ISBN 978-983-99764-1-0

MMC

THE FIRST

YEARS

1911-2011

One hundred years ago, on 9 May 1911, Malayan Tin Dredging Limited was incorporated and subsequently floated on the London Stock Exchange to raise capital to invest in the tin mining industry of Malaya. It is one of the earliest sterling quoted companies to arrive in the country.

Our journey had just begun…

This book is dedicated to all who have been a part of our first 100 years: our visionary leaders, diligent staff, committed associates and partners, supportive federal and state governments and their agencies, local authorities and, above all, the communities where we operate and serve. Our deepest appreciation and gratitude to them for making us what we are today.

MMC

THE FIRST

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Perpustakaan Negara Malaysia
Cataloguing-in-Publication Data

MMC: The First 100 Years
Includes Appendix (Tin Prices, Dredge Listing, Corporate Evolution of MMC), Glossary and References

ISBN 978-983-99764-1-0

1. Tracing MMC's 100-Year History
2. Rise of Malaysia's Tin Mining Industry
3. Malaysianisation of Tin Companies
4. 21st Century Transformation of MMC

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pVm communications sdn bhd (633010-K)

Printed by
MPH Printing Sdn Bhd (142270-H)

CONTENTS

No. 115723.

Certificate of Incorporation

OF

Malayan Tin Dredging, Limited

I HEREBY CERTIFY that MALAYAN TIN DREDGING, LIMITED, is this day incorporated under the Companies (Consolidation) Act, 1908, and that the Company is LIMITED.

GIVEN under my hand, at London, this Ninth day of May, One thousand nine hundred and eleven.

GEO. J. SARGENT,
Assistant Registrar of Joint Stock Companies.

Fees and Deed Stamps,	£31 : 2 : 0.
Stamp Duty on Capital,	£250 : 0 : 0.

MMC – Namamu di Persada

dalam kedamaian bumi ini
di sebuah daerah nan sepi
tercipta lah sebuah nama
biar pun tanpa wajah yang nyata
namun hebat berfungsi...

bersama wujudnya nama itu
terbongkar ruaklah bumi ini
dalam kembara mencari khazanah
yang tersembunyi di perut bumi yang kudus
anugerah Allah...

tika penerokaan bumi kian pudar
dihambat waktu pantas berputar
era globalisási sekilat menerpa tanpa menyapa
lantas menjelajah... menguasai... mengisi segala

mujur kau tersedar sebelum terlena
lantas bangkit...
menukar rentak menghayun langkah
menongkah arus menggalas sejuta harapan

lantaran...
di era penuh haloba dan nestapa
kau pasti... dihimpit dan menghimpit
diterjah dan menerjah
ditepis dan menepis
dalam arus gelombang siber
yang menjelmakan dunia tanpa sempadan

namun... yang pasti
dibelakangmu ada beribu umat
teguh berdiri bersama nekad
mengiringi tiap langkahmu
mencari berkat

memanjat doa memanjang usia
mengiringi langkah-langkah matang
mengepit cabaran
mendakap keyakinan

itu lah MMC... mencecah berdekad
melangkau zaman sejarah berlipat
menanti detik membilang waktu
menjelang fajar... 100 tahun usiamu

hidup MMC... meniti legasi
menjunjung harapan kesetiap generasi...

wanabdullah (2011)
MMC Corporation Berhad

Foreword

Congratulations MMC on achieving your 100th anniversary this year. This is a defining moment for MMC as it is one of the few Malaysian companies with a century-old history. During this journey, MMC has touched the lives of many Malaysians in a variety of ways.

MMC traces its roots to Malayan Tin Dredging Ltd, a company incorporated in London 100 years ago. MMC mines were among the largest in Malaya, employing thousands of people, and they helped open up towns such as Batu Gajah, Tanjung Tualang, Kamunting and Tronoh in Perak, and Batang Berjuntai and Puchong in Selangor during the colonial days. MMC also revolutionised the tin mining industry by introducing the bucket dredge mining technique that propelled it to greater heights.

