

# THE FUTURE IS DIGITAL

*Sarawak broadens green tech knowledge with China*

By Neera Khandpuri

Sarawak will adopt green technology examples from China, in its ongoing active efforts to conserve the environment.

"Digital economy is the way China is moving forward and for us to move our economy," he declared, as reported in an East Malaysia daily.

Its Chief Minister Datuk Patinggi Abang Johari Tun Openg said, Sarawak had learnt a lot from China in terms of environmental conservation which then led the state to pursue digital economy.

During his recent trip to Beijing, he described experiencing blue skies and clean air, clearly showing that China has been successful in its efforts to curb air pollution.

"There is no smog and dust, only clear blue skies in Beijing. China has committed itself to the preservation and conservation of the environment," said Abang Johari at the Farewell Reception in Kuching for Consul General of the People's Republic of China, His Excellency Fu Jijun and his wife, Liu Sha in November 2017.

From an Internet Conference in China recently, Abang Johari revealed that the country was aiming for its Gross Domestic Product (GDP) to be at 55% from digital economy. In 2016, digital economy contributed 35% to China's GDP at about USD3.43 trillion.

*"...such moves will also open up opportunities by creating new jobs for the younger generation."*

Abang Johari added that such moves will also open up opportunities by creating new jobs for the younger generation.

Taking a step further in environment conservation in the state, Abang Johari said there are plans to use hydrogen-powered buses and the light rail transit (LRT) system in Kuching.

He contended that the Germans and the Chinese are leading in technologies, and are producing similar results when using hydrogen gas technologies.

Justifiably, Sarawak decided to go with the Chinese due to their much lower costs of setting up a hydrogen production plant and for bringing in the hydrogen buses.



Sarawak Chief Minister Datuk Patinggi Abang Johari Tun Openg (second from right) and his entourage listen to an explanation on board a hydrogen-powered bus during the visit in Beijing, China.

# CHAMPIONS OF MANJUNG'S MANGROVES

*Rehabilitating and protecting our shoreline defenders*

By Noor Azura Ahmad  
Global Environment Centre

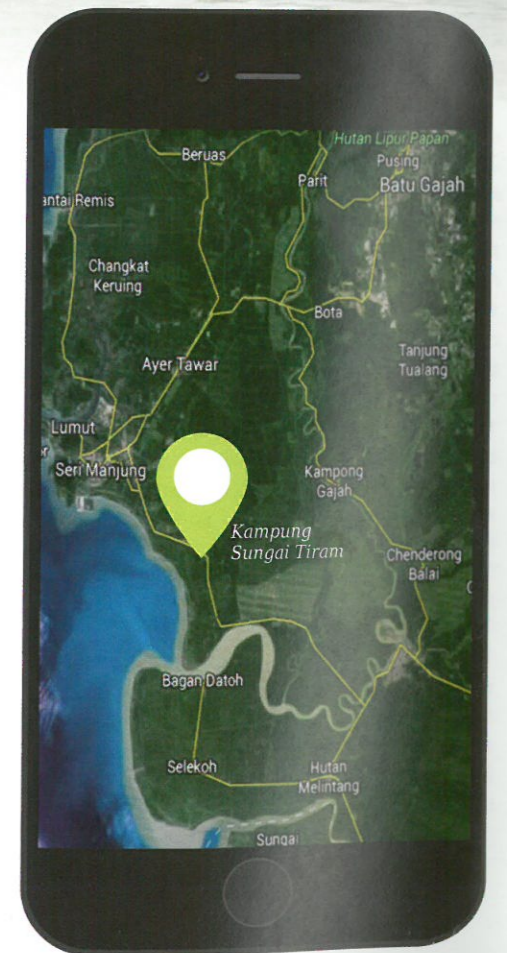


Kampung Sungai Tiram in Lekir, Setiawan is a village located on the trunk road between Bagan Datoh to Lumut in Perak. Situated right on the coast, many of its over 1,000 inhabitants are fisher folk and farmers who make a living from the sea as well as smallholdings on land. Others work in nearby shops and factories. The main income sources here are coconut, palm oil, fruits and seafood.

