COMING TOGETHER TO CONSERVE MALAYSIA'S BIODIVERSITY

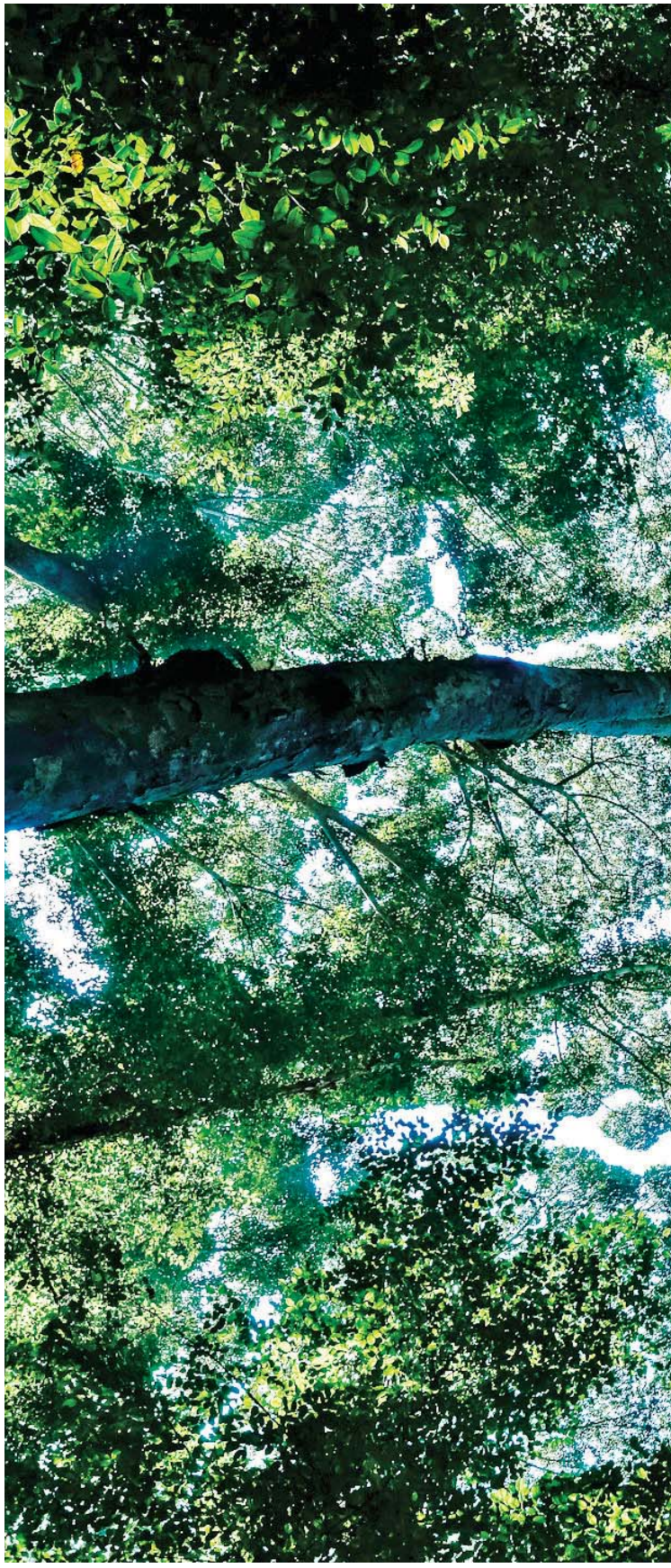
The private sector is increasingly mobilising to finance biodiversity conservation and there are certainly instances of private capital making a positive difference. Good government policies grounded in science and that respect the rights of indigenous communities, however, need to always be front and centre.

BY SREEREMA BANOO

One of 12 mega biodiverse countries in the world, Malaysia is home to an estimated 15,000 species of vascular plants, of which nearly 30% are endemic. With only 0.2% of the world's landmass, Malaysia has 306 species of mammals, 742 species of birds, 242 species of amphibians, 567 species of reptiles, more than 449 species of freshwater fish, over 500 species of marine fish and more than 150,000 species of invertebrates.

The tropical rainforests of Malaysia, having evolved over 130 million years, make up the core of biodiversity in the country. Sabah and Sarawak combined host the richest rainforests in the world with a high diversity of dipterocarps, comprising 291 species, or 75% of the family. Apart from tree species, the forests are also the habitats of the animal life found in the forests, from birds to mammals, reptiles and a myriad of insects as well as other smaller organisms.

Malaysia's forests play an important role in maintaining the ecological balance in the



ZAHID IZZANI/THE EDGE

environment, helping to prevent natural disasters such as floods and landslides.

However, in the last two decades, the country has witnessed a loss in its tree cover. Citing statistics provide by Global Forest Watch, KPMG Malaysia director of sustainability advisory services Zaidatul Zurita points out that from 2001 to 2021, Malaysia lost 8.67 million hectares of tree cover, equivalent to a 29% decrease in tree cover since 2000, and 4.97Gt of CO_2e emissions.

CO_2e or carbon dioxide equivalent is a metric used to compare the emissions of various greenhouse gases on the basis of their global warming potential by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

Deforestation and forest fragmentation (the process of breaking up continuous habitats, thus disrupting the expansive roaming areas for large mammals) as a result of the conversion of forested land to agriculture, the construction of roads and rapid urbanisation have negatively impacted Malaysia's biodiversity.

The Forest Research Institute of Malaysia's (FRIM) most recent assessments of Peninsular Malaysia's plants, compiled in the *Malaysia Red List* 2021, found close to 30% of the taxa assessed as being threatened. FRIM Forest Biodiversity Division director Dr Lillian Chua, who led the assessment, says that of the 1,292 taxa assessed, 77 are critically endangered and of these, 29 are endemic to Peninsular Malaysia, with 17 taxa only known from one location.

It is sobering news for the state of our wildlife too. In 2019, the Sumatran rhino became extinct following the death of its last captive individual, and where 3,000 wild tigers once roamed the country's forests in the 1950s, today fewer than 150 remain. Forest fragmentation led to 2,000 wildlife species, including Malayan tapirs, sun bears and elephants, being recorded as roadkill from 2015 to 2019.

