S River Basin, itself a major tributary to the Mekong River. The Mekong is currently reeling from compounding hydropower pressures, with additional dam developments threatening to further choke off the once-mighty river.

In Cambodia, the government typically provides little transparency for major infrastructure projects. Basic documents such as environmental and social impact assessments are not often made public. While officials from both the Ministry of Environment as well as the Ministry of Mines and Energy did not respond to multiple requests for comment, Minister of Environment Eang Sophalleth attended the Cambodia Climate Change Summit in November. During a question-and-answer session at the summit, Sophalleth responded to *Southeast Asia Globe*'s inquiry about energy plans in national parks, such as

Nature reclaims a burnt logging truck in Virachey National Park, which spans across the borders of Cambodia, Laos and Vietnam. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

A green tree viper, a species endemic to Asia, curls around a branch in the jungles of Cambodia's Ratanakiri province. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

Virachey, by speaking broadly about balance and the need to address developments in a 'scientific matter'. He then asserted that national security through energy security is a priority. Sophalleth continued that the ministry '[does] not do things because we feel like doing it', and that environmental studies and impact assessments are done 'properly […] before we decide to do all of this.'

When asked if these documents will be made accessible, he said, 'When the public is receptive enough to accept it, to read, to think, and to see what we are trying to achieve, yes.'

The leaked files reviewed by *Southeast Asia Globe*, which span several years, indicate an opaque web of four potential companies that were at some point involved in the hydropower plans for Virachey. Three are developers from South Korea—KTC Company, Kyung An Cable, and Korea South-East Power—while the fourth is a Phnom Penh-based electrical equipment supplier called Rich-Grid Technologies. None of these companies replied to requests for comment, and it is unclear which, if any, are currently involved with the project.

'These are very sensitive documents,' said Bunleap Leang, director of the local environmental organisation, 3S Rivers Protection Network (3SPN). He explained that involved groups prefer to keep potentially controversial plans under wraps. 'If the dam is good from the perspective of the government and the developer, then, to them, no one else needs to know.'

Plans may be further along than simple discussions. Bunleap claimed to have confirmed through the 3SPN network that hiring has already begun at Tabok village, near one of the proposed dam sites.

Virachey tumbles from Cambodia's lowlands up into the biodiversity hotspot that is the Annamite Mountains, explained the conservationist Sinovas, comparing it to 'two worlds converging in the park.' At the time the sites were studied for potential hydropower, little to nothing was known about the effect these developments would have on biodiversity and forest health, Sinovas noted. But that has changed in the 15 years since.

'As we started to understand more and more about what was in the park, we are realising its conservation is critical for Cambodian and regional biodiversity,' said Sinovas. Fauna & Flora has set up

Community forest rangers carry across a jungle-rigged Honda Dream through a fast-flowing river in Virachey National Park. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

roughly 140 camera traps within Virachey, documenting the critically endangered sunda pangolin, northern yellow-cheeked gibbon, and a half-dozen other threatened species.

The national park is also the first place large-antlered muntjacs were recorded in Cambodia, and is the last possible refuge for kouprey, the Kingdom's national mammal, which has not been seen in decades.

'Virachey is one of those areas where deforestation levels have been much lower. That is partly why we have all of this wildlife,' Sinovas said. 'Doing anything to damage that would not be in the national interest of Cambodia.' He added that the immediate impacts of construction are backed with longer-term threats such as poaching, illegal logging, and other forest crimes common in Cambodia's more accessible protected areas.

Earlier this year, the U.K. embassy in Phnom Penh confirmed about USD 730,000 has been earmarked for Virachey as part of Britain's global Biodiversity Landscape Fund. Marc Thayre, deputy head of mission at the embassy, said the 'vast majority of the funding' for the Mekong region is bound for Virachey.

'This is designed to increase the value of the park as a park itself,' said Thayre, who hoped the funds would 'realign the idea of what an asset is' by putting more value to the forest when left standing rather than exploited.

Thayre shifted in his seat when asked about the proposed dams.

'If you want to tackle issues, like climate change and biodiversity, then you have to work in all places in the world with all governments,' he stated. 'We have to be honest with ourselves about the challenge and tradeoff between environment and development. There will always be some tension there.'

He also pointed to the conflict between 'building things in national parks' and the 'challenge of local communities not having power.'

'The world changes all the time,' he said. 'There are always exit strategies written into any programs we do anywhere in the world. I hope that won't be the case.'

Cambodia's hunger for development has recently been joined with a craving for carbon credits. Such credits are intended to limit emissions by preventing deforestation in places that might otherwise be vulnerable to development, such as Virachey. Major polluters then offset their fossil fuel emissions by essentially sponsoring the protection of these forests through carbon credit purchases. In recent months, Cambodia's carbon credits have come under scrutiny that goes beyond global questions over the effectiveness of credits as a whole.

The largest registered carbon credit zone is facing allegations of human rights abuses from the global advocacy group Human Rights Watch. In response, the world's leading carbon credit registry service, Verra, suspended issuing new credits to the Southern Cardamoms REDD+ project. Cambodia's appetite to sell carbon credits, however, remains unsatisfied. With the ASEAN Centre for Biodiversity, Phanith studied the feasibility of REDD+ sites in Cambodia and found about 40% of the Kingdom's total landmass (about 79,200 square kilometres) could be considered for carbon credits. Virachey stands as one of the top carbon credit prizes.

In research conducted for the centre and viewed by *Southeast Asia Globe*, Phanith identified three core areas within Virachey with an estimated total carbon storage capacity of 28 million tonnes. Phanith estimated that credits for the park could be worth more than USD 200 million in total if left as is, depending on the market rate for carbon. He stressed this didn't even begin to factor in the benefits of healthy hydrology, biodiversity, and other ecosystem services. If the proposed dams are built, they would be in one of the three core areas identified by Phanith.

'If you want to develop Virachey into hydropower dams, or whatever, make sure the economic value is more than [the cost of carbon]. If it is, go ahead,' he cautioned. 'But be willing to pay [that] anyways to offset.'

Ministry of Environment ranger Phang Phorng crosses a fast-flowing river in Virachey National Park.
Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

Sra Er, head of the Taveng Ranger Station, speaks about the Brau connection to Cambodia's Virachey National Park. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

> Dollar signs can't account for everything. Forty-seven rangers are assigned to Virachey, many are from the indigenous groups who live in the park. Several are from the approximately 60,000-strong Brau ethnic minority group from Cambodia, Laos, and Vietnam. To them, Virachey is more than a carbon sink or a potential energy source.

However, dollar signs can't account for everything. Forty-seven rangers are assigned to Virachey, many are from the indigenous groups who live in the park. Several are from the approximately 60,000-strong Brau ethnic minority group from Cambodia, Laos, and Vietnam. To them, Virachey is more than a carbon sink or a potential energy source.

While on patrol, indigenous rangers laughed as they encouraged *Southeast Asia Globe* reporters not to kill the leeches sucking on their arms, legs, neck, and ears. They called it a 'forest tax' owed to Virachey. Instead of killing the leaches, rangers smoked tobacco-leaf cigarettes to ward off the blood-suckers.

As the patrol ended for the day, a shivering breeze swept in against the sunset painting the Veal Thom grasslands gold. Sra Er, who is Brau and leads Virachey's Taveng Ranger Station, said to set alarms for 2 a.m. for star-gazing. When the time rolled around, Er was embarrassed. The night sky was shielded by overcast clouds and the moon's glare. To make up for the miserably early morning, Er unscrewed a gasoline canister filled with homemade rice wine. Sipping the spirit under the red glow of a headlamp, Er spoke about the Brau peoples' connection to Virachey, which he said was the reason he became a ranger. When asked about potential dams in the park, he grew silent and shook his head.

'We care about Virachey and we protect the park from what we can,' he intoned. ■

Anton L. Delgado is a fellow with The Pulitzer Centre's Rainforest Investigations Network. He was most recently a senior reporter at *Southeast Asia Globe* where he spearheaded the newsroom's environmental coverage from in Phnom Penh. Before moving to Cambodia, Delgado was an environmental reporter at *The Arizona Republic* with the USA TODAY network.

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Children playing cricket along a railway track next to garbage and plastic waste in Mumbai, India.

Photograph by Faisal Magray, 2023.

Corn in Peril:

Vietnam's Hmong Struggle to Save Indigenous Seeds

After decades of pursuing agricultural development, the Hmong people in northern Vietnam face a battle to preserve disappearing indigenous corn.

Khang A Tủa
Alex Nguyễn

This article was first published on *Mekong Eye*.

MÙ CANG CHẢI, VIETNAM – Early one winter morning, Khang Chờ Dê of Chế Cu Nha hamlet in Yên Bái province is woken by loud knocking on his door. Sào, his relative, needs some red corn kernels, an indigenous crop used by Hmong people in northern Vietnam for spiritual offerings to ward off bad luck.

The son of a shaman, Dê understands the importance of red corn in ritual practices. He quickly takes some kernels from his kitchen, wraps them up neatly, and hands them to his relative.

Back in bed, the 46-year-old farmer pondered the scarcity of the indigenous cúa bua (in Vietnamese), or quav npua (in Hmong), corn seeds in Chế Cu Nha, his family's ancestral home. For generations, indigenous corn crops have been essential to Hmong spiritual and cultural traditions, as well as helping to strengthen their autonomy in agricultural cultivation. Yet, under the pressure of food security and poverty reduction goals in the past few decades, Dê's family are among the last few to save these seeds from extinction.

In Vân Hồ district's Sơn La, where many Hmong people have lived for generations, the search for indigenous corn can be likened to looking for a needle in a haystack.

'The indigenous cultivar once grown here was called đá mèo (in Vietnamese) corn,' said Đặng Phi Hùng, the Chairman of the People's Committee of Vân Hồ Commune. 'The yield is low, and their long stalks are easily damaged during storms, so people replaced them with more productive varieties.'

According to Hùng, đá mèo corn has become extinct in Vân Hồ. Tráng A Giàng, the chairman of the commune's Farmers Association, and a former corn farmer, also confirmed that the corn variety had disappeared around 2002 or 2003.

A cultural and spiritual artefact

Living in high mountains and stone forests unsuitable for rice cultivation, generations of Hmong people made corn their staple, a source of their livelihoods, a key wine-making ingredient and an integral element in religious rituals.[1]

These days, the Hmong people in Mù Cang Chải no longer include corn in every meal, instead feeding the grain to chickens and pigs. Livestock and poultry prefer indigenous corn, farmers in Chế Cu Nha say. Such varieties also keep animals full for a longer period of time and boost growth. Hmong people find them a more economical type of feed than hybrid corn.

'Indigenous corn is sweeter and more fragrant, which is why cattle prefer it. They always finish their food. Their meat is also leaner than that of cattle fed with hybrid corn,' farmer Tráng A Sồng of Vân Hồ commune told Mekong Eye.