The company continuously innovated and introduced new and bold approaches that enabled it to unleash its growth potential to eventually become the world's largest tin mining company and a prominent player in precious metals with a huge international presence. Skilled, inquisitive and innovative workers were nurtured, and this valuable asset – its talent pool – was put to work to become the driving force that propelled MMC's productivity forward.

Even though MMC is no longer in mining today, it continues to be an important organisation in the country as it owns and manages strategic assets that are key to the country's development. MMC's diversification into power through the acquisition of Malakoff Berhad has seen it control a significant portion of the country's power generating capacity, whilst its port business garners the largest share of the country's container cargo movement. Its position as the sole distributor of gas to the non-power sector is integral to the growth of the country's manufacturing sector.

In engineering and construction, MMC has been involved in high value-added activities which have created significant spill-over effects to the economy. MMC is one of the joint venture partners involved in the construction of the SMART Tunnel which has alleviated flooding problems in Kuala Lumpur and has been recognised internationally as an engineering marvel. MMC's recent appointment as the Joint Project Delivery Partner for the country's first Mass Rapid Transit rail project underscores the Government's confidence in its ability to deliver large infrastructure projects. The electrified railway double track project from Ipoh to Padang Besar that is currently being constructed by MMC and its partner will result in a new era for public transportation when completed, and create an enormous socio-economic impact for Malaysia.

Malaysia has embarked on the Economic Transformation Programme (ETP), which is a comprehensive effort to transform the country into a high-income nation. The ETP is aligned with other initiatives such as the Government Transformation Programme (GTP), which is intended to provide effective delivery of services by the Government and be accountable for outcomes that are consistent with the needs of the people. The ETP provides strong focus on 12 National Key Economic Areas that are expected to make substantial contributions to Malaysia's economic performance. Together, the ETP and GTP will help realise our vision to make Malaysia a fully developed nation by 2020.

I look forward to a brighter future for MMC and all Malaysians.

1Malaysia "People First, Performance Now"

Dato' Sri Mohd Najib Tun Hj Abdul Razak
Prime Minister of Malaysia
28 April 2011

Artist: Raja Azhar Idris
Title: MMC – The First 100 Years
Year: 2011
Medium: Oil on canvas

Milestones 1911-2011

British FDI in Malaysia

1911
Malayan Tin Dredging Limited (MTDL) is incorporated in London on 9 May 1911 and subsequently floated on a London Stock Exchange with a nominal capital of £100,000. Its first tin field in Batu Gajah, Perak is about 1,000 acres.

1913
MTDL successfully introduces the bucket dredge that revolutionises tin mining in the country. By 1915, MTDL has 11 dredges.

1914-1918
Outbreak of World War I when the tin mining industry comes to a standstill. Large stockpiles cause a post war slump.

1925
London Tin Corporation Limited (LTCL), the world's largest tin group is established by British financier John Howeson; it also acts as a registrar of tin mining companies in Malaya.

1929
There are 105 tin dredges in Malaya, the highest ever in the country's mining history. Most are owned by British mining companies such as MTDL.

1941
World War II and the Japanese Occupation of Malaya. Dredges belonging to MTDL are taken over by Mitsui Kosan Kabushiki Kaisha.

1945
World War II ends, and the British return to find the mines in a shambles. They embark on a programme of rehabilitation.

1948
Three glorious decades of tin mining follow – 1950s, 1960s, 1970s – undeterred by communist terrorist attacks that occur during the Malayan Emergency (1948-1960).

1957
Malaya becomes an independent nation on 31 August. The company marks the occasion with Sports Day, when staff at different mining sites gather on a level playing field to celebrate the spirit of nationhood.

Malaysianisation of Tin Mining

1975
Pernas Securities Sdn Bhd subsidiary, Tradewinds (M) Sdn Bhd, acquires 20 per cent of LTCL.

1976
A special purpose vehicle called New Tradewinds Sdn Bhd is formed for the takeover of LTCL. New Tradewinds is a joint venture between Pernas Securities Sdn Bhd (71.35 per cent) and Charter Consolidated Ltd (28.65 per cent). Transfer of domicile and formation of London Tin (Malaysia) Berhad.