"When developing nature-based solutions, consideration must be given not only to tree-planting but also to the ecosystem in its entirety and how it can benefit from such schemes."
ZAIDATUL

As a signatory to the Convention on Biological Diversity (CBD), successive Malaysian governments have reiterated the importance of conserving the country's biodiversity. Following the 10th Conference of Parties in Nagoya in 2010, parties to the CBD agreed to formulate their respective national biodiversity strategies and action plans, aligned to the Strategic Plan for Biodiversity 2010-2020 (Global Aichi Targets). In Malaysia, this led to the formulation of the National Policy on Biological Diversity 2016-2025 — a national blueprint for biodiversity management in the country.

▲ Cho tagging his newly planted dipterocarp

One of the policy targets is to increase terrestrial protected areas from 13.8% of the total land area in 2015 to 20% by 2025. And to address habitat fragmentation, the government launched national projects to establish ecological connectivity. For instance, under the Central Forest Spine (CFS) initiative in Peninsular Malaysia, 28,032.63ha of the ecological corridor have been gazetted as permanent reserve forests.

PRIVATE CAPITAL IN BIODIVERSITY CONSERVATION

In the private sector, issues related to biodiversity conservation and nature loss are gaining traction. WWF-Malaysia chairman Tan Sri Abdul Wahid Omar says that besides the push by Bank Negara Malaysia, the Securities Commission Malaysia and Bursa Malaysia for businesses to embrace sustainability, there is "encouraging chatter" from groups such as Climate Governance Malaysia (CGM) and CEO Action Network, who say company directors are

ZURICH MALAYSIA

recognising that they must make judgements around the climate crisis.

"These company directors understand that these judgements will position them on the right or wrong side of climate history," he adds.

Jason Khaw Soon Hoe, a CGM council member and one of its biodiversity experts, says the organisation has thrown a spotlight on conservation projects in Malaysia through webinars and its Hornbill Award, which in 2021 focused on conservation. "We encourage companies to recognise and understand how the natural world and natural resources directly and indirectly affect their business operations and the activities that their businesses depend on.

"Businesses can no longer operate in isolation and pass on the responsibility of care to other stakeholders in the value chain, including regulators, suppliers and customers. Companies will have to understand that forests are complex ecosystems that support life on earth, including that of humans."

Over the years, one of the most ubiquitous expressions of interest towards the environment has been tree-planting initiatives — a familiar feature of many corporate social responsibility (CSR) programmes.

In Malaysia, the 100 Million Trees Planting Campaign (2021-2025) was launched to support the country's green agenda. Tax deductions — 7% for individuals and 10% of the total annual aggregate income for companies — are available for those who contribute to the campaign.

Increasingly, private sector contributions to environmental conservation, biodiversity protection and sustainability efforts have moved beyond CSR activities to longer-term conservation programmes.

For FRIM, which collaborates with the private sector in biodiversity and forest conservation, this is a positive move. Its forestry biotechnology division director Dr Mohd Zaki Abdullah says a few financial institutions have approached FRIM to collaborate on longer-term CSR projects. This would entail sponsorship for reforestation and rehabilitation of forests.

"FRIM will provide the space and the seedlings, and prepare the data, and these sponsorship projects can take place within existing research stations such as in Bidor, Perak and Setiu, Terengganu, which are more problematic," he adds. FRIM Research Station Bidor is the world's only Tin Tailings Afforestation Centre (see story on page 64) while in Setiu, FRIM's research encompasses the reforestation of fast-growing species on sandy or BRIS (Beach Ridges Interspersed with Swales) soils.

With the Tropical Rainforest Conservation & Research Centre (TRCRC), Zurich Malaysia is providing a RM2.4 million grant to establish two 1.5ha Tropical Rainforest Living Collection (TRLC) parcels in Merisuli, in Lahad Datu, Sabah. The TRLC at Merisuli is a conservation site established in 2014 by TRCRC through a collaboration with the Sabah Forestry Department, covering 224ha within the Ulu Segama-Malua Sustainable Forest Management Project. Zurich Malaysia's grant over three years will be used to reforest, conserve and maintain the site where the TRCRC team is working, says country head Junior Cho.

"FRIM will provide the space and seedlings, and prepare the data, and these sponsorship projects can take place within existing research stations such as in Bidor and Setiu."
MOHD ZAKI

"The Living Collection plots enable the team to focus on ERT (endangered, rare and threatened) dipterocarp tree species, whereby the seeds from mother trees are collected from various areas, then germinated and planted in these plots. Our collaboration with TRCRC isn't just the sponsoring of tree planting programmes ... it is to support the conservation efforts to save ERT species like dipterocarps from extinction, which are the backbone of our local tropical rainforest ecosystem, supporting a myriad of life forms," he adds, pointing that such initiatives also enable sustainable livelihoods for the local communities.

Zurich Malaysia's collaboration in Merisuli was inspired by Zurich Group's collaboration with Instituto Terra to plant a million trees in Brazil's Atlantic Forest. "With most of the land now designated as one of Brazil's private natural heritage reserves, native animals are returning. The area is home to 172 bird species, of which six are endangered, and 33 mammals, with seven at risk of extinction.

"These include jaguars, which were in danger of dying out due to the destruction of their habitat. Locally, in Malaysia, the TRCRC team recently observed an increase in the presence of wildlife, including herds of pygmy elephants, which had not visited the Merisuli site for years," says Cho.

A MEANINGFUL RESPONSE AND NOT JUST GREENWASHING

When it comes to environmental sustainability, Abdul Wahid says it is about the transformation

What's the deal with forest plantations?

THE GOVERNMENT, THROUGH the Malaysian Timber Industry Board (MTIB), has in recent years been promoting the development of the forest plantation industry. The aim of this programme, according to MTIB, is to reduce the dependence of the country's timber industry on natural forests, to ensure the development of the industry, and to ensure sustainable timber resources in the future are derived from these forest plantations.