Indigenous corn also plays an essential role in the spiritual life of Hmong families. They believe corn kernels and rice grains can ward off evil spirits. Red corn cobs are hung in front of Hmong doorsteps to keep incorporeal beings at bay. In the last afternoon of a year, people throw cobs to all corners of their houses, believing they attract good fortune and repel bad luck.

Hmong people also use indigenous corn as offerings during religious rituals. In some areas, the ritual consists of popping corn kernels in three batches – one for the family's consumption and the other two to be placed on an altar.

Indigenous corn is also used in a special worshipping ceremony called Pó Tơ (in Vietnamese), Pob Tawb (in Hmong), which is performed to find lost items or to seek answers. Coloured corn kernels are put onto a rice strainer, which is put on a gourd bal-

anced by a wooden stick. As the shaman sings mystical songs, this set-up serves as a medium for the gods to enter Hmong homes and address people's concerns. The shaman reads answers either by looking at the direction of the wooden stick or tapping on the strainer.

To acquire indigenous corn seeds for such ceremonies, Hmong people in Chế Cu Nha who do not plant the crop help those who do to harvest it and receive seeds in exchange for their labour.

'Every year, my family preserves a piece of land for indigenous corn to keep it for ceremonies,' said Dông, a 26-year-old mother. 'My father-in-law is a shaman and one of the elders of the extended family, so it is his unspoken order that we grow this species for important rituals, not only for our family, but also for our neighbours.'

Autonomy and adaptability

In many Hmong people's memories, indigenous corn crops were highly adaptive to the challenging mountainous terrain and climate, characterised by substantial day-to-night temperature fluctuations and frequent water shortages.

Khang Chờ Dê fondly remembers the striped corn variety his family planted in a primeval forest area of the village that showcased shades of white, black, and red on its cob. 'They thrived, boasting long robust stalks, cobs the size of a woman's bicep, and even colourful kernels,' Dê recalled.

Such high-yielding and robust plants are typically preserved for seed production.[ii]

Associate Professor and Deputy Director of the Vietnam Academy of Agriculture, Vũ Văn Liết, who conducted research on the indigenous corn of Điện Biên, Lai Châu, and Sơn La provinces from 2000 to 2015, said that such crops have specific characteristics to thrive in harsh weather.

'Indigenous corn [cobs] bow down during ripening,' Viết explained. 'Hmong people often allow the corn to ripen in the field. Upon harvest, they transport [the cobs] to family storage in field camps. This characteristic is crucial, as the bowed cobs are covered by their husks, which prevent dew and rainwater penetration, and protect them from weevil infestations. In contrast, hybrid corn is more susceptible to dew and water infiltration, [and is] therefore vulnerable to weevil infestations. This is why many Hmong people believe that hybrid corn does not have seeds, when [in reality] they are simply infested with weevils.'

Growing indigenous corn also requires innovative agricultural techniques that reward the Hmong people with ecological sustainability and greater economic autonomy. In challenging topography like rock caves, Hmong people carry soil all the way up to the caves to grow corn there. To prevent soil erosion in steeper fields, they often stack rocks to form cliffs.[iii]

In addition, indigenous corn fields are frequently intercropped with vegetables, squash, beans, potatoes, and cucumbers. This practice increases land use efficiency, boosts food supply, and enriches soil. Meanwhile, hybrid corn is farmed as a monocrop, thus making farmers more dependent on the external market for other food sources.

Lý Thị Pàng, a farmer from Chế Cu Nha, remarked, 'Those cultivating traditional corn varieties must exert considerable effort to preserve them, whereas those cultivating new corn species spend money on seeds and forfeit their autonomy.'

'Prior to 1980, the Hmong people excelled in pure-breeding techniques. Everyone was actively seeking the best varieties to preserve. Consequently, corn varieties were frequently named after the first grower or their place of origin,' added Dê.

> "Although hybrid corn undeniably contributed to hunger eradication and poverty reduction, [...] throughout the transition from the early 2000s to now, the Hmong people have had to trade off productivity with further dependence on external supplies, including seeds, fertilisers, herbicides, and insecticides."

Indigenous corn is disappearing

Pàng, a farmer in Chế Cu Nha, recalled when new hybrid corn seeds were distributed about 20 years ago by commune officials. They were known as 'model corn' and 'model rice'. Those who agreed to grow these new species received free fertiliser. The allure of higher productivity, reduced cultivation time and complimentary fertiliser led many to adopt the new corn species. Consequently, the indigenous corn varieties were gradually lost. Pàng's family has

lost their indigenous corn species, as well as their plain rice and glutinous rice species.

Khang A Mang's family are among those who adopted hybrid corn. Mang acknowledges the productivity appeal of the new varieties of corn, but said it cannot replace indigenous corn in spiritual culture. His family grows both. Yet, due to cross-pollination degeneration and the rising prevalence of hybrid corn cultivation in the region, there are increasingly fewer independent corn fields dedicated solely to purebred indigenous corn, and the quality of indigenous corn is diminishing.

Although hybrid corn undeniably contributed to hunger eradication and poverty reduction, the official goal set by the Vietnamese government, throughout the transition from the early 2000s to now, the Hmong people have had to trade off productivity with further dependence on external supplies, including seeds, fertilisers, herbicides, and insecticides.

Hmong farmers are not the only ones worried about the loss of autonomy. Local government officials in Chế Cu Nha commune in Mù Cang Chải district, who requested that their names not be used, are also concerned that hybrid corn species are slowly undermining the Hmong people's economic autonomy and self-sufficiency, while posing the risk of accumulating significant debts.

> "Indigenous corn embodies the spirit of ancestors and can mobilise entire communities to protect their territories, lifestyles, and traditional indigenous knowledge systems. Saving native corn is a sustainable way to adapt to climate change and ensure the well-being of future generations."

CULTURAL SURVIVAL

Massachusetts-based nonprofit organisation promoting the rights of indigenous peoples

Meanwhile, long-term cultivation of hybrid corn with continuous use of fertilisers, herbicides, and pesticides contributes greatly to soil quality deterioration. In Vân Hồ, Sơn La, long-term use of chemical fertilisers has made the soil inhospitable to indigenous corn. 'The land is now completely degraded, and our only option is to grow hybrid corn,' said Tráng A Chu, a village elder from Hua Tạt hamlet.

Remaining efforts

Hmong people in Vân Hồ these days have accepted the lack of indigenous corn during spiritual ceremonies. Traditional dishes using indigenous corn grains are also gradually being replaced by rice and other types of food. One such dish, mèn mén, is slowly fading from the memory of a typical Hmong child, since it is only served a few times a year.

Even Dê, who deeply understands the irreplaceable role of indigenous corn in Hmong spiritual practices, admits that preserving indigenous seeds is a big challenge due to cross-pollination and the prevalence of hybrid fields.

Many Hmong people in Chế Cu Nha believe that the remaining indigenous corn varieties will eventually disappear, except for cúa bua/quav npua corn. 'If we lose that corn species, we will lose a large part of the Hmong cultural history,' Khang Nhà Trang, a 64-year-old shaman at Chế Cu Nha, remarked.

According to Associate Professor Vũ Văn Liết, indigenous corn accounts for roughly 35% of all maize in northern Vietnam. Beside the Hmong people's efforts, indigenous seeds are also being preserved at several institutes and research centres. At the Crop Development Research Institute, seeds are collected from Hmong groups in Điện Biên, Sơn La, and Lai Châu. These are then dried, bottled, and classified for short-term, medium-term, and long-term storage. However, these seeds lose their vitality after a certain period of storage, and the cycle must be repeated. With their traditional seed saving practices, Hmong people still play a key role in preservation.

Cultural Survival, an organisation promoting the rights of indigenous ethnic groups, once remarked, 'Indigenous corn embodies the spirit of ancestors and can mobilise entire communities to protect their territories, lifestyles, and traditional indigenous knowledge systems. Saving native corn is a sustainable way to adapt to climate change and ensure the well-being of future generations.'

'Indigenous corn has low nutritional and fertiliser needs. You simply sow it, and without much attention, it will still be productive,' agreed Associate Professor Vũ Văn Liết. 'Its nutritional needs can mainly be satisfied by natural farming. In the future, the Hmong people must return to their indigenous crops,' he added. ■

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Chinese cargo ships dump sand on the shores of Manila bay, Philippines. The reclamation aims to build a casino city that started during the pandemic under the rule of president Duterte. Amongst the 22 chinese contractors, 20 have been halted by President Marcos jr. as political tension between the two families rises in 2024.

Photograph by Jilson Tiu, 2023.

Fallen Forest:

Cambodia's Political Reforestation Unlikely to Survive

Outdated reforestation tactics are dooming Southeast Asia's ecosystems and carbon capture efforts. However, new research shows a better way forward.

Monks Sot Phally and Yoeun Socheat crossing the cleared Phnom Tamao Forest just 40 kilometres from Phnom Penh. The forest was hastily reforested and designated an arboretum, a botanical garden for trees. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

Sand fills and spills from Sot Phally's sandals as the chief monk carries an alm bowl from his pagoda through what was once Phnom Tamao Forest.

'I used to walk under the shade of the trees. There were fresh, green woods, but now it is just cleared land,' Phally said about the renamed Phnom Tamao Arboretum. Six months earlier, he'd silently watched from his meditation space at the top of Tmor Antong Pagoda as bulldozers toppled hundreds of hectares of forest.

Just southwest of Cambodia's capital Phnom Penh, this forest was controversially earmarked for development despite being a 'protected area' by a wildlife rescue centre. As clearing began in August, public outcry prompted Prime Minister Hun Sen to reverse his council's approval of the project.

But by then, half the forest was gone.

With a newfound green thumb, Hun Sen rushed to reforest. His tycoon allies and personal bodyguards led the effort to plant a sparse array of limited tree species. While considered a textbook approach often repeated across Southeast Asia, a growing body of research suggests these tactics usually result in nearly half of replanted trees dying within a decade, even under the best circumstances, and Phnom Tamao was hardly in ideal conditions.

Experts at the Forest Restoration Research Unit in Thailand say these failures bring into question if or how Southeast Asia can recover lost landscapes. Since 1994, these researchers have fine-tuned an alternative method of ecosystem restoration that co-founder Stephen Elliott claims 'sucks up carbon like there is no tomorrow' through dense, diverse planting. But this process is failing to take root across the region. That's especially true in Cambodia, where Phnom Tamao's reforestation excluded forestry officials directly trained by Elliott.

'When you are trying to do something a little new, there is resistance,' Elliott said. 'It is only laziness. People can't be bothered to do something which is hugely more beneficial but takes a bit of effort.'

Anton L. Delgado

Additional reporting by Sophanna Lay and Nasa Dip.

This article was produced in partnership with *The Pulitzer Center's Rainforest Investigations Network*.