1977
Transfer of domicile of MTDL from London; it is incorporated as Malayan Tin Dredging (M) Berhad (MTD).

Pernas Charter Management Sdn Bhd is formed to take over and manage mines belonging to Anglo Oriental Mines and Associated Mines.

1978
New Tradewinds is renamed Malaysia Mining Corporation Berhad (MMC) and listed on the Kuala Lumpur Stock Exchange.

LTCL enters into voluntary liquidation.

1979
MTDL enters into voluntary liquidation.

1980
MTD buys Southern Malayan Tin Dredging (M) Berhad, Southern Kinta Consolidated (M) Berhad, Lower Perak Tin Dredging Berhad, Kramat Tin Dredging Berhad and Bidor Malaya Tin Sdn Bhd.

1981
MTD-MMC merger occurs on 10 October. It begins with Permodalan Nasional Berhad (PNB) acquiring New Tradewinds' interest in Malaysia Mining Corporation Berhad followed by a share swap – PNB's Sime Darby for MTD.

MTD becomes the parent company and Malaysia Mining Corporation Berhad, its subsidiary. MTD assumes the name Malaysia Mining Corporation Berhad, while the older entity is renamed MMC (1976) Berhad. The merger creates the world's largest tin mining group.

MMC acquires a 42 per cent interest in Malaysia Smelting Corp Sdn Bhd to become a fully integrated tin producing group.

Diversification of MMC

1982
MMC enters joint ventures with various state governments and their agencies.

The Group begins to diversify mining operations overseas. In Australia, it has joint ventures with Hillgrove and Ashton Mining for gold and diamond mining respectively.

Incorporation of Diamond Cutting (M) Sdn Bhd in Kota Bharu, Kelantan.

Perusahaan Sadur Timah Malaysia (PERSTIMA) Sdn Bhd is formed.

MMC Marketing Sdn Bhd is formed to engage in international trading of tin and associated minerals. Offices established in London and Tokyo.

Demand for tin declines due to world over-production, competition from aluminium, and releases from American stockpiles.

1983
The launch of Timah Dermawan dredge by the Sultan of Perak.

1984
Commercial production begins at Ashton's Argyle Diamond Mine in Australia.

MMC enters into a joint venture with Pahang State Government to prospect for base metals in Mengapur.

MMC enters into a joint venture with Syarikat Permodalan dan Perusahaan Pahang Berhad to prospect for tin deposits in Penor.

1985
Tin mining slows, and only 19 out of 41 dredges are in operation.

MMC Engineering Services (MMCES) secures route selection and engineering study for the East-West Line project of Keretapi Tanah Melayu (KTM) and gas pipeline route selection and optimisation study for Petronas Peninsular Gas Utilisation project.

Suspension of tin trading at the London Metal Exchange. Prices drop almost by half – traumatic year for MMC.

1986
Exploration for base metals, gold, tungsten and barite deposits in the east coast of Peninsular Malaysia.

R&D into tin usage to promote the marketing of tin.

Kuala Lumpur Tin Market commences trading.

1987
Difficult year as tin prices fall sharply.

MMCES spearheads diversification into the engineering and construction business undertaken singly or as joint ventures.

MMC Marketing expands scope to include industrial minerals, ferrous and non-ferrous metals, petroleum products, timber products and coal.

1988
Exploration for gold in West Kalimantan, China, Canada and USA. Ashton Mining invests in two gold and platinum exploration projects in Alaska and one alluvial gold project in Central Kalimantan, Indonesia.

MMC McDermott Sdn Bhd completes engineering design for the Petronas' Dulang Oilfield Project.

MMCES makes inroads into railway engineering with the assembly and fabrication of bogies and wagons for KTMB.