Just beyond the village is a substantial mangrove area inhabited by crab-eating macaques, kingfishers, eagles and crabs. The sea is abundant with fish and prawns. The community is aware of the importance of mangroves to their livelihood, but the damage wreaked by illegal prawn farms, high winds and changing currents have affected the nearby mangroves so that it is not able to regenerate naturally. The strip of mangroves protecting their land was getting narrower by the day and there are limited funds to protect the ecosystem.

## REHABILITATING THE MANGROVES

In 2013, Global Environment Centre (GEC) and Vale Minerals Malaysia Sdn Bhd (Vale) approached Kampung Sungai Tiram's village committee with a proposal to help rehabilitate the mangroves in Southern Manjung. The proposal was accepted because the villagers knew that it would help them protect the mangroves, their livelihood and their living environment. To facilitate conservation and rehabilitation efforts, the Lekir community formed the Friends of Lekir Sitiawan Mangrove Forests or Sahabat Hutan Bakau Lekir Sitiawan (SHBLS).



Mangrove propagules for sowing in polybags.



Their first task was to create awareness among the community through talks, visits and planting programmes. While the 55 members knew the importance of mangroves, they needed to learn how to protect and rehabilitate them. Therefore, they visited Kuala Gula where an established community-based mangrove rehabilitation group have been running a mangrove rehabilitation programme for the past 10 years. The members learnt about mangrove forests, how charcoal is made from mangrove wood, rehabilitation efforts by the Perak State Forestry Department and the Penang Inshore Fishermen Welfare Association (PIFWA) plus techniques to build a nursery for mangrove seedlings. Sahabat Hutan Bakau Kuala Gula (SHBKG) also shared their handicraft making skills with SHBLS members.



A briefing on seedling management in the SHBLS nursery.

Armed with their newfound knowledge, SHBLS built their own nursery and started stocking it with several mangrove species including *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera parvifolia*, *Bruguiera sexangula*, *Bruguiera gymnorrhiza* and *Avicennia alba*.

Scientific name	Malay name
<i>Rhizophora apiculata</i>	Bakau minyak
<i>Rhizophora mucronata</i>	Bakau kurap
<i>Bruguiera parviflora</i>	Lenggadai
<i>Bruguiera sexangula</i>	Tumu putih
<i>Bruguiera gymnorrhiza</i>	Tumu merah
<i>Avicennia alba</i>	Api-api putih

The seedlings are grown from propagules collected from the surrounding mangroves and coastal areas. Propagules are mangrove fruits which have started to grow stems while still on the tree. This is a very important adaptation for mangroves, which allows the seeds to stick upright in the soft mud when they fall and not be washed out to sea by the tides. The propagules are planted in polybags and raised in the nursery until they grow into meter high saplings, suitable for replanting. The saplings are sold to groups organising mangrove replanting activities along the degraded coast.

**LEKIR-SITIAWAN REHABILITATION AREA**

Other than supplying planting materials, the SHBLS is also rehabilitating 100 hectares of mangroves near their village. Many groups regularly come to replant in this area. So far, 70% of the degraded area has been replanted. Most of the saplings planted were *Rhizophora apiculata* and *Rhizophora mucronata*. The species is determined according to the location as the trees follow a succession according to the tidal zones. The survival rate for the planted saplings is reported at an impressive 85%.

The *Jambatan Ilmu* or Interpretative Bridge was built with support from the Malaysian Royal Navy (TLDM) and other contributors. Stretching from the access road to the forest edge, the bridge spans 120ft (36m) and allows visitors to walk above the muddy mangrove floor. They can easily view both mangrove creatures and seedlings in the nursery from the bridge.