An evolving strategy for thicker forests

Perched atop his meditation boulder, Phally could only hear a gentle breeze across the flattened forest, where bird song and the buzz of insects once filled the air.

'It has been silent since [the deforestation],' he said. 'I have no idea where the animals are.'

The hullabaloo at Phnom Tamao, where conservation groups had been releasing rescued animals for nearly two decades, marks an increasingly precarious time for Cambodia's natural resources. In November, Hun Sen signed a sub-decree marking nearly a million hectares of protected area eligible for privatisation. A month later, the Ministry of Environment proposed legalising 'game hunting' on forest reservations. In early 2023, a separate ministry awarded its first land concession in nearly a decade, despite a moratorium on these long-term leases, which are infamous for causing land conflicts. In early March, Hun Sen urged for a Forestry Administration law amendment to allow private citizens to raise endangered animals. Forestry Administration Director Keo Omaliss, who was indicted in the U.S. for wildlife trafficking in November, and Phnom Tamao Director Nhek Ratanapich, have declined to comment since *Southeast Asia Globe* first began its investigation in July.

The startling speed of Phnom Tamao's deforestation came to an equally sudden halt when a Facebook post from Hun Sen, which is effectively law in Cambodia, cancelled the development. Reforestation began 22 hours later.

> "It's a 'difficult, high ambition to reconstruct nature. [...] It even sounds a bit arrogant. The truth is we can't reconstruct forest ecosystems exactly the way they were before deforestation,"
>
> **STEPHEN ELLIOTT**
>
> Co-founder of Forest Restoration Research Unit in Thailand

To speed up reforestation, Hun Sen sent more than a thousand members of his personal security unit to Phnom Tamao, where they simultaneously facilitated the replanting and detained five journalists and four activists visiting the forest. By the end of August, the paramilitary force reported 96% of reforestation was complete. Guards planted roughly 200 saplings per hectare, an average of about 7.5 metres apart.

Employees of the tycoon who volunteered to assist the reforestation declined to be interviewed. One cheerful worker, however, shared both a chocolate pudding cup and the names of the three luxury-grade tree species being replanted: Siamese Rosewood, Cambodia Beng, and Burma Padauk.

'Oh my God,' Elliott muttered when told about Phnom Tamao. His process follows a very different track than the 'arboretum' model, aiming to restore some semblance of a natural forest ecosystem. He breaks that down into biomass, structural complexity, biodiversity and ecological functionality. This begins with an assessment of still-standing forests around a deforested area. Only the seeds of the trees with high growth and survival rates are selected to be replanted, with a typical diversity of about 30 species—10 times the species planted in Phnom Tamao. Trees are then replanted almost exactly 1.8 metres apart to avoid competition between saplings. On average, this should equal out to roughly 3,000 trees planted per deforested hectare, 15 times more than what was planted at Phnom Tamao.

There are Forestry Administration leaders in Cambodia who are well-aware of this—because Elliott himself trained them over the course of nearly six years.

Kim Sobon is one of them. He often leads government reforestation projects with the Department of Forest Plantation and Private Forest Development as a deputy director. He confirmed the department was not involved in the reforestation of Phnom Tamao and declined to share more.

Seab Kimsrim, who manages a Forestry Administration research station and tree nursery in Siem Reap, said the nursery donated more than 2,000 Siamese Rosewood and Cambodia Beng to Phnom Tamao.

'We are conservationists, so we are happy to restore our land, our forest area,' Kimsrim said about Phnom Tamao. 'But we also want development in that area. We cannot just do conservation without development.'

Elliott's research unit, based at Chiang Mai University, is regionally renowned for its expertise in tropical forest ecosystem restoration that goes against the grain in Southeast Asia. According to Elliott, the unit's partnership with the Forestry Administration assisted with the development of 'sensible forest ecosystem restoration practices'. This included

Seab Kimsrim manages Khun Ream Forest Research Station's tree nursery, which raises more than 10,000 saplings annually, mostly of Siamese Rosewood. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

establishing Kimsrim's research station and nursery in Siem Reap, as well as creating technical manuals in the Khmer language.

At a reforestation site directly behind that nursery, Kimsrim said the replanting at Phnom Tamao loosely fit the modus operandi of the Forestry Administration. The 100-hectare plot he was in was reforested only with Siamese Rosewood, planted in 3-metre intervals.

After learning about how Phnom Tamao was reforested, Elliott said it was 'disappointing that the training provided does not seem to have been applied.' Even so, Hun Sen's bodyguards did do some things by conventional standards. The lack of species diversity across a low number of widely spaced saplings might be commonplace, but recent studies find that many trees planted this way are unlikely to survive. This traditional reforestation runs contrary to almost everything Elliott's restoration unit has learnt in the past three decades.

'The more diversity you put in in the beginning, the faster the diversity comes back,' Elliott said. 'How can you write a symphony with one note?'

'Ambition to reconstruct nature'

An example of that mindset has played out on Mon Jam Mountain, on the outskirts of Chiang Mai. In a haze of smog from the agricultural burning season, a trail of students struggle to keep up with Elliott as he leads them to different forest restoration plots.

While Elliott agrees that planting trees is better than cutting them, he admits it's a 'difficult, high ambition to reconstruct nature'. 'It even sounds a bit arrogant. The truth is we can't reconstruct forest ecosystems exactly the way they were before deforestation,' he stated.

The decade-old reforested plot on Mon Jam was once a dense and active habitat, with camera-trap images of wildlife to prove it. In contrast, the plot in Siem Reap is more like a neat and spacious orchard, void of most other vegetation and wildlife.

The downsides of the Thai unit's process are perhaps obvious in its explanation: it is more expensive, complicated, and time-consuming. While companies planting trees solely for public relations may not be interested in this long-term approach, Elliott hopes the method's unintended benefits of restoring

ecosystems that store large quantities of carbon will encourage them to reconsider.

'Carbon was a minor consideration when we started 30 years ago,' said Elliott, over an instant noodle lunch on the mountain. 'Global warming, or the greenhouse effect, was hardly on the political agenda. By sheer accident, we created a system that just sucks up carbon like there is no tomorrow.'

The ability of forests to act as a 'carbon sink' is a key way Southeast Asian nations receive climate finance funds from governments and companies trying to counter their emissions. In the past three decades, organisations participating in tree-planting rose by 290%, according to a 2021 report.

'Carbon storage is a really important piece of the reforestation puzzle. But that should always be married up with other ecosystem services,' said Lindsay Banin, a statistical ecologist for the U.K. Centre for Ecology and Hydrology, listing soil and water protection, as well as biodiversity conservation as additional measures.

A study Banin co-authored earlier this year synthesised regional reforestation efforts, and found nearly a fifth of planted trees die within the first year, which came with a rising mortality rate to almost half of the trees obsolete in a decade. Across more than 170 reforestation sites in Southeast Asia, the study found an average of three tree species planted per site, identical to Phnom Tamao.

'I was surprised the average was so low,' Banin said. 'By having greater diversity, you have opportunities for plants that function a bit differently to perform better in future climates. There are options for nature going forward.'

"A study Banin co-authored earlier this year synthesised regional reforestation efforts, and found nearly a fifth of planted trees die within the first year, which came with a rising mortality rate to almost half of the trees obsolete in a decade. Across more than 170 reforestation sites in Southeast Asia, the study found an average of three tree species planted per site, identical to Phnom Tamao."

Right: Fragmented forests and wilting saplings pock-mark the desolate Phnom Tamao Arboretum, which was suddenly cleared and then rapidly replanted in August. Photograph by Anton L. Delgado for *Southeast Asia Globe*, 2023.

The study concluded that 'the uncertainty in planting outcomes also emphasises the critical value of protecting remaining, functionally-intact forests.' These results weren't meant to be a 'doom and gloom' prediction, Banin insisted, but rather a push for improving regional reforestation and forest protection. This would rely on buy-ins from local communities, because 'the things they value will be what keeps forests standing'.

The little that is left standing at Phnom Tamao Arboretum continues to provide for surrounding villages. Almost six months after reforestation began, cut grass, the ideal cattle feed, overflow from baskets on Chip Korb's dusty Honda motorbike. Earlier that day, brothers Kun and Ton Il also came to the arboretum to stack dried logs, perfect for fencing and cooking, on a pair of carts.

'As long as we do not destroy the small trees, we are allowed to take from the forest,' Ton said. 'I'm so happy they let me. At least we can still use the forest.'

The sand path Phally takes back to Tmor Antong Pagoda is a bleached contrast between Phnom Tamao's surviving forest and the sterile arboretum. The success of the rushed reforestation is now up to prayers and faith, he believes.

'This still is a sacred place for people to pray for happiness. I call for every country to protect their forest. Nature is the root of Buddhism, religion, and life,' Phally said. 'I hope the small trees will grow taller in the next decades, maybe I will meditate under them in this life.' ■

General view of the flooded houses following the typhoon Doksuri (local name: Super Typhoon Egay) and monsoon rains in Macabebe, Philippines, on August 5, 2023.

Photograph by Lisa Marie David, 2023.

People ride a boat along a flooded road following the typhoon Doksuri (local name: Super Typhoon Egay) and monsoon rains in Macabebe, Philippines, on August 4, 2023.

Photograph by Lisa Marie David, 2023.

View of a flooded house following the typhoon Doksuri (local name Super Typhoon Egay) and monsoon rains in Macabebe, Philippines, on August 4, 2023.

Photograph by Lisa Marie David, 2023.

Lisa Marie David is a freelance photojournalist with an interest in documenting women, children, culture, and the environment. She is a regular contributor to Reuters and Bloomberg and had her work published on CNN and Libération, among others. In 2021, Lisa completed her postgraduate diploma in Visual Journalism at the Asian Center for Journalism, Ateneo de Manila University, through a scholarship from the Konrad-Adenauer-Stiftung, Media Programme Asia. She holds a Bachelor of Arts in Journalism from the University of Santo Tomas, Philippines, as well. Presently, she is working simultaneously between assignments and documentary work.

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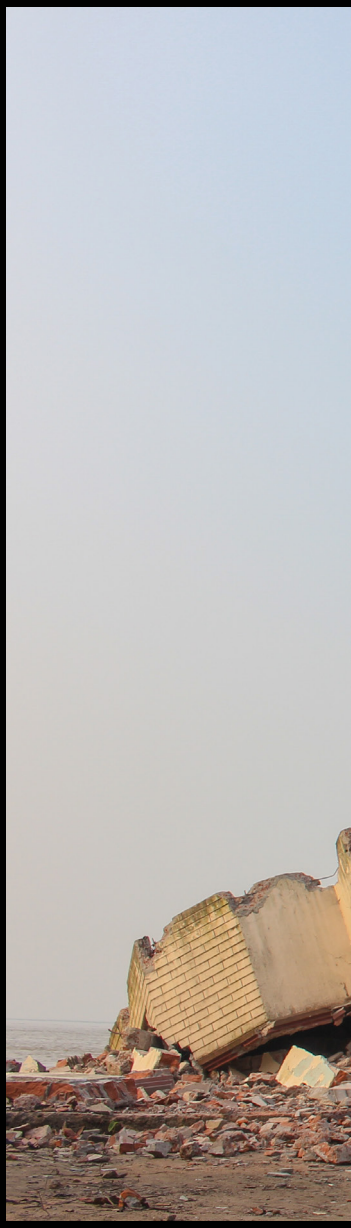
Nahid Hasan

Edge of Sorrow

Every year in Bangladesh, thousands of hectares of land crumble into the rivers, forcing families to flee their homes.