MMCES is awarded the contract to modernise and convert military armoured vehicles.

MMC Gas Sdn Bhd awarded the Engineering, Procurement, Construction and Commissioning contract from Petronas for the 760-km pipeline under the Peninsular Gas Utilisation Project Stage II .

1990
MMCES gains momentum and records a maiden profit.

MMC acquires a 30 per cent stake in Australia's Plutonic Resources Limited that has interests in gold mines.

MMC Exits Tin Mining

1992
MMC exits the tin industry in the face of prolonged oversupply and depressed prices.

MMC-Shapadu Holdings Sdn Bhd, Tokyo Gas-Mitsui Holdings and Petroliam Nasional Berhad form Gas Malaysia Sdn Bhd.

1993
The first full year of performance by MMC without its traditional business of tin mining.

1994
MMC Marketing records improved performance with the recovery of export markets and demand for core commodities, particularly ilmenite.

MMC Manufacturing's video tape plant, Dana Vision Sdn Bhd, commences commercial production.

1996
MMC's Konsortium Lebuhraya Butterworth-Kulim (KLBK) is awarded the toll and maintenance concession for 30 years.

1997
Dana Vision ceases operation; KLBK starts operation.

MMC donates its last dredge, the 3-storey Tanjung Tualang No. 5, to the Perak State Government.

1998
MMC Marketing ceases operations.

MMC Engineering & Construction begins work on MRR2 and KL International Airport.

A New Dawn

2000
Impian Teladan Sdn Bhd buys a 19.9 per cent stake in MMC from PNB. MMC is reorganised into three core businesses: Mining, Engineering and Infrastructure & Utilities.

2001
MMC enters the port and power business via its acquisition of Seaport Terminal (Johore) Sdn Bhd that owns the Port of Tanjung Pelepas (50.1 per cent) and Malakoff Berhad (22.2 per cent) respectively.

2003
Tan Sri Syed Mokhtar Albukhary becomes a substantial shareholder of MMC via Seaport Terminal (Johore) Sdn Bhd.

Construction of the SMART Tunnel by the MMC-Gamuda Joint Venture begins.

Malakoff acquires the Tanjung Bin independent power plant.

2004
Malaysia Mining Corporation Berhad is officially renamed as MMC Corporation Berhad to better reflect its core businesses.

2005
MMC launches its new corporate logo.

MMC increases its stake in the Port of Tanjung Pelepas to 70 per cent.

2006
MMC becomes the main port operator in Johor when it acquires a 100 per cent stake in Johor Port Berhad.

The Group is awarded the US$30 billion project to jointly develop Saudi Arabia's Jazan Economic City with the Saudi BinLaden Group.

2007
MMC raises its equity in Malakoff to 51 per cent.

The Group ventures into port operations overseas, and becomes a 20 per cent equity holder in the Red Sea Gateway Terminal, Jeddah Islamic Port in Saudi Arabia.

The MMC-Gamuda Joint Venture is awarded Malaysia's Electrified Double Tracking Project for the Ipoh to Padang Besar section.

2008
MMC acquires a 69.7 per cent stake in Aliran Ihsan Resources Berhad, the largest supplier (70 per cent) of Johor state's treated water.

2009
MMC expands its transport & logistics business with the acquisition of Senai Airport Terminal Services Sdn Bhd that operates Senai Airport in Johor.

2011
MMC-Gamuda Joint Venture is appointed project delivery partner for the Klang Valley Mass Rapid Transit project, the largest public infrastructure project in the country to date.

PART 1

The Tin Rush

The surge in demand for tin caused by the Industrial Revolution sparked the Malayan Tin Rush in the late 1800s, following the discovery of large deposits of the metal in the Kinta and Klang Valleys, which emerged to become among the richest tin mining fields in the world during the 21st century.

MALAYA-BOUND *British foreign direct investments flowed into the country after rich tin deposits were discovered in the 1800s.*

The earliest known indigenous Islamic coin, a duit casha (tin coin), was issued during the reign of Melaka's fifth ruler Sultan Muzaffar Syah (1446-1456).