Under the programme, the government targets developing 375,000ha of forest plantation at an annual planting rate of 25,000ha per year. Once successfully implemented, every 25,000ha of land planted is expected to produce five million cu m of timber, according to the MTIB.

It was reported earlier this year that the government has allocated a further RM500 million for the Forest Plantation Development Programme (2021-2025) for entrepreneurs who are interested in venturing into the industry. Prior to this, from 2017 to 2021, MTIB allocated RM940 million to 87 entrepreneurs who developed 129,000ha of forest plantation land.

Jawala Plantation Industries Sdn Bhd (JPISB), which has an 11,043ha concession in Sabah, believes the government's policy to support the development of forest plantations is a step in the right direction.

"They are developed to replace, substitute and relieve pressure on natural forests. The yields are five to seven times more and it's three to four times shorter in gestation compared to natural forests, providing the best alternative to reduce our dependence on natural timber. If wood were to be replaced by other materials, say, in housing and construction, it could only be replaced by concrete and wood plastic composites, which are fossil fuel-based materials — unlike forest plantations, which are renewable resources and can store carbon for generations as materials," says JPISB CEO Abdul Rahman Khan.

He adds that in Sabah, the area zoned for forest plantations makes up 13% of the state's forest cover. "The areas identified to be developed into forest plantations are degraded forests that have been logged over more than once or twice."

The company also initiated its own high conservation value (HCV) assessment, resulting in 31% of its total licensed area being zoned as HCV areas.

Although forest plantations are of growing importance to the global timber industry and have become part of the climate change discourse, its critics say these large-scale plantations that carry out forest replacement are often the cause of deforestation instead.

▲ A worker from a forestry company located in the heart of the Punan territory in Sarawak prepares the transit of timber. The Punan community is deeply affected by landgrabbing as their Native Customary Rights are being flouted by companies that exploit their land for palm oil and precious woods.

Sahabat Alam Malaysia (SAM) president Meenakshi Raman says the rationale that forest plantation will alleviate pressure on the country's natural forests "does not hold water". The development of monoculture plantations, especially those in permanent reserved forests, destroys the original forest cover (natural forest) through clear-felling, which she points out is not subject to the annual allowable cut.

Based on its years of experience working on the issue, SAM says a significant bulk of such areas designated for monoculture plantations also encroaches upon indigenous customary territories in Peninsular Malaysia, Sabah and Sarawak.

"To ensure no new lands and forests are cleared for plantations, we need to understand how decisions are being made that permit forests to be converted to monoculture plantations. Only by exploring and understanding the root causes will we be able to inch towards halting the further conversion of forests," says Meenakshi.

She believes that no amount of safeguards is enough to prevent the conversion of forest reserves and protected forests to these plantations if a policy that allows forest conversions for the purpose of monoculture plantations is in place. "The implementation of a 15-year moratorium on approvals for new forest plantations (monoculture plantations) in permanent reserved forests in Peninsular Malaysia is insufficient. We need a permanent policy on this. We must abolish this policy."

REUTERS

of business models, markets and, ultimately, the global economy.

"We need a new economic and financial architecture, which means changing the 'rules of the game' so that we move away from a global economy based on the pursuit of indefinite production and consumption responsible for climate and ecosystem breakdown. Nature's services must be properly valued and environmental externalities properly disclosed, priced and built into financial markets," he adds, noting that net zero commitments from Corporate Malaysia is encouraging.

"Plantation and timber companies, for example, can also deliver on commitments by protecting nature and natural systems in the landscapes and jurisdictions in which they operate or from which they source commodities like timber or palm oil, by using tools and approaches such as the Accountability Framework and by investing in nature-based solutions to minimise environmental impacts, stop land conversion and deforestation, and increase supply chain resilience."

Sime Darby Plantation Bhd, for example, has a goal of achieving net zero emissions across its entire value chain by 2050. Chief sustainability officer Rashyid Redza Anwarudin points out that the journey began back in 2014 with the commitment to no deforestation, "which then culminated in us taking a leadership role to drive deforestation out of our supply chain in 2019".

KPMG's Zaidatul says that when developing nature-based solutions, consideration must be given not only to tree-planting but also to the ecosystem in its entirety and how it can benefit from such schemes. "Besides, it is not a given that everything planted becomes a nature-based solution that contributes to biodiversity — for example, planting trees that are not from the region and are toxic to local animals would not generate biodiversity benefits," she points out.

This is especially true for reforestation and afforestation schemes where the wrong species is selected, as is the case with the eucalyptus, which is one of the most widely cultivated forest trees in the world.

In Kenya, for example, concerns were raised about the high water consumption of eucalyptus trees, which in 2009 led the country's environment minister to order the uprooting of eucalyptus trees from wetlands and ban their planting along rivers and watersheds.

Having collaborated with the private sector on many biodiversity conservation projects, FRIM's Chua says, "meaningful conservation is not about reaching KPIs (key performance indicators)". For instance, on the topic of restoration of isolated forest fragments, it is more than just a conversation about the number of trees to be planted, which she acknowledges is the way it is going, but rather about extending the areas already restored to ensure that plants already planted survive.

Sahabat Alam Malaysia (SAM) president Meenakshi Raman says companies embarking on sustainability initiatives related to conservation must ensure they are able to fully understand the implications of the relevant existing policies and laws, including their weaknesses, in respect of the protection of land, forests, the environment and community rights. It is difficult for an effective initiative or policy to be developed without a full understanding of such facts.

"Their climate solutions must be real solutions that are grounded in real science and respect for indigenous community rights. If a company pays someone else to do conservation in another area while continuing business as usual or even expanding their business, this is regarded as greenwashing," she says.

With ESG and terms like sustainable finance fast dominating the sustainability discourse,

▼ One of the HCV areas within Jawala's licensed concession in Sabah

JAWALA

▲ Zurich Group is working with Instituto Terra to reforest Brazil's Atlantic Forest

LEONARDO MERCON

Meenakshi is wary of these being another form of greenwashing. "One critical question that we find ourselves asking is: to what extent will the ESG criteria be effective in helping financial institutions scrutinise destructive projects such as mega reclamation projects that will destroy the pristine ecosystem and affect the people, especially the local fisherfolk?