This article first appeared on Social Documentary Network and in *PRIVATE* Magazine.



Right: The remains of a house destroyed by river erosion on the river bank in Sharitatpur district, Bangladesh, 18 September 2018. Over 4000 families became homeless in September 2018, a result of river erosion at Naria, Sharitatpur district. An estimated two to three square kilometres of land was submerged under water, along with people's life and property. Photograph by Nahid Hasan.

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'We were never able to build a proper house to protect ourselves against river erosion, and our house has been destroyed. We had a lot of land, but all the land was taken away by the river. We have no land anywhere else. Now we do not know where we will go.'

These words are spoken by Ali Hawlader, who has been affected by the river erosion in the Barishal division. Every year, about one million people in Bangladesh are direct victims of river erosion. The total financial loss is estimated at USD 500 million per year. A large number of houses, structures, trees, and crops on vast tracts of land are washed away by water. Deaths and injuries also follow. According to a survey, erosion leads to an annual loss of about 10,000 hectares of land and weakens natural coastal defenses and aquatic ecosystems. An estimated 0.3 million internally displaced persons typically seek refuge on roads, dams, and government-acquired land, a study has reported.

Bangladesh is one of the most disaster-prone countries in the world. The country experiences different types of disasters almost every year because of the impact of climate change. River erosion is one of many silent natural disasters that occur in Bangladesh, with huge and long-term socioeconomic consequences, damage to human habitations, destruction of growing crops, and massive disruption of road connections and communication networks in the riparian areas of Bangladesh. All the land and properties of Rongila Begum, who is from the Barishal region, have been taken away by the river. 'I have nowhere to go now. There is no place to bury me after I die,' said Begum, in her 60s.

River erosion is one of the most unpredictable and destructive disasters in riverine Bangladesh. It destroys the existence of a community. When the house is burned, ashes remain, but nothing remains in the river erosion. There is nothing but sorrow at the edge. ■

‘Bleeding’ for Water

In the intersection of environmental degradation and gender inequality, climate change, women’s health conditions, and the daily struggle for water plague millions of women and girls in coastal Bangladesh.

Rafia Tamanna
Naimur Rahman

Moyna, a teenage girl in Bangladesh’s Satkhira, misses school again. Instead, she needs to walk a few kilometres with her mother to collect fresh drinking water. They rely on the water treated by the Pond Sand Filter (PSF), as they cannot use water from ponds or tube wells due to salinity in the area.

As if her day can’t get any worse, Moyna starts menstruating. Moyna and her mother can only collect a few jars of water per day, so girls like her don’t have sufficient clean water for hygiene purposes. She has been watching her mother suffer from uterine disease for a long time now. Some of her friends and neighbours also suffer from skin irritation and gastrointestinal diseases after having to resort to using pond water.

Eventually, Moyna decided to take matters into her own hands, and started using birth control pills to control her menstrual cycle to be ‘safe’.

This isn’t an isolated incident. It is the reality of countless women and girls across Bangladesh’s coastal regions. While Moyna’s challenges may seem like private battles, they are emblematic of a larger crisis unfolding along the vulnerable coastal areas of Bangladesh.

The United Nations anticipates that global climate change may force an additional 158 million women and girls into poverty. Yet, before this future unfolds, in the climate-vulnerable coastal areas like Satkhira in Bangladesh, women are already lagging behind the poverty line. For these women, the climate crisis is already a matter of life and death.

While Bangladesh’s national birth rate is 1.37%, Shyamnagar Upazila in Satkhira experiences a lower rate of 0.89%. This is attributed to various health conditions suffered by women in these areas, linked to climate issues. Saltwater intrusion due to rising sea levels and shrimp cultivation mean that the only water available for hygiene is saline water, which leads to infections. As a result, women in coastal regions like Satkhira resort to continually using birth control pills to halt their menstrual cycles. Used correctly, birth control pills are taken together with seven placebo pills over a 28-day cycle to facilitate menstruation, but more and more young girls in the region are continuously taking the birth control pills without the placebo pills, which allows them to reduce the frequency of menstruation or to halt their period altogether.

This is a dangerous solution. Misusing birth control pills in this manner without medical supervision can lead to a number of health problems, including hormonal imbalances, increased risk of blood clots, breakthrough bleeding, and fertility issues, as well as symptoms such as irregular bleeding or spotting, mood swings and depression, breast tenderness, weight fluctuation, and disrupted sleep patterns. While such side effects are generally reversible, in rare cases, long-term misuse can permanently affect reproductive health. Moreover, the continuous suppression of menstruation may mask underlying health issues such as hormonal imbalances, polycystic ovary syndrome (PCOS), or endometriosis. Young women are even more at risk of long-term effects of misusing birth control pills. And yet, this practice seems to be increasing in regularity among the women in coastal regions.

Despite the severity of the situation, women's health issues in these regions receive scant attention. Limited media coverage and sporadic NGO activities fail to provide long-term solutions for dealing with the basic physiological processes of menstruation. And as the scarcity of clean water becomes a central theme, more teenage girls in this region are turning to birth control pills to avoid this problem.

Residents of coastal areas, including Shyamnagar, Kaliganj, and Ashashuni in Satkhira, struggle to acquire drinking water because of the area's salinity problem, and the ordeals the women have to go through on daily basis to maintain hygiene during menstruation is unimaginable. Most women in the area can't even afford sanitary napkins, instead using cotton pieces, further compounded by water with high salinity content, which increases the risk of various diseases.

As reported in the *Khulna Gazette*, a local newspaper based in Khulna, women in the Khulna area are experiencing an increased rate of premature abortion and uterine problems due to soil and water salinity. Another report by *JagoNews24* reveals that approximately 10% of annual operations in private clinics in Shyamnagar Upazila are related to the uterus, with a high incidence of uterus removal. The report further indicates that in 2019, 5% of patients underwent uterine surgery at the Sundarbans Nursing Home, while urban clinics reported an 8% rate of uterine operations. Additionally, 11% of individuals at Banshipur Clinic have undergone similar procedures. The same report highlights that at least 60 women suffer from cervical diseases, with 25 of them having already undergone uterine removal procedures.

"Saltwater intrusion due to rising sea levels and shrimp cultivation mean that the only water available for hygiene is saline water, which leads to infections. As a result, women in coastal regions like Satkhira resort to continually using birth control pills to halt their menstrual cycles.

Misusing birth control pills in this manner without medical supervision can lead to a number of health problems [...] Young women are even more at risk of long-term effects of misusing birth control pills."

Women in the Khulna area are experiencing an increased rate of premature abortion and uterine problems due to soil and water salinity.

Khulna Gazette

Approximately 10% of annual operations in private clinics in Shyamnagar Upazila are related to the uterus, with a high incidence of uterus removal.

In 2019, 5% of patients underwent uterine surgery at the Sundarbans Nursing Home, while urban clinics reported an 8% rate of uterine operations. 11% of individuals at Banshipur Clinic have undergone similar procedures. The same report highlights that at least 60 women suffer from cervical diseases, with 25 of them having already undergone uterine removal procedures.

JagoNews24

The highest level of action taken to address this life-threatening crisis is a few projects of installing water tanks to collect rainwater. Needless to say, Bangladesh doesn't experience sufficient rainfall throughout the year, even with the current state of unpredictable weather. There is no concrete plan of action to address the fates of thousands of people, who have been affected by this crisis all their lives, from national or international arenas.

In a move which is said to be a historic one at the recently concluded COP28, wealthy countries most responsible for the climate crisis have pledged a combined total of mere US$700 million to the loss and damage fund. This can accommodate less than 0.2% of the irreversible economic and non-economic losses developing countries are facing from global warming every year.

The representatives of Bangladesh returned from COP28 without a clear plan on how to collect the pledged fund or ensure its proper disbursement. The urgency of addressing the immediate needs of affected communities seems to be lost in bureaucratic shuffle. It is hard to imagine that there will soon be an action plan about disbursement, or that the fund will be put to proper use.

The year 2023 is also when *UN Women* published an action plan, titled 'Feminist Climate Justice: A Framework for Action'. It is a climate justice framework for policy-making. The report points to a growing body of evidence which finds that gender inequalities and a failure to take gender issues into account in environmental policy-making have negative impacts across a range of economic and social outcomes for women, girls, and gender-diverse individuals.

'Without action to halt climate change, the world's women and girls now face wholesale reversal of their human rights […] [This] requires not tinkering around the edges, but the transformation of every part of the world's economies and societies,' the report claimed.

The world now stands witness to the evidence, where the coastal women are adjusting their menstrual cycle to the never-ending nightmare of ensuring national and international funds, and the proper disbursement of such financial relief. And, among many other sectors of damage where the climate crisis has taken a toll, the health crisis of underprivileged women is also a matter of discussion.

At a time when urban women can resort to using more comfortable and environmentally friendly menstrual products, like menstrual cups, these women from coastal areas don't even know if they

will be able to collect fresh drinking water each day, let alone for hygiene purposes. For this group of women, the time for rhetoric without robust action has ended long ago. The lives of these resilient women, tethered to the ebb and flow of climate-induced challenges, demand immediate attention and decisive solutions.

It is high time for the world to act, not just in words but in deeds, to ensure that the cycle of hardship endured by coastal women in Bangladesh can finally come to an end. Their stories of resilience and adaptation should serve as a rallying cry for a world ready to confront the silent crisis borne out of climate change. ■

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A boy rows a makeshift boat as he looks for recyclables in the polluted waters of river Yamuna laden with toxic foam, caused by industrial and domestic discharge, in New Delhi, India on June 25, 2022. A significant portion of the Yamuna River, one of India's holiest waterways, is currently covered with toxic foam. This is largely due to industrial pollutants being discharged into the river from factories in the surrounding areas of the national capital. Not only is the air pollution in the national capital a major concern, but water pollution is also an equally grave issue. Photograph by Mayank Makhija.

In 2022, India experienced an unprecedented heatwave, with March the hottest month ever recorded. In northern India, temperatures regularly rose above 45°C, causing crops in the country's wheat-producing regions to wilt in the fields. Rising temperatures, coupled with piles of untreated garbage, led to excess methane emissions from landfills, often resulting in blazes and worsening air quality across the national capital region. Other northern Indian states, including the hilly areas of Uttarakhand, Himachal Pradesh, Jammu and Kashmir, and Ladakh, also recorded temperatures far above normal levels this season.