Chapter 1

A Matter of Money

Tin was used as currency in many Malay states since the days of the Melaka Sultanate (1400-1511) until it became a sought-after industrial metal in 19th century United Kingdom, Europe and America. Its role then changed.

'We eat what we can, and we can what we cannot eat,' became the clarion call of the booming canning industry in the late 1800s. Initially made of glass, food canisters (shortened to 'can') were later made of durable wrought iron, and eventually replaced with tin-plated steel.

This proved a blessing for Malaysia, where tin was discovered in large quantities. Suddenly, the country was thrust onto the radar screen of the Western world, and tin became the impetus for colonial expansion. The British, who until then concentrated in the Straits Settlements of Penang, Singapore and Melaka, found it opportune to extend their sphere of influence into the tin-rich Malay States in the 1870s.

Over the next hundred years or so, Malaysia rose to become one of the world's largest producers of tin. Indeed, this precious metal was literally its money tree, generating untold wealth that helped grow the nation from a colonial outpost to a dynamic melting pot of cultures.

Tampang, referred to as tin hat money, was widely used as currency in the Melaka Sultanate and the Malay state of Pahang.

Tin currency

Malaysia has a long history of tin mining. It began as small scale mining, gathering momentum as tin grew in stature as currency. Historical records show that 'pitis' or tin coins predate the Melaka Sultanate (1400-1511). They were introduced into the Malay States from China during the Tang dynasty (618-907), which was notable for its foreign trade with Arabia, East Africa, and Egypt. The Chinese voyaged to the Malay peninsula that lay along the main shipping lane between these geographical zones, and was a strategic stop for sailing vessels.

Chinese merchants in Johor, which grew as a trading centre following the Portuguese invasion of Melaka in 1511.

"An army marches on its stomach." – Napoleon

During the early years of the Napoleonic Wars (1799-1815), the French government offered a hefty cash reward to any inventor who could devise a cheap and effective method of preserving large amounts of food. The large armies of the period required a regular supply of quality food for long military campaigns. In 1809, French confectioner and brewer Nicolas Appert observed that food cooked inside a jar did not spoil if it is sealed. He then developed a method of sealing food in glass jars. However, these containers were too fragile for travel.

An English canning factory in the 1800s.

Soon, they were replaced by cylindrical tin or wrought-iron canisters (cans). They were also cheaper and quicker to make than glass containers. Can-openers, however, were not invented for another thirty years — and soldiers had to cut cans open with bayonets or smash them open with rocks.

After the war, food canning spread elsewhere in Europe. By the mid-19th century, canned food became a status symbol among middle class households. Increasing mechanisation of the canning process, coupled with sharp increases in urban populations in Europe, generating a greater demand for canned food.

There was an upsurge in the popularity of canned food when the industry moved to the USA. The first American canning factory was set up in New York City in 1812, using improved tin-plated wrought iron cans to preserve oysters, meats, fruits and vegetables.

The food canning industry was also boosted by large-scale wars such as the Crimean War, American Civil War and World War I. They introduced soldiers, mainly working class men, to food in tins. Canning companies that thrived on meeting military demands for canned foods, found themselves catering to wider civilian markets when the wars ended.

This led to the birth of food giants such as Nestlé and Heinz that competed with each other by canning novel foodstuffs, with highly decorated printed labels and lower prices. Today, tin-coated steel is the material most commonly used in food cans.

Admiral Zheng He in the court of the Sultan Muzaffar Shah of Melaka (1446-1456).

These early Chinese traders used copper coins for commerce, but due to the acute shortage of copper in the Malay States, they turned to the readily available tin to shape crude tin coins. Crude copies of Chinese copper cash cast in Malayan tin marked the beginning of tin as legal tender in the country.