"The damage once done can never be mitigated and will have a residual impact on the ecosystem. We are wary that this kind of destructive project, once approved by the state government, can be easily rebranded into an ESG-aligned investment by just incorporating some ESG elements into the project design. This will not only defeat the purpose of ESG but will also risk ESG bringing more greenwashing and harm than good," she says.

PEOPLE MATTER IN THE BIODIVERSITY CONVERSATION

Abdul Wahid says the means and opportunities for businesses to both understand their relationship with and invest in nature are growing rapidly. "Emerging tools and approaches, like science-based targets for nature under development by the Science-Based Targets Network (SBTN) and the Taskforce on Nature-related Financial Disclosures (TNFD) framework, enable companies and financial institutions to get to grips with nature and ensure their business models and investments become nature-positive."

So, all policymakers, businesses, brands and individuals across the world need to get behind efforts to reverse nature loss. "Whether it be tree-planting or sponsorship to create forest corridors, all these efforts should be commended. They are a good start to a company's sustainability journey," he says.

"As for land licensed out for palm oil development, plantation operators should strive to identify and manage high conservation value (HCV) areas. These areas should be reported as

the private sector's contribution to conservation. The absence of private sector accountability to national reporting could be one reason why there is little desire by private companies to take up the additional requirements unless there is a mandate for them to do so."

SAM points out that while the setting aside of no planting zones in riparian and HCV areas is a standard process of law, it is also the responsibility of private corporations to not conduct their land development operations in any forested and environmentally sensitive areas.

Meenakshi says companies should not be involved in deforestation or activities that destroy ecosystems, regardless of the legal status of the areas concerned and whether they are fully protected areas.

More also needs to be done to strengthen the rights of indigenous peoples and engage them in conservation work. Meenakshi points out that the conservation of forest and biodiversity resources in Malaysia is not well integrated with the protection of local and indigenous customary land rights.

"Despite constitutional provisions that protect the people's right to life and property as well as favourable landmark judicial decisions, statutes on land, forests, natural resources and indigenous peoples in Peninsular Malaysia, Sabah and Sarawak do not have adequate provisions to ensure that the indigenous customary land rights are fully respected by state governments. None of the laws in the country, in fact, have any provisions on the free, prior and informed consent of indigenous peoples on matters that affect them," she says.

"None of the laws in the country have any provisions on the free, prior and informed consent of indigenous people on matters that affect them."
MEENAKSHI

"Meaningful conservation needs to support the local communities who are dependent on the forests."
CHUA

THE WAY FORWARD

Chua believes that meaningful conservation needs to support the local communities who are dependent on the forests, such as ensuring livelihoods based on sustainable harvesting of resources (for instance, handicrafts). "They can also be employed to assist the authorities, whether it is the state park, forestry department or the wildlife department in jobs that deal with patrolling, removing of snares and the restoration of areas known to be wildlife corridors," she says.

Partnerships with international organisations can lead to successful conservation outcomes. Zaidatul cites the Kulen Reforestation Project in Cambodia, a partnership between the Cambodian government and the UN Environment Programme, with funding from the Adaptation Fund. "Over the years, Kulen Forest has suffered from illegal logging that caused vast areas to be laid bare. The tree covers disappeared, and along with it, rain," she says.

The project has helped the community of about 300 people grow 100,000 seedlings, supported patrol groups in the planting of more than 250,000 trees and protected the forest's remaining 306ha from illegal loggers. "In five years, the area saw the return of rain and reached a climate balance — a result that astonished even scientists and researchers."

Meenakshi says that with the federal government looking to diversify its conservation funding sources and incentivise state governments to protect forests and respect safeguards, including community rights to lands and natural resources, access to international climate funds is key.

Currently, matters related to land and forests are under the jurisdiction of state governments. Thus, resources from land and forests, such as timber and minerals, have become lucrative sources of revenue to states. "As a result, there is no real and adequate financial incentive for state governments to protect their forests. States also grapple with the cost of managing protected forests and other biodiversity resources," she points out.

At the national level, she recommends the strengthening of national capacities to draw up good funding proposals, provide access to climate funds and expedite efforts to gain direct access to international climate funds.

Although the private sector is increasingly visible in the funding and sponsoring of conservation projects, it is just as important for organisations to help with existing initiatives, says Zaidatul. "Most conservation efforts, especially in Malaysia, are privately driven by NGOs and corporations, who may generally lack funding, particularly during the initial stages."

So, support is needed, not just monetary but also support to ensure the areas remain green areas, she adds.

Eye on sustainability

Sabah-based Jawala Inc's organisation-wide sustainability agenda has been translated into practices that include sustainable forest management and environmental protection, says CEO Abdul Rahman Khan

As a member of the second generation of Jawala Inc, a Sabah-based forest resource group focusing on industrial tree plantations, Abdul Rahman Khan is conscious of the impact that forestry companies have on global climate change and biodiversity conservation. So, when the group was awarded a concession totalling 11,043ha in 2016, it was decided that sustainability would be a top priority, says Rahman, who was appointed CEO and executive director in 2021.

"The family has been in the timber business for many, many years, from logging to timber trading, and through our associate company Jaycorp Bhd, the manufacturing of wooden furniture. Over the years, we have witnessed extreme weather patterns and looked at the impact of global climate issues on food production. As timber players, we have always known the importance of conservation and sustainability, and so, we identified forest plantations as a way of giving back. The first generation was logging and cutting, so we felt that it was up to the second and third generations to do their part to develop forest plantations," he says.

Listed on the Catalist Board of the Singapore Exchange, Jawala Inc's main business — the management of forestry resources, including the planting and extraction of logs; managing the planting and silvicultural treatments of natural and plantation forests; felling, cutting, collecting, removing and converting trees into forest produce such as logs and timber within the Sapulut Forest Reserve — is undertaken by its wholly-owned subsidiary Jawala Plantation Industries Sdn Bhd (JPISB).

"The concession that we received is a degraded forest which has already been logged over three times," says Rahman. It is these so-called degraded areas that have been identified by the state government for forest plantation development.