According to the World Bank, heat waves in India could soon exceed human survivability limits. About 380 million people, which accounts for 75% of the national workforce, depend on heat-exposed labour, contributing to almost half of India's gross domestic product. Climate scientists attribute the prolonged heatwave to global warming and climate change around the world. Climate scientists warn that climate change is here to stay, even worsen, as searing winds blow across swathes of north India, including New Delhi, where temperatures have exceeded 49°C.

Environmentalists and climate scientists predict that we will experience more intense, frequent, and longer heat waves in India due to global warming and the consequent extreme levels of heat and humidity. In July, Delhi witnessed its highest single-day rainfall since 1982, due to the interaction of a western disturbance, monsoon winds, and a cyclonic circulation over northwest India. The heavy rain transformed roads into gushing streams, parks into watery labyrinths, and marketplaces into submerged labyrinths. The floods have been devastating, with more than 27,000 people evacuated from their homes.

The draft action plan on climate change projects that the national capital may suffer losses of INR 2.75 trillion (USD 33.18 billion) by 2050 due to the impacts of climate change, with changes in precipitation and temperature patterns posing significant threats to the most vulnerable populations. The impact of climate change is amplified in cities, as urban areas are usually warmer than their surroundings due to concentrated structures and less greenery. If the frequency of heat waves continues as predicted, food, water, and energy security in the region will be adversely impacted. ■

Works in this article appeared on Photographers Without Borders (PWB) as well as in exhibitions.

Photo: Boys walking through a partially-dry riverbed in Yamuna River after searching for recyclable materials on a hot summer day in New Delhi, India, on 30 April 2022. The Yamuna River is the longest tributary of the Ganga in India, and its water is used for a range of activities like irrigation, drinking, bathing, and laundry. However, due to increased temperatures and heat waves during the summer in 2022, the river dried up to its lowest point. Photograph by Mayank Makhija.

Mayank Makhija

Signs of Climate Change__

Left top: A family, accompanied by their belongings, traverses through the inundated thoroughfares of a low-lying area in New Delhi. The deluge is a consequence of the recent surge in water levels of the Yamuna River, caused by copious monsoon rainfall. As a result, severe flooding has occurred across India's capital, and authorities have evacuated over 27,000 people in response. The family's perseverance in the face of this challenging situation is a testament to their resilience and adaptability. Photograph by Mayank Makhija.

Left bottom: People evacuated from low-lying areas can be seen in makeshift shelters along a road, after being displaced by the rising water level of the Yamuna River amid heavy monsoon rains in New Delhi, India on 12 July 2023. Flooding is becoming increasingly frequent due to extreme weather patterns caused by climate change. Flood risk is also heightened by changes in land cover, such as deforestation. Photograph by Mayank Makhija.

Bottom: Men making their way through a flooded road using a log of wood, after a rise in the water level of the Yamuna River due to heavy monsoon rains in New Delhi, India on 13 July 2023. The heavy rain caused severe flooding, submerging roads, parks, and marketplaces. Changes in precipitation and temperature patterns pose significant threats to the lives of vulnerable populations in the region. The city government of Delhi has released a draft action plan to combat the effects of climate change, warning that the city is likely to suffer losses of INR 2.75 trillion (USD 33.18 billion) by 2050 due to the impacts of climate change. Photograph by Mayank Makhija.

A man scavenging for recyclables as smoke billows from a burning garbage mound at one of the largest landfill sites, Bhalswa, on the outskirts of New Delhi, India on 5 June 2022. Piles of untreated garbage, coupled with rising temperatures, lead to excess emission of methane from such landfills, often resulting in fires. The frequent blazes that break out at the site are a menace to the tens of thousands of people living near the landfill. The waste that catches fire releases nitrous oxide and carbon dioxide, a cause of breathing ailments. Photograph by Mayank Makhija.

Top: A boy taking a picture as a boatman rows a boat in the polluted waters of Yamuna River, caused by industrial and domestic waste disposal, in New Delhi, India on 9 November 2021. An enormous stretch of one of India's most sacred rivers, the Yamuna is covered with toxic foam, caused partly by high pollutants produced by industries around the national capital. Photograph by Mayank Makhija.

Bottom: Hindu devotees performing rituals as they stand amidst the polluted waters of the Yamuna River on the occasion of the Chhath Puja festival in New Delhi, India. An enormous stretch of one of India's most sacred rivers, the Yamuna River has been covered with toxic foam from nearby industrial sites in recent years. Still, hundreds of devotees offer rituals in its frothy and toxic waters, sometimes even immersing themselves in the river for a holy dip, to mark special occasions and festivals. Not only is air pollution in the national capital a major concern, but water pollution is also an equally-grave issue. Photograph by Mayank Makhija.

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Makhija's work has been exhibited at various locations, including the City In Summer/Tatì Space Centre in Albania (2023), #CreateCOP28/Art Partner in Dubai (2023), Mazaarat International Photo Festival in Mashhad, Iran (2023), Expanded/Pathshala South Asian Media Institute in Dhaka (2022), Copeland Gallery/Peckham 24 in London (2021), Iran Artist Forum/24HourProject in Tehran (2019), MF Husain Art Gallery/JMI in New Delhi (2019), and SACAC in New Delhi (2018).

Counting on Coal: Cambodia's Fossil Fuel Push Flounders

Phnom Penh's plans for coal power expansion survived China's promise to cut overseas coal investments, but three years on, construction on most of the promised plants have stalled.

Anton L. Delgado

Contributed reporting by Andrew Haffner and Sophanna Lay.

This article was supported by a 'News Reporting Pitch Initiative' from *the Konrad-Adenauer-Stiftung's Foundation Office Cambodia*.

The skeletal exterior of one of the newest coal power plants in Cambodia sits silent amongst the surrounding farmland in Oddar Meanchey. On a still afternoon at the very end of June, brick stacks, cement mixers, and truck tires tangled in overgrown weeds show the long lull in construction at the Han Seng plant.

Locals toasting to happy hour down the road from the front gate of the site complained of months of delayed pay for a relative working there as a security guard, adding there was no set date for operations to resume. There was scarcely more information at the nearby Ou Svay commune hall.

'Maybe the plan changed to complete construction by 2025?' questioned Roeun Phearin, who was a commune consultant for the plant. 'The construction is now paused, and we don't know the reason because it is the internal information of the company.'

Cambodia bet big on coal in 2020. The Kingdom doubled down on fossil fuel that year, with plans to develop three coal power plants to meet the rising electricity demand and, in the process, flip most of Cambodia's power production from renewable sources to coal. The move bucked the global push for clean energy and dismayed sustainability advocates, but the announced plants are now facing years of delay, raising questions about when, or if, the Kingdom's latest coal projects will become operation-ready.

When announced, all three plants were attached to China's infrastructure-focused Belt and Road Initiative. But while China's 2021 pledge to cut support for coal power abroad killed projects elsewhere in Southeast Asia, Cambodia's plans appeared to survive the chopping block. *Southeast Asia Globe* documented the slate of projects across three provinces, as well as Cambodia's original coal-fired power plant. Of these three sites—which the Cambodian government pledged are its last coal plants—two are in varying stages of inertia. The third is finished and operational.

In deep-rural Oddar Meanchey province, the 265-megawatt, semi-built Han Seng project missed its deadline to begin operations last year. Falling revenue for the Chinese companies in charge pivoted the project to new contractors, who are sticking with coal, but are now investing in solar energy at the same plant.

Meanwhile, near the coast in Koh Kong province, the politically connected Royal Group conglomerate has yet to even break ground on a 700-megawatt power plant initially scheduled to be completed this year. Former residents of the area allege unfair deals and heavy-handed evictions.

Finally, just across the Bay of Kampong Som in Sihanoukville province, Cambodia International Investment Development Group's (CIIDG) new 700-megawatt coal project appears to be the only one of the three to hit its expected completion targets. Just down the road from it in Steung Hav district is another plant, the 250-megawatt Cambodian Energy Limited (CEL) coal complex, which was the first of its kind in the Kingdom. Local residents fear the effects these power plants could have on their health and environment.

'This is not good for us,' said fisherman Hang Dara, who left his job as an electrician at CEL because of health concerns. 'But it will be much worse for the next generation in this province since they now have even more coal projects.'

Future of fossil fuels

While addressing the U.N. in 2021, and President Xi Jinping pledged that China would stop building coal-fired power projects abroad and step up support for renewables and low-carbon energy in order to stay 'committed to harmony between man and nature'.

As a major financier and equipper of coal-fired power plants, China's announcement was hailed as a major step toward achieving the Paris Agreement's goal to limit global temperature rise by cutting greenhouse gas emissions. The fate of 77 Chinese-backed coal projects around the world that were in varying stages of development before Xi's pledge were still uncertain as of October 2023, according to the Helsinki-based Centre for Research on Energy and Clean Air (CREA). Almost half of those power plants would be in Southeast Asia.

If these 37 projects in Indonesia, Vietnam, Laos, Cambodia, and the Philippines are operated for their standard 25-to-30-year lifespans, CREA estimates an emissions total of nearly 4,230 million tons of carbon. That's a little less than the emissions from the U.S. just last year, the centre claimed.

The three coal projects in Cambodia continued after China's pledge, but 14 power plants were officially cancelled in Indonesia and Vietnam, according to CREA, nixing the production of 15.6 gigawatts of coal-fired energy.

> Cambodia bet big on coal in 2020. The Kingdom doubled down on fossil fuel that year, with plans to develop three coal power plants to meet the rising electricity demand and, in the process, flip most of Cambodia's power production from renewable sources to coal. The move bucked the global push for clean energy and dismayed sustainability advocates.

'With the very dramatic drop of costs for clean energy and the increase of costs for coal, the Cambodian government has the chance to re-evaluate if those coal plants are the best way to meet Cambodia's power needs,' said Lauri Myllyvirta, lead analyst at CREA. Cambodia is wading into an especially precarious position, Myllyvirta said, as the country mostly depends on foreign imports of coal. 'The wild swings in coal prices and global coal markets in the past three years have vividly demonstrated the economic risks of depending on fossil fuels,' he said, adding that price fluctuations would only 'become more volatile.'

In 2021, Cambodia imported approximately USD 222 million worth of coal, according to records from the U.N. Comtrade Database processed by Harvard Growth Lab's Atlas of Economic Complexity. The trade data underlines the role of Indonesia as Cambodia's largest coal exporter for more than a decade. Nearly 85% of coal imported by Cambodia from 2012 to 2021 came from Indonesia.

Zulfikar Yurnaidi, a senior officer at the ASEAN Centre for Energy in Jakarta, agreed with Myllyvirta that the future of coal is increasingly uncertain. Yurnaidi warned that the international 'allergy towards coal' continues to be an unaddressed ASEAN issue.