The Interpretative Bridge goes around the back of the nursery and close to the forest edge, allowing visitors to explore the forest ecology and mangrove creatures without getting muddy.

Both Vale and the TLDM have taken a keen interest in rehabilitating the mangroves in the Lekir Forest Reserve. In 2016, 1,000 volunteers from government departments, colleges, schools and the local community planted 10,000 mangrove saplings during its launching ceremony.

In 2017, they made history again when they planted 15,000 mangrove saplings with the help of volunteers. This was an event held in conjunction with the 83<sup>rd</sup> TLDM Day celebration. The mangroves symbolise coastal defence, similar to the navy's role in defending the Malaysian coast.

**ALTERNATIVE INCOME SOURCES.**

Everyone wants to prosper, and SHBLS members are no exception. In addition to funds raised from supplying seedlings, the enterprising villagers also looked at other sustainable income sources that will not stretch marine resources. To this end, a **Sustainable Alternative Livelihood Programme (SALP)** supported by Vale came in to help.

The three identified alternative income streams were handicraft making, snack production and ecotourism.

**Handicraft making** is being developed by a small group who makes decorative items from coconut sepals, banana trunk layers and other materials. Some of these items are available on the GEC website.



While a number of **traditional snacks** can be made to order from SHBLS Kampung Sungai Tiram, the most popular product is undoubtedly the kuih tiram. Literally translated as oyster crisps; it is a crunchy, layered pastry liberally doused with powdered sugar. Sold in wide-mouthed jars, the delicacy is very much in demand during festive seasons. The production leader is Puan Misriza, the daughter-in-law to the business' matriarch. The family began selling their favourite snack to supplement their income after her father-in-law's untimely demise. The snacks were so well-received that the business quickly grew, attracting large orders from all over.



The rolling machine used for mass production.



A jar of the delicious kuih tiram.

From being a part-time income earner, the business has become a community project, with proceeds being shared with those who chip in with production. SALP has helped increase production capacity by providing a heavy duty rolling machine which allows them to churn out the snacks at top speed. Last year, one customer ordered 600 jars to be distributed to their staff and contacts for Hari Raya. It would have been quite impossible to fill the order in time if they had to do everything by hand.

An upcoming venture is **ecotourism**, where locals are preparing to receive visitors into their homes. Due to its proximity to Kuala Lumpur, Ipoh and Pangkor Island, the village can offer a convenient stopover for tourists and local visitors. Visitors can learn about the importance of mangroves as nurseries for sea life and help rehabilitate the mangroves. Coming back, they can quench their thirst with coconut drinks and snack on local fruits. This project is still in the developmental stage, but it has a lot of potential.



**HOPE FOR THE FUTURE**

At the end of the day, we believe that SHBLS will thrive; given the right attitude, opportunities and guidance. They have certainly achieved a lot in the past four years. With unfaltering support from the Perak EXCO for Tourism, Arts, Culture, Communications and Multimedia, Perak State Forestry Department, Manjung District Office, Manjung Municipal Council, Vale Malaysia Minerals Sdn Bhd, University of Queensland, Malaysian Royal Navy, and other partners, we are confident that SHBLS will continue to advance and succeed.

Stay tuned for future offerings from this amazing community! For more information about SHBLS activities, please contact GEC's Forest and Coastal Programme team at 03 - 7957 2007.

**Global Environment Centre** was established in 1998 to work on environmental issues of global importance. It is a non-profit organisation which works regionally and internationally to support information exchange and capacity building. Find out more at [www.gec.org.my](http://www.gec.org.my).

**Friends of Mangroves Lekir Sitiawan (SHBLS)** is a community-based organisation that implements mangrove conservation activities in Lekir Sitiawan. Its 55 members are mainly from Kg. Batu 10 and Kg. Sungai Tiram, Perak. SHBLS was registered with the Perak Registrar of Societies (JPPNP) on May 11, 2015 (PPM-028-08-11053015).