Since entering into the Sustainable Forest Management Licence Agreement (SFMLA) with the Sabah Forestry Department in 2016, JPISB's primary focus has been to salvage the degraded forest; logs produced from salvage logging are sold to customers to produce sawn-timber, veneer, plywood and other timber products. "We've been preparing the land, the riparian reserve and establishing the nursery. We're also planning how we log so that the harvest is carried out in an environmentally friendly way that reduces impact because we need to replant these areas for the next cycle," he says.

"The first generation was logging and cutting, so we felt that it was up to the second and third generations to do their part to develop forest plantations."
RAHMAN

To date, JPISB has developed 2,400ha with more than one million seedlings planted. These comprise laran (Neolamarckia cadamba), a medium-density species of tree native to Sabah, which is used in furniture and plywood manufacturing, interior panels and picture frames, among

SAM FONG/THE EDGE, JAWALA

▲ These three-year-old laran trees are sourced from indigenous mother trees within the concession area

others. Laran, he adds, is also popular among Japanese and Korean customers because of its pale-yellow colour.

"When we embarked on forest plantations, which comprise fast-growing trees, our mission was to replace or substitute the utilisation of tropical timber, which takes 35 to 50 years for one rotation, whereas the gestation of forest plantation trees is between eight and 12 years. These plantations can yield some 200 cu m of timber per hectare compared to 30 to 40 cu m of timber per hectare for tropical timber.

"So, in growing 1ha of forest plantation, you can actually save 5ha to 6ha of tropical forest somewhere else, because the renewability rotation is three to four times and the yield five to seven times more compared to tropical forest," he says.

Having spent more than two decades in the timber industry, Rahman believes that the development of forest plantations can result in higher rates of conservancy, sustainability and renewability of the forest resources. "I believe that the more forest plantations we grow, the greater the conservancy and sustainability you have, not just for the timber industry but the people who depend on them and the fauna," he says, pointing out that

endangered species of animals and trees were discovered during the company's assessment of its licensed area.

ALMOST ONE-THIRD SET ASIDE FOR CONSERVANCY

As part of the group's commitment to sustainability, following the Sabah Forestry Department's mapping of the land use and delineation of zones for industrial tree plantation, JPISB also undertook its own high conservation value (HCV) assessment of the licensed area.

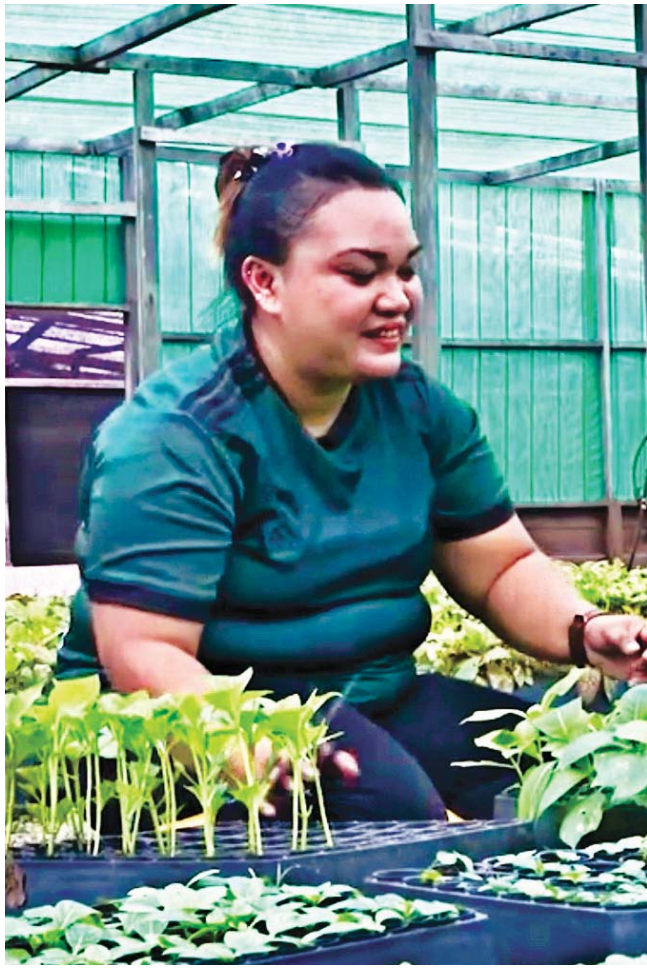
"The assessment was carried out very meticulously, including setting up camera traps, and from the study we added a further 2,375ha on top of the 1,000ha that was initially delineated as areas of HCV. This means that there will be no operations in these areas forever," says Rahman.

The HCV assessment identified rare, threatened and endangered plant and animal species, which among them include 113 tree species listed under the International Union for Conservation of Nature (IUCN), 11 species of mammals and 33 species of birds under the IUCN Red List (threatened with extinction). The HCV area delineated also encompasses water catchment areas.

"I believe that among the forest concessionaires in Sabah, 31% of the total area is the highest proportion set aside for conservation. We could have cleared those areas, but we did not; we sacrificed the additional 2,375ha because this was in consideration of global warming and sustainability."

The company has also been working closely with the local community, employing them for the planting and engaging them through its corporate social responsibility programmes, which include the installation and maintenance of water pipes; the repair and maintenance of roads; and the building and repair of schools and churches. During the Covid-19 pandemic and various Movement Control Orders, the company also extended cash assistance to the villages.

◀ Sambar deer (foreground) and Hose's langur captured on a camera trap during the High Conservation Value study in 2020



JAWALA

HOW TO GIVE A MEANINGFUL RESPONSE TO CLIMATE CHANGE

For the company's efforts in conservation and sustainability thus far, it recently received the 2022 Malaysia Outstanding ESG (Environmental, Social and Governance) Impact Corporate Excellence Award.

Rahman was also recently appointed to the FSC (Forest Stewardship Council) Malaysia National Consultative Group. The 18-member group was formed to develop a national response to the FSC Policy on Conversion by providing insights, views and opinions on how the FSC Policy on Conversion will impact Malaysian forests, its people and forest-related industries.