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'We cannot [get rid of] coal and fossil fuels right away,' Yurnaidi said. 'Support from foreign financial institutions is still required. Maybe not to install a dirty power plant, but to help us reach the end goal of reducing emissions by upgrading fossil fuels and investing in renewable energy.'

As coal funding runs dry, international climate finance has risen in Southeast Asia, with millions of dollars going into the 'just energy' transitions in Vietnam and Indonesia. After the third Belt and Road Forum in mid-October, Cambodia's Prime Minister Hun Manet announced Chinese state-owned power companies had offered the Kingdom more than USD 600 million for renewable energy projects.

Despite foreign funding, Yurnaidi asserted that ASEAN's emphasis on economic growth will continue to require coal while bloc member-states shift to renewable energy sources. 'ASEAN is a very huge ship with hundreds of millions of people and trillions [of dollars] in GDP,' Yurnaidi said. 'With the energy transition, we know this ship needs to take a turn. But we cannot just make a sudden roundabout, because then everyone will fall into the sea.'

Counting on coal

Cambodia's bet on coal seems to embody that idea.

In the aftermath of COVID-19, Cambodia's Power Development Master Plan charts the way for the country's energy expansion from 2022 to 2040 and predicts a steady rise in national demand for energy. The first five years of every 'energy scenario' within the plan prioritises the development of Cambodia's proposed roster of three new coal sites.

At a meeting before the 26th U.N. Climate Change Conference in 2021, also known as COP26, Cambodia's Minister of Mines and Energy Suy Sem said the country will no longer approve additional coal projects. The years of construction delays facing two of the planned power plants have some experts wary of potential energy shortages. Chea Sophorn, an energy project manager who specialises in renewable developments, stated that shortages would depend on how quickly the Kingdom's post-COVID economy, and thus energy demand, recovers.

But with international investors turning away from fossil fuels, Sophorn emphasised that securing support to jump-start the two stalled projects could be difficult.

'What type of investor will still be able to finance stranded assets like this?' questioned Sophorn, explaining that without China, there are few to no places for these projects to turn.

Cheap Sour, an official with the Ministry of Mines and Energy, declined to comment and referred the *Southeast Asia Globe* to the ministry spokesman, Heng Kunleang, who did not respond to attempts at contact. Eung Dipola, the director-general of the ministry's Department of Minerals, was unavailable for comment.

Construction in Cambodia

In Oddar Meanchey, financial difficulties have already pushed the companies backing the USD 370 million Han Seng power plant to pivot. The state-owned Guodian Kangneng Technology Stock Co. suffered a massive decrease in its net profit for shareholders in the first half of last year, and brought in a new contractor, Huazi International, in September.

The plan to install 265 megawatts of coal-fired power hasn't changed, but Huazi has since announced intentions to add 200 megawatts of solar capacity to the site. This is the first time any other type of energy production has been associated with the struggling Han Seng power plant.

Just two kilometres from the semi-constructed project site, the Yun Khean coal mine, which would supposedly one day supply the plant, is operating as usual. However, not everyone is pleased with these developments. Boy Troch, who lives a stone's throw away from the mine's slag heaps, believes mining operations have contaminated the groundwater beneath his farm, damaging crops and sickening wildlife.

'There are a lot of lands affected by the mine, but village and commune chiefs do not care,' Troch said, pointing at shifting heaps of coal-streaked earth across the road from his land. With his grandchildren by his side, Troch said he feared coal mining would proliferate in his district once the power plant began operations. 'We are afraid to protest because our voice isn't heard,' Troch opined. 'We are ordinary people. We are more afraid that they will evict us from this land.'

Heaps of earth from the Yun Khean coal mine contrast with the surrounding farms and forest two kilometres from the Han Seng power plant in Cambodia's Oddar Meanchey province. Photograph by Anton L. Delgado, 2023.

In Koh Kong, stories from evicted residents may validate these fears.

Royal Group, one of the largest investment conglomerates in Cambodia with direct ties to former Prime Minister Hun Sen, received a nearly 170-hectare land concession in 2020 within Botum Sakor National Park for the coal power plant. People living on the site without land titles complained of rough, uncompensated evictions. Former resident Keo Khorn's home was torn down in 2021 by a government task force. Along with 37 evictees, he petitioned for reparations.

'We all came together to complain about the company,' Khorn said. 'Everyone heard us, the provincial ministries and the national ministries. But no one did anything.'

The project site is currently vacant, but workers are clearing forests around the location. These areas, also within the national park, were given to Royal Group in a second, nearly 10,000-hectare land concession this year.

Thomas Pianka, with Royal Group's energy division, flatly refused to speak with *Southeast Asia Globe* reporters. 'No, I don't need to talk to you,' he said before hanging up a call.

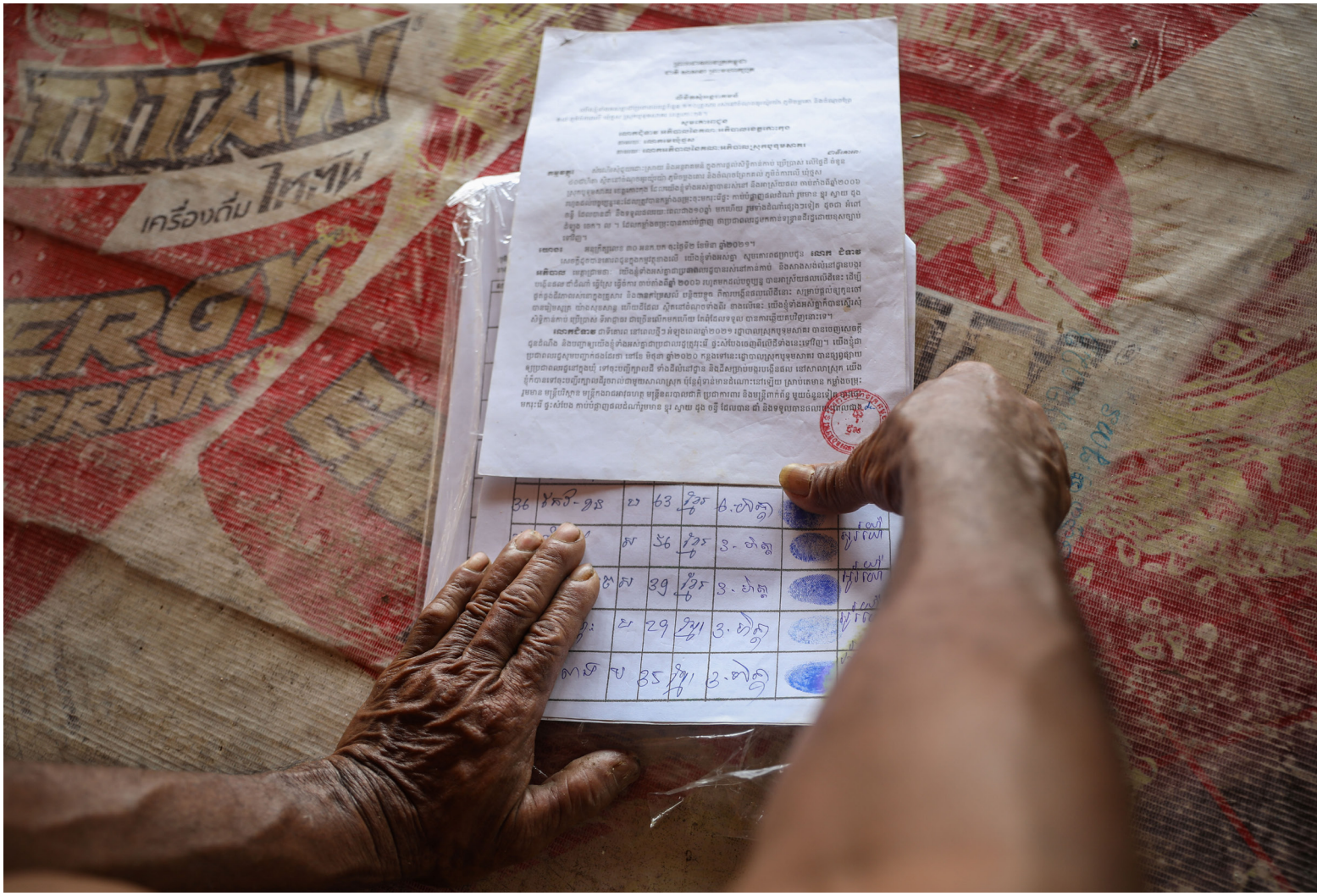
Where coal plants are actually operating, residents in Sihanoukville province have different worries. A plant security guard for the older Cambodia Energy Limited site said other workers warned him about health concerns, but the company has never mentioned any risks. The security guard's deputy village chief, Ly Socheat, said she regularly fields

Farmer Boy Troch, who neighbours the Yun Khean coal mine in Cambodia's Oddar Meanchey province. Photograph by Anton L. Delgado, 2023.

> While Socheat attended several meetings about potential employment opportunities at the power plant, she has never been informed of any potential health impacts.

complaints about the smell from the power plant. Socheat went on to say that many of the families in her village have stopped collecting rainwater in fear of contamination from the coal. While Socheat attended several meetings about potential employment opportunities at the power plant, she has also never been informed of any potential health impacts.

Meanwhile, residents have complained of respiratory issues and headaches. Coal-fired power plants have also been linked to cancer: a 2019 study estimated 1.37 million cases of lung cancer around the world will be linked to such plants by 2025. In the waters just off the coast, fisherman Hang Dara recounted why he left his job as an electrician at CEL to instead cast for crabs by the power plant. He believed the plant's discharged water was heating the bay and harming the environment.



Residents of Thmor Sor in Cambodia's Koh Kong Province, who were evicted or forced to sell their land to Royal Group for the company's coal power plant, signed petitions and wrote letters to provincial and national authorities for fairer compensations to no avail. Photograph by Anton L. Delgado, 2023.

'I was very worried about my health,' said Dara, who explained he had severe headaches and chronic coughs while working at the power station. 'But now I am very worried about the health of the fish.'

As Dara stands by the bow, his fishing partner Loy Chaeum steers from the stern. As they pass coal-loading docks supplying the two power plants, Chaeum excitedly points out a vulnerable Indo-Pacific humpback dolphin surfacing for air.

'I don't see many dolphins now; they don't like the coal. Like us, they must go farther and farther away to survive,' said Chaeum, who explained he motored across the bay every morning in search of a better catch. That brings him closer to Koh Kong, where one day, there may be another coal-fired power plant.

'If they build it, there will be nowhere for them or us to go,' he said, turning back to land, having lost sight of the dolphin. ■

Meanwhile, residents have complained of respiratory issues and headaches. Coal-fired power plants have also been linked to cancer.