To further its sustainability goals, JPISB also recently signed a memorandum of understanding (MoU) with University Malaysia Sabah (UMS), which encompasses nursery techniques, improvement

▲ Another area of importance is skills development of the local community, seen here preparing seedlings for planting

of growth and yield of forest plantations, HCV monitoring, community development and industrial placement. The company expects to embark on programmes in these areas from the first quarter of next year.

"We engage with the community, work with people in the forest industry and we're collaborating with UMS. I believe that as we go along, we'll start to discover more and work with more people to see how we can really give a meaningful response to climate change. Perhaps there's more that we can do.

"For a small company, we've actually done quite a lot when it comes to sustainability, but without profits, no sustainability initiatives can take place," Rahman says, adding that there is a role to be played by the government to assist the industry. "The government plays a very important role in ensuring investments like these can be profitable in order to sustain all the activities that they carry out, such as community development, conservation and especially carbon sequestration," says Rahman.

He also believes that the government has a role to play in promoting the timber industry, for instance, by encouraging greater use of timber in the construction and property industry.

For JPISB, next on the cards will be to secure another concession area in order to ensure the sustainability of its operations. "The approximately 7,000ha nett that we currently have is too small for forest plantation. We need another concession to have continuity. So that's the next challenge for Jawala," he adds.

What's also greatly anticipated in the coming year is that Jawala Inc will be reporting its climate disclosures for the next financial year. "That's going to be interesting, and we might be the first company in Sabah to report these, so it'll be interesting to find out where we stand; how much we emit and how much we sequester in order to make improvements as well as to counter the critics."

❦ *By Sreerema Banoo*

From barren land to forest

The Forest Research Institute of Malaysia's Research Station in Bidor is a showcase afforestation project, demonstrating that a forest thriving with flora and fauna can be created even on former tin mining land

Along the Teluk Intan-Bidor road, about 10km from Bidor town in Perak, lies a 121.5ha forest so rich in plant and animal life that it is almost impossible to imagine that just over two decades ago, all that existed here were tin tailings, sand and slime.

In this part of the state, former tin mining lands are an ubiquitous sight — a reminder of Perak's tin mining history and heritage. It is estimated that a total of 60,500ha of tin tailings dot the state. These barren lands, either waterlogged or dry and lacking in nutrients, mean that tree growth is near impossible without some form of intervention.

▲ One of the centrepieces of the FRIM Research Station Bidor is the 20ha mining pool that acts as a mitigation pond during the wet season

The greening of ex-tin mining land was a brainchild of Forest Research Institute of Malaysia (FRIM) researcher Dr Ang Lai Hoe, who mooted the idea back in 1996. Following the lease of the land from the Perak government, Ang (who retired in 2021 as head of the FRIM Forest Plantation Programme) and his team set about transforming the once barren land through various reforestation methods — paying particular attention to the choice of trees and planting location.

Today, more than two decades since the reforestation project began, the area is home to timber tree species like mahogany, kapur, chengal and nyatoh; lowland rainforest species; and a variety of herbaceous plants, climbers, ferns and woody shrubs.

Many of the trees that are now growing well on sand and slime tailings are also those on the International Union of Conservation of Nature (IUCN) Red List of Threatened Species.

Various plant species also grow unreservedly

SREEREMA BANOO

at the edges of the many former mining ponds. One of these also acts as a filtration pond for the overflow of Sungai Bidor, which carries agricultural wastes and sediments. The water plants that flourish in the pond serve as filters, ensuring that clean water (Class II, suitable for recreational purposes) eventually passes to the site's largest mitigation pond.

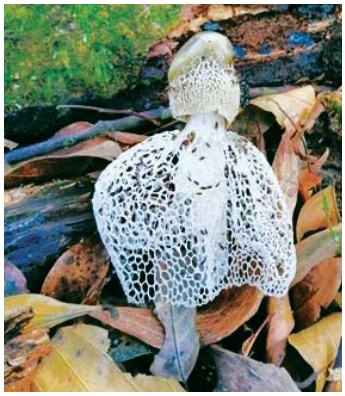
The FRIM Research Station Bidor — the only Tin Tailings Afforestation Centre (TTAC) in the world — also boasts various fauna such as sandpipers, herons, hornbills, leopards, wild boars, civets and macaques as well as amphibians and reptiles. Various insects, from honeybees and butterflies to dragonflies and beetles, are also abundant here. Amid the leaf litter of the forest floor, fungi like the bridal veil fungus and white parasol (Macrolepiota dolichaula), which was first recorded in Malaysia at this site, are also found.

As recounted in the FRIM publication *Rimba Bidor 2020: A Gift to Nature*, the methods applied for the greening initiative were inexpensive, with much of the land enriched with agriculture and animal wastes such as oil palm empty fruit bunches as fertiliser. Big hole planting techniques and raised-bed techniques were used to help with tree growth. FRIM also employed local youths from the area to help with the tree planting. In the sand and waterlogged slime areas where manual planting was not possible, machinery was used.

Exotic species like acacia mangium were picked for planting because they grow well on sand tailings and can tolerate heat and harsh conditions. FRIM Research Station Bidor coordinator Dr Ho Wai Mun says more native species were introduced later because the acacia mangium was found to be susceptible to diseases. Hopea odorata, a dipterocarp species known locally as merawan siput jantan, became the favoured choice because of its ability to grow in open sandy areas with low soil nutrient content and poor water retention capacity. These evergreen trees, which were once tiny seedlings, now reach a majestic height of about 25m.

Over time, the presence of these fast-growing trees also changed the micro-climate of the area, creating a cooler environment. Fallen leaves and branches created a thick layer of forest litter, which gradually enriched the soil as they decomposed. And so, with a little help from humans, these trees began the process of encouraging the natural regeneration of the forest. Other plant species are now flourishing under their deep shade and in the nutrient-enriched soil.

FRIM also seeded selected plants through its biodiversity enrichment programmes to improve the area's biodiversity. For example, certain fruiting plant species were chosen to attract more birds, and the abundance of food encouraged

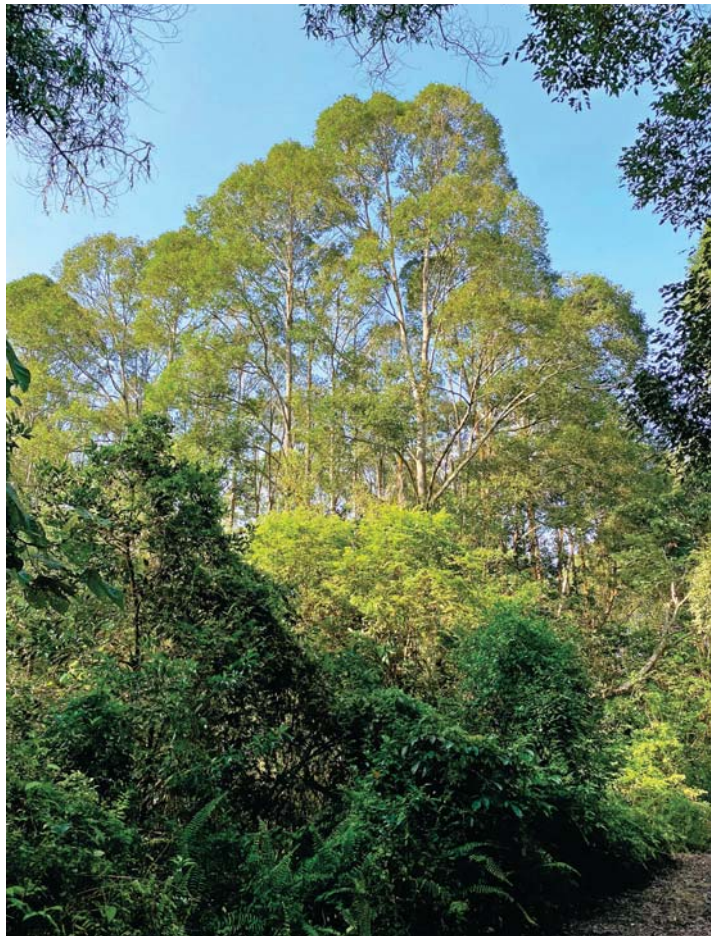


◀ Clockwise from top left: Bridal veil fungus, Macrolepiota dolichaula or white fungus (a new fungus record for Malaysia), banded swallowtail, longtailed parakeet, and nightjar

DR HO WAI MUN

the birds to nest and stay at the site.

Birds and mammals have also lent a helping hand with the forest's regeneration, scattering the seeds that pass through their digestive tracts, which are then germinated and add to the diversity of plant life.



Soaring to a majestic height of some 20m, the Hopea odorata is a favoured choice for reforestation because of its ability to grow on denuded land. Under their dense shade and soil enriched by fallen leaves and branches, other plant species are now flourishing.

PARTNERSHIPS, FUNDING AND LOCAL COMMUNITY INVOLVEMENT

Over the years, funding for the greening activities has come from FRIM's collaboration with several agencies such as the Forestry and Forest Products Research Institute of Japan, the Asean-Korea Environmental Cooperation Project and the Asian Forestry Cooperation Organisation as well as companies like AEON Co (M) Bhd.

The success at FRIM Research Station Bidor has also led to afforestation projects with mining companies such as Rahman Hydraulic Tin Sdn Bhd (RHT).

FRIM's forestry biotechnology division director Dr Mohd Zaki Abdullah says the first phase of the project back in 2011 encompassed the reforestation of 20ha of ex-tin mine land at RHT Klian Intan in Gerik, Perak. This was then followed up in 2017 with the rehabilitation of Sungai Kijang with riverine and bamboo species as well as the rehabilitation of the former slime storage area of Sungai Kepayang with dipterocarp species.

In addition, FRIM is collaborating with Specific Resources Sdn Bhd to rehabilitate 5ha within the latter's Penjom gold mine in Pahang.

The reforestation that has taken place in Bidor has piqued the interest of the Mineral and Geoscience Department, leading to a memorandum of understanding with FRIM in 2020 to collaborate on the greening and rehabilitation of the department's Stesen Ujian Galian in Malim Nawar.

The success in Bidor aside, Ho says that it has not been without challenges. Apart from funding constraints, there was intrusion by farm animals and encroachment from those entering the area to fish from the ponds. She points out that farm animals damage the young plants that are artificially or naturally regenerated, necessitating the erection of an anti-climb fence around the boundary, which spans 3km.

Education and raising the awareness of the local community about the project's importance are critical to its success. "For many of them, these are just trees. So, as is the case with the work that we do at other research stations, getting the local community involved is important," she adds. Ecotourism activities, which were planned prior to the pandemic, are meant to benefit the local community by providing job opportunities such as nature guides.

Plans to open the research station to the public are still on the drawing board, as funding for the building of visitor facilities and infrastructure is a key consideration. But when it does welcome visitors, the story of the FRIM Research Station Bidor will surely be an inspiration. ❦ *By Sreerema Banoo*

SREEREMA BANOO

An oriental pied hornbill sighted at one of Sime Darby Plantation's oil palm estates

Leading by example

As the world's largest producer of certified sustainable palm oil, Sime Darby Plantation Bhd believes that it has a role to play not only in driving deforestation out of its supply chain but also in contributing to reforestation and biodiversity conservation

When Sime Darby Plantation Bhd (SDP), one of the founding members of the Roundtable for Sustainable Palm Oil (RSPO), embarked on its first tree-planting initiative in 2008, it was a conservation exercise to protect the ecosystems and biodiversity surrounding its operations.

Fast forward to 2022, the "Plant-a-Tree" initiative has planted close to 1.9 million forest trees and led to a programme to create a live seed bank for tree species (including endangered, rare and threatened species) as well as carbon sinks within its areas. By 2025, the company plans to plant a total of three million trees.

Chief sustainability officer Rashyid Redza Anwarudin says over the years, SDP's commitments to no deforestation, no exploitation and no peat (NDPE), as well as various current challenges surrounding climate change and human rights, have shaped and redefined its own priorities on sustainability.