The World's Largest Maritime Graveyard

Bane of Bangladeshi Coastal Life

In the maritime heart of South Asia, Bangladesh grapples with the profound implications of the ship-breaking industry on its coastal landscape and the ever-looming presence of climate change.

Naimur Rahman

Nestled along the shores of the Bay of Bengal, South Asia has earned the distinction of being the largest home for ship-breaking activities globally. This region, comprising predominantly India, Pakistan, and Bangladesh, shoulders the responsibility of dismantling an overwhelming 80% of the world's retired ships. Among these nations, Bangladesh stands out, with the largest ship-breaking yard in the world. The shipbreaking industry, vital for these national economies, reflects a complex interplay of economic necessity, environmental challenges, and the human cost associated with this formidable yet controversial sector.

In the coastal town of Chittagong, Bangladesh, the ship-breaking yards stretch along the Bay of Bengal like a graveyard of maritime giants. The air buzzes with the symphony of clinking metal and the distant roar of the waves, as workers in ragged attire navigate the colossal remnants of once-majestic vessels. Amid the relentless hustle, the shadow of safety concerns looms large.

The ship-breaking industry employs thousands of individuals who brave the dangers of dismantling massive ships on a daily basis. The lack of proper safety equipment and training is a glaring issue, with workers facing hazardous conditions. Rusty metal sheets hang precariously overhead, and the deafening noise of cutting torches echoes through the yards. Accidents are not uncommon, and the workers, faces smeared with grime, are at constant risk of injury. Safety regulations, when present, often take a backseat to the speedy dismantling of these ocean giants.

A drone shot of two ships in different stages of deconstruction, highlighting the intricate dance between progress and the poignant farewell to these maritime giants. Photograph by Naimur Rahman, 2023.

> The future of the ship-breaking industry in Bangladesh hangs in the balance—a balance that can only be achieved by acknowledging the interconnectedness of worker safety, environmental preservation, and the well-being of coastal life.

A blight on the environment

As these colossal ships meet their demise, a silent war wages on the environment. The ship-breaking yards of Bangladesh, the place where vessels come to die, has birthed a multitude of environmental concerns. Harmful substances like asbestos, lead, and polychlorinated biphenyls seep into the soil and water, leaving a toxic trail in their wake. The once-pristine coastline now bears the scars of this industrial juggernaut.

The ship-breaking process itself, characterised by flame cutting and indiscriminate disposal, releases harmful pollutants into the air, adding another layer to the environmental catastrophe. The birds that once gracefully glided above the waves now circle in confusion, their habitats disrupted. Environmental activists rally against the disregard for ecosystems, advocating for sustainable practices that will mitigate the damage wrought by this coastal industry.

Coastal life hazard

As the ships meet their fate, a sinister threat extends beyond the ship-breaking yards, reaching into the heart of coastal life in Bangladesh. The discarded debris, a mix of steel, chemicals, and remnants of vessels, float along the Bay of Bengal. The once-thriving fishing communities now find their livelihoods ensnared in the wreckage. The vibrant marine life that once flourished in the bay is now

An aerial view of the vast expanse of broken ships in the world's largest ship-breaking yard in Sitakunda, Chattogram District, Bangladesh. Photograph by Naimur Rahman, 2023.

facing a perilous decline, the delicate balance disrupted by the indiscriminate practices of the ship-breaking industry. The coastal communities, dependent on the bounty of the sea, find themselves entangled in the hazards left in the wake of industrial progress.

In this delicate dance between progress and responsibility, the ship-breaking yards of Bangladesh became a focal point for change. The call for stringent regulations, sustainable practices, and heightened awareness echoes across the coastal landscape. As the sun dips below the horizon, casting long shadows over the skeletal remains of ships, the future of the ship-breaking industry in Bangladesh hangs in the balance—a balance that can only be achieved by acknowledging the interconnectedness of worker safety, environmental preservation, and the well-being of coastal life. ■

Garo:
A Bangladeshi Tribe Ravaged by Climate Change

The Garo hills are diminishing in height at an alarming rate. Faced with displacement, deforestation, and changes in land ownership, the once-self-sufficient Garo tribe are left in a vulnerable and precarious living situation. Many are forced to migrate to cities, leaving behind the hills which were home to generations of their families.

Garo Hills is becoming treeless. Photograph by Md. Ibrahim Khalil, 2023.

Md. Ibrahim Khalil

Ibrahim Khalil, Executive Editor of *Magic Lanthon* (a film and media-based magazine in Bangladesh), is also working as a communication officer at the Bureau of Economic Research, University of Dhaka. He was a student of the Post Graduate Diploma in Film and Television, Pathshala South Asian Media Institute, under the Adenauer Fellowship.

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Sharmila Sangma, a middle-aged Garo woman. A three-year-old girl hanging onto her back on a winter morning. The child, in a specially-tied cloth harness, is looking down. She has a runny nose due to the cold. The child's mother has left the village in search of a livelihood, leaving her daughter with her grandmother Sharmila Sangma at the age of three months. Her parents work in a garment factory, living from hand to mouth, leaving their young child to be raised by her grandmother. The mark of malnutrition is evident on the child's face, having not been breastfed nor receiving sufficiently nutritious food.

Many tribal women, like Sharmila Sangma's daughter, have migrated to cities to survive the struggle to earn a livelihood. Even if they leave the infant in the care of family members, the child's nutrition often suffers. This scene is now a daily occurrence in the hilly tribal Garo community in the northeastern part of Bangladesh. The situation is worse for tribes who have nowhere to go, with the hills as their only shelter. There is not enough food in the house, no water in the hill springs. Due to legal complications, the ownership of the hill has changed, and they cannot even cultivate the hill.

The community is in turmoil. They are being displaced as government organisations and powerful people work to deforest the entire hill. Once, the entire Garo Hills area was owned by these tribal communities. Their lives were centered on the hills; everything was self-sufficient, even though there was not much to produce.

This matriarchal tribe lives in the Tangail, Jamalpur, Sherpur, Mymensingh, Netrakona, Sunamganj, and Sylhet districts of northeastern Bangladesh. However, their main habitat is centered around Garo hills, in Mymensingh, Jamalpur, Sherpur, and Netrakona. Most of the Garo Hills are within the Indian state of Meghalaya. It is where most of the Garo people live; the hill is named after them.

The height of the Garo Hills in the Indian region is about 4,500 feet above sea level. Its length is about 8000 square kilometres, and the forest area is about

200 square kilometres. The maximum height of the hill in the Bangladesh region is about 200 to 500 feet. However, due to climate change and man-made environmental destruction in Bangladesh, the Garo Hills are under threat. Once upon a time, there were tigers, bears, deer, monkeys, pigs, and wild cocks in the forests of the hills, but now, they can no longer be found. They have disappeared due to the evolution of time and the tyranny of invaders.

The height of this hill on the Bangladesh side is decreasing day by day. The soil is eroding at a rate of about three inches per year. Further, agriculturalists and environmentalists have reported that soil erosion has increased due to the extraction of rock, soil, and sand from the hills during deforestation.

According to Sherpur District Forest Department sources, there is upwards of 28,251 acres of forest land in Jhenaigati, Srivarardi, and Nalitabari Upazilas of Sherpur alone. Out of this, 3,391.17 acres of land have been occupied until 2021. However, the locals are demanding more. Meanwhile, conflicts over forest land between tribal communities, Bengalis, and the forest department are becoming increasingly hostile. There have been many complaints against government officials and employees for compromising with land occupants in exchange for bribes.

As reported in the 2022 census, there are 1.65 million ethnic minority people in Bangladesh. Among them, the population of the Garo community has a population size of 76,846. However, most of the tribal communities in Bangladesh live in Chittagong, Chittagong Hill Tracts, Rangamati, and Khagrachari, and all the attention is on these districts. That is where most of the development work has been taking place. As a result, the lifestyles and struggles of the tribal communities in the northeastern region remain invisible.

And the local political leaders exploit this. Day after day, they have taken possession of the hills by deceiving the natives. The government has evicted the Garo community and leased the hills to the Bengalis. The government has cut down large trees and planted fast-growing Eucalyptus and Akashmani trees, which absorb excess water and are harmful to the environment.

After visiting these places myself, it is clear to me that the Garo tribal communities and the hills in Bakshiganj of Jamalpur district are in critical condition. Most of the hill forests here have been deforested. The forest department has taken the initiative to stop cutting trees in some places due to the objections of environmentalists, but this has not put an end to the felling. To evade the forest department, many smugglers cut down trees, burn them to make charcoal, and take them out of the forest. Each bag of coal is sold for only BDT 500 (EUR 4.20). While

A Bengali woman filling sacks of charcoal by burning hill trees. Photograph by Md. Ibrahim Khalil, 2023.

travelling in the Garo Hills, I came across several such tree-cutters and coal traders. They spoke to me in a threatening tone while I was taking pictures. It is easy to understand how helpless the tribal communities are in the face of such threats.

The helplessness of the tribal communities does not end there. Further inside the Garo Hills, I saw a tribal family forced to prematurely harvest raw paddy. They said there are still at least 20 days left for the rice to ripen and be ready for harvest. Unfortunately, a local coal trader is cutting trees on the paddy field. So, they have no choice but to harvest the paddy before it spoils. They used to get about 20 kilograms of paddy per 0.012-acre field, if the paddy is ripe. But because the paddy is cut early, they would be lucky to get 5 kilograms of paddy.

The tribal communities spoke of how the entire hill has been taken over by leasing a few acres of land at the foot of the hill to Bengali timber traders. There, trees are regularly cut and sold. The felling of large trees has greatly affected the lives of the tribal communities. Although the Garo Hills were once known for rain, the average rainfall has now declined. Hill springs were once the main source of water for agriculture and drinking water, but now these oases dry up during the winter season. There are less food sources in the hills than before. As a result, tribal families are forced to move to the city, leaving behind the hills in which generations of their families have lived for several hundred years.

Moreover, such migrant families fail to attain good jobs in the city due to lack of education. The impact of climate change is evident in these individuals.

The Garo tribal communities celebrate the Wangala (Nabanna) festival every year. Wangala is the festival of bringing home the new harvest; it is a festival of thanksgiving, to demonstrate appreciation to God for the harvest. But their crops are not as good as before. Still, the sincerity of the people is palpable. The whole society participates in this festival to thank God for their crop. Pigs are slaughtered, the poor are invited to eat their fill, and all participants take part in exuberant feasting themselves. So, why does God not listen to their calls to increase crop yields and eliminate scarcity?

Why does God allow climate change? Why allow the once-full springs to dry up and turn into sand? Why have the rights of tribal communities been taken away from them? The answers to these questions remain uncertain. The only certainty is hunger. To escape from the pain of hunger and to survive, the people of Garo Hills are forced to leave their suckling children in search of livelihood in the city. Because of climate change and man-made destruction, peace has been lost in the hills. ■

Timber traders are illegally cutting down trees in Garo Hills. Photograph by Md. Ibrahim Khalil, 2023.