One of SDP's priorities today is achieving net-zero emissions across its entire value chain by 2050. "An important part of our net zero target is the initiative to reduce 50% of our carbon emissions by 2030 via the implementation of renewable solutions and to implement nature-based solutions to increase carbon sequestration such as large-scale tree-planting."

And in furthering its commitment to biodiversity conservation, he points out that to date, close to 47,000ha of land within SDP's operations have been identified and set aside as high conservation value (HCV) areas.

These include land classified as "unplantable

reserves", which are areas that are unproductive or unsuitable for oil palm planting, namely terrain with slopes greater than 25°, ponds, ravines and swamps, among others. These HCV areas, he says, will remain as conservation areas indefinitely.

"Since we declare these areas to the RSPO, they are audited regularly to ensure that they are well maintained and remain conserved," he says, adding that all conservation and reforested areas are monitored and maintained by the operating units where they are located. These initiatives include biodiversity assessments, boundary marking and continuous surveillance to prevent illegal activity. By geo-tagging the trees, SDP's conservation and biodiversity team is also able to monitor the survival of the trees planted.

Apart from protecting and restoring areas that have conservation potential, equally critical to SDP's tree planting and conservation activities is connecting areas that have the potential to be connected to important habitats, landscapes and ecosystems. "We are currently looking at our conservation areas that are close to the Central Forest Spine [in Peninsular Malaysia], for example, or larger ecosystems to see how we can connect them. And we are not stopping there. We will continue to look for more areas that we can conserve within our operations," he says.

▲ The nursery at one of SDP's tree planting project sites that provide seedlings for forest trees

SUCCESS STORIES

Over the years, SDP's tree planting projects have had a positive impact on biodiversity. An increase in bird species has been observed at its estates. At the orangutan habitat conservation project in the Bukit Piton Forest Reserve, Sabah, there has been a rise in the number of orangutan nests thanks to SDP's restoration project undertaken in collaboration with the Sabah Forestry Department.

▼ A riparian zone in one of SDP's estates in Perak

The project, which began in 2008 and covers a total area of 11,612ha, was part of the Ulu Segama-Malua sustainable forest management project initiated by the Sabah government. An important area in orangutan conservation efforts, the Ulu Segama Forest is home to the largest orangutan population in Sabah (about 3,500 to 4,000 individuals).

Since 2011, SDP, Yayasan Sime Darby, Management and Ecology of Malaysian Elephants, and the University of Nottingham Malaysia have also jointly conducted human-elephant conflict research and built scholarly capacity and public awareness to mitigate the social, economic and conservation impacts of human-elephant conflicts in Malaysia, says Rashyid.

"In July 2020, we published our SOP (standard operating procedure) for human-wildlife conflict mitigation to guide the management of human-wildlife conflicts at SDP-owned and adjacent oil palm plantations and by other third parties, including researchers, academics and NGOs.

"Recently, SDP and the Malaysian Nature Society signed a mutual intention to collaborate in a one-year project to study the otters along the outlining coastal mangrove belt known as the North Central Selangor Coast. The idea is to promote the conservation of wild otters along the coastline of Selangor and to engage the plantation management and workers on human-otter conflict," he adds.

'WE CANNOT WORK ALONE'

Over the years, there have been challenges in the company's journey into forest and biodiversity conservation. "The vast areas that SDP has identified for our conservation initiatives can

▲ The wildlife sanctuary in SDP's Carey Island oil palm plantation

◄ An increase in bird species, including the purple heron, has been observed at SDP's estates

be very difficult to access and this has posed challenges in our initial assessment of the areas to determine the species that are suitable to be planted," says Rashyid.

One of the lessons learnt over the years is that successful reforestation and biodiversity initiatives require huge monetary investment and partnerships with other like-minded organisations or companies.

"It can be difficult to get buy-in from stakeholders to plant these trees as they are costly and do not generate income. It is also important for us to continue monitoring and mitigating the risks to our conservation projects such as the weather (especially for new trees), human-wildlife conflicts, illegal hunting, forest fires and soil erosion. Conservation areas are quite unique and cover a vast spectrum, and therefore we cannot work alone," notes Rashyid.

To date, SDP has collaborated with the Forest Research Institute Malaysia, the Malaysian Palm Oil Green Conservation Foundation for High Conservation Value and Biodiversity Training for Smallholders, and the Sabah Environmental Protection Department, to name a few.

"One of the biodiversity projects that we have had the privilege of being associated with over the years is the Stability of Altered Forest Ecosystems (SAFE) project by the South East Asia Rainforest Research Programme.

"SAFE, considered the largest ecological experiment in the world, was funded by YSD. It encompasses just over 8,000ha of forest that has been converted into oil palm plantations. Through SAFE, scientists and researchers worked together with the palm oil industry to understand the biodiversity criteria of forests and that it is possible to create oil palm plantations while minimising ecological damage," he says.

Rashyid also welcomes new collaborations — those with degraded land or forest are encouraged to approach SDP should they wish to work together in rehabilitating and restoring those areas.

On the view that some of the forest and biodiversity conservation activities may be construed as greenwashing, Rashyid points out that the scale of SDP's initiatives involves not only huge monetary investment but also hard work by many parties to ensure that they are successful.

"This includes a detailed assessment of the areas that we intend to reforest to determine the species of trees that would be suitable to be planted. Most of the time, these areas are not easily accessible. The sourcing of seedlings and the preparation of the land will need to be done before the actual planting of the seedlings, which would also require efforts from many volunteers depending on the size of the areas. Once planted, we need to ensure that the trees survive, and this also requires continuous monitoring and maintenance of the areas.

"An important part of our net zero target is the initiative to reduce 50% of our carbon emissions by 2030 via the implementation of renewable solutions and to implement nature-based solutions to increase carbon sequestration such as large-scale tree-planting."
RASHYID

"All of these go beyond what is required by our obligations under sustainable palm oil certification schemes. But they are important because they are directly linked to our target of reducing carbon emissions. At the end of the day, it is better to take positive action against climate change rather than worry about being labelled as greenwashing. The result of our commitment and all the efforts that we have put in place will speak for themselves."

By Sreerema Banoo

SIME DARBY PLANTATION