Adiu: The Forest is Our Mother

When the surrounding extractive industries threatened their ancestral forest, the Punan Adiu Indigenous Community in Indonesia sought to protect their land through participatory mapping and forest registration. After many long years of deliberation and endless negotiation with the Malinau District Government, they have finally obtained a legal decree of recognition and protection of the Adiu's communal land.

Michael Eko

'Adiu: The Forest is Our Mother' is produced by Michael Eko in collaboration with the Punan Adiu Community and Lembaga Pemerhati dan Pemberdayaan Dayak Malinau (LP3M). This visual reportage has been supported by the Solutions Visual Journalism Initiative, organised by World Press Photo Foundation, Message in A Photo Foundation, and the Solutions Journalism Network.

Punan Adiu is a village in the Malinau District, North Kalimantan Province of Indonesia. As a hunter-gatherer community, the Punan who inhabit the village rely on the forest for food, medicine, water, and much more. After decades of living on the margin of society, where they did not have rights over their territory, the community eventually obtained legal recognition to protect and manage the forest which supports all aspects of their life.

It began in 2012, when the community started participatory mapping and registered their customary land with the government through a social forestry scheme in Indonesia. In 2017, after years of deliberation and negotiation, the Malinau District Government finally granted a decree recognising and protecting the Punan Long Adiu Customary Community. The community now has full rights to protect and manage 17.415 hectares of their customary land (almost equivalent to the size of Washington, D.C., which is 17.700 hectares).

Following Adiu's achievement, more than a dozen indigenous groups in Malinau have started to identify and register their forest with an eye to obtain legal recognition. This is no mean feat: this massive indigenous movement could potentially protect hundreds, even thousands, of hectares of pristine forest in North Kalimantan.

As a natural sanctuary, the forest has a significant role in protecting biodiversity, food supply, and reducing global emissions. A study by LTS International in 2017 estimated that 55,216 tonnes of carbon emissions reduction per year can be expected if the Adiu community avoids deforestation in their ancestral forest. Through this initiative, the Punan have proved that indigenous communities contribute significantly to tackling climate change.

What Punan Adiu has achieved is an example of how civil society and indigenous communities can come together to challenge power dynamics and influence its equilibrium in our fragile democracy for the good of all mankind. The process takes time, but the result can be transformative. ■

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‘A land reform by leverage, on the other hand, takes time. This is a reform by which peasants, in organisations they have formed and manage, bargain with overlords or governments from strength they have already achieved. [...] Only through reforms by leverage does the peasant acquire, in the long run, an equitable distribution of welfare and adequate political representation.’

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Powelson, John P and Richard Stock. *The Peasant Betrayed: Agriculture and Land Reform in the Third World.* Cato Institute. Washington, D.C. 1987.

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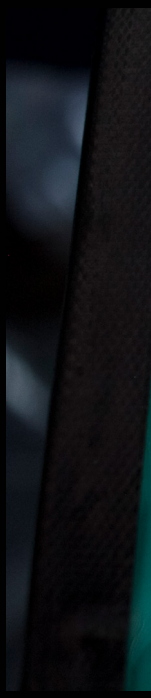
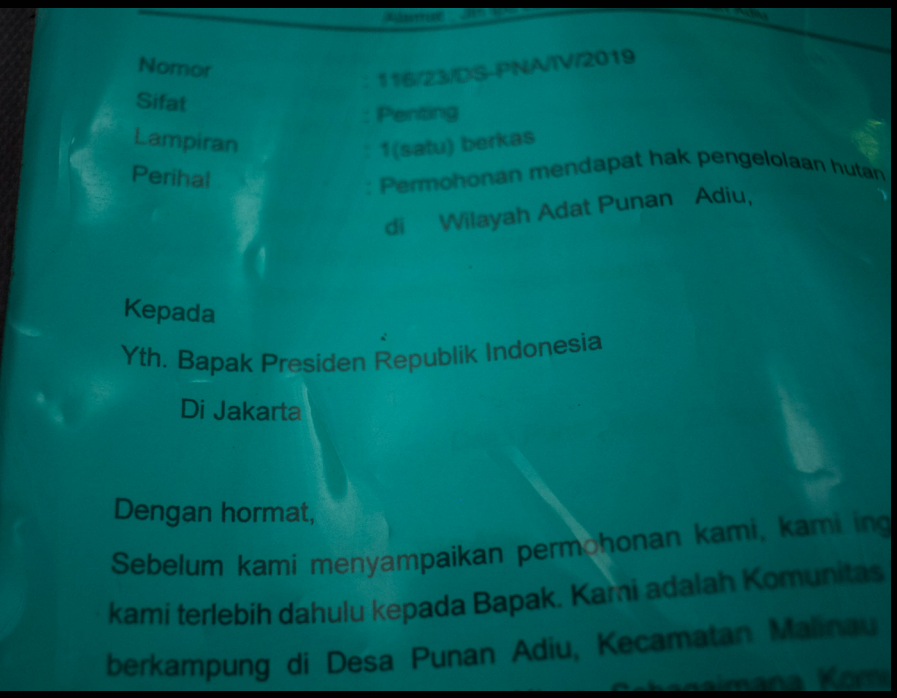
Michael Eko is a documentary photographer based in Indonesia. His works explore how the history of colonialism, with its relation to contemporary globalisation and the climate crisis, has impacted indigenous peoples and the natural world. Since 2010, he has been following indigenous and frontline communities in the Southeast Asia region, especially in Borneo, documenting how these communities have adapted to climate change and current socioeconomic and cultural developments. His methods involve participatory activities and utilising multidisciplinary storytelling (such as documentary photography, spatial data, biodiversity specimens, historical archives, etc.) as a medium to give voice to indigenous and marginalised communities.

Piyang and Lukas posing for a portrait in front of a Benggeris tree (Koompassia excelsa) during a forest patrol in Punan Adiu, North Kalimantan Province of Indonesia. To protect the forest from illegal logging, poaching, and exploitation, the Punan Adiu indigenous community conduct regular patrols in their customary forest. Photograph by Michael Eko, 2020.



A copy of the request letter sent to the President of Republic Indonesia. After obtaining the legal right to manage their customary land from the Malinau District Government in 2017, the Punan Adiu community submitted a further application for national recognition. The recognition from the national government will strengthen their right to protect and manage their customary forest. Photograph by Michael Eko, 2020.

A truck transporting coal to Malinau, North Kalimantan Province of Indonesia, where the coal is stocked and shipped to Indonesia and beyond. Part of the forest in Malinau is under threat from timber, pulp, and paper harvesting, coal mining, and palm oil plantations. These practices threaten the indigenous forest and contribute to deforestation and global carbon emissions. According to Global Forest Watch, between 2001 and 2019 a total of 45.4Mt of CO2 was released into the atmosphere as a result of tree-cover loss in Malinau. This is equivalent to 2.39Mt per year. Photograph by Michael Eko, 2020.



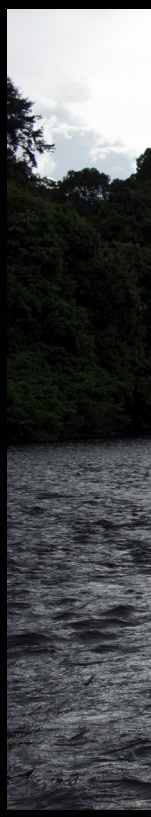
The rainforest in Malinau, North Kalimantan Province of Indonesia. According to Global Forest Watch, Malinau has a total carbon store of 1.41Gt, with most of the carbon stored in biomass. Photograph by Michael Eko, 2020.

Children taking a bath in Malinau River, North Kalimantan Province of Indonesia. In the past, the Punan lived as nomads who roamed across the forest. Due to political intervention by the government, the tribe now lives in a permanent settlement located by the main Malinau River. Photograph by Michael Eko, 2020.

A boy swimming in the An River, a spot in Punan Adiu Forest, North Kalimantan Province of Indonesia. Punan philosophy states that the forest is their mother. They were born from her womb, and she provides life to the Punan like a mother breastfeeding her children. Photograph by Michael Eko, 2020.

Lukas and his son, Ansel, taking a rest inside their farming tent. Ansel is skilful in animal hunting, but since he will soon continue his studies in town, Lukas will no longer have a companion for animal hunting. 'He is brave enough to do night hunting alone in the forest,' said Lukas. Although the Punan still maintain a subsistent life, they also adapt to modern life. Photograph by Michael Eko, 2020.

Ura taking a rest from farming. She complained that a long drought in 2019 and a pest attack in 2020 has destroyed her crops. Climate change significantly impacts indigenous people and their food security. When farming is not sufficient to support their basic needs, the forest ecosystem provides food for the community. Photograph by Michael Eko, 2020.



A boy carrying his puppy. The Punan are always accompanied by their dogs when hunting in the forest.
Photograph by Michael Eko, 2020.

Ansel using a cast net when fishing in Malinau River. With increasing pollution from upstream coal mining, the fish population in the river has decreased. Locals now need to go deeper into the forest to find clean fresh water and a sufficient supply of fish. Disappointed with his catch, Ansel moves to Adiu River to find more fish.
Photograph by Michael Eko, 2020.

Ship docks in Siargao, Philippines. Siargao was ground zero during 2021's super typhoon Odette. The famous surf island is now on the road to recovery since the climate disaster.

Photograph by Jilson Tiu, 2023.

_Epilogue

The fellows of KAS as well as the independent journalists who submitted their stories have done tremendous work on the articles and photographs in this magazine. I would like to thank all of them, including the ones whose stories were not selected, for their important work highlighting social issues.

We selected climate change as a topic for this edition of *ArtIQulate* because it is one of the most significant issues of our time. Climate change will affect everyone, but Asia is particularly affected in the present moment, as the rapid urbanisation of Asia's mega-cities poses unique challenges. Heat waves have swept the region from Dubai to the Philippines, combined with urban flooding caused by heavy rainfall in the recent weeks.

Apart from the heat, fear of climate change is in the air. The journalists we are working with care for their communities and the environments that surround them. They are able to uncover new perspectives and tell vivid stories of smaller countries and places that might have never reached the public otherwise, as well as articles about indigenous communities who have been preserving nature and weaving hope for the climate for centuries.

Asia's vulnerabilities to climate change are generally highlighted as the typical issues affecting the rest of the globe: rising temperatures and the following natural disasters. However, *ArtIQulate* sets focus on lesser-discussed topics such as women's health difficulties caused by limited water supply, biodiversity, renewable energy, sinking towns, the disappearing forest, and ships' graveyards, among others.

We will be in the company of climate change related issues for the long run, but hopefully these articles will provide further inspiration on where to begin saving our planet. ■

This article was written with the assistance of AI.

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is brought to you by

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