Centuries later, when the famous Muslim Admiral Zheng He (Cheng Ho) visited the thriving port of Melaka on five of his seven world voyages (1405-1433), his translator Fei Xin noted:

> *'….. The only produce of Melaka was tin from a river. Tins obtained from river were fired into tin blocks (known as tin ingot), each weighing 1.4 jin.'*

The international port status of Melaka was given a boost when Sultan Muzaffar Shah (reign: 1446-1456) declared the tampang ('tin hat') as the official currency. Tampang was issued by the state as well as Chinese guild-houses under a special licence from the Bendahara, the state treasurer. By then, Melaka had a sizeable Chinese population, consisting of traders as well as settlers – they were the first wave of Chinese migrants to Malaysia.

The tampang was equivalent to 6¼ Spanish cents. Easy to handle and use, it was minted until replaced by the Straits dollar in 1893.

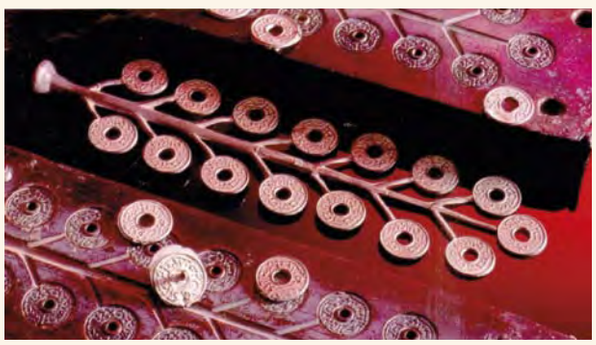
By the time the Portuguese invaded Melaka in 1511, there was an assortment of tin currency in circulation. Most valuable were molten tin cast into blocks (ingots), each weighing approximately one pound. Used exclusively for commerce, they came in different denominations. Ten ingots added up to a 'small bundle' whilst a 'large bundle' consisted of 40 ingots. For variation, the ingots were shaped into pyramids or pagodas. First used in Selangor, Pahang

and Perak, this heavy currency was eventually replaced by less cumbersome ones.

Animal-shaped money gained popularity as mining operations grew in the states of Perak and Selangor. Probably originating in Thailand or Myanmar, it was used in shamanistic practices. Before mining, some landowners would first consult a *pawang* or shaman to placate resident spirits. They would mint tin figurines using the standard size and weight. This led to the production of tin-shaped crocodiles, elephants, cockerels, tortoises and grasshoppers, which also served as counterweights when measuring tin ingots and other items of trade. The circulation of this form of currency, however, was limited, and owners treasured them as ornaments or objects of art.

The most distinctive Malaysian tin currency is perhaps the *pohon pitis*, which originates from the East Coast Malay state of Kelantan. *Pohon* means tree and *pitis*, pronounced *pitih* in the local dialect, means coin.

In 1903, when Kelantan was a vassal of Thailand, Sultan Muhammad IV issued the *pohon pitis*, which was sent as a tribute to his overlord, the King of Siam. The tree had a trunk and branches, with a coin attached to each branch. Each coin was embossed with the following words: *Thuriba Fi Zul-Hijjah Sanat 1321* (the month of Zul-hijjah 1903) on one side, and on the reverse side was: *Belanjaan Kerajaan Kelantan* (Currency of the Government of Kelantan).



The pohon pitis, or coin tree, from Kelantan – coins were detached from the 'tree' before circulation, and the branches melted down for re-use.

Tin animal money is believed to be first used by the royal courts of Peninsular Malaysia in the 15th century. They were solid tin objects initially used as gifts to royalty and for magical rites associated with the opening of new tin mines. Tortoises, elephants, fish, and insects were cast, but the most common was the crocodile. This reptile features in many Malay legends and was considered particularly auspicious by shamans.

The coins were plucked off from the tree as and when needed, while the bare 'trunk' was melted down for re-use. Although the *pitis* was not legal tender for long, it remained in circulation until the 1920s.

A new dawn

Three landmark events signaled a new dawn for tin in Malaysia.

One, the decline of the tin mines of Britain's Cornwall that has a 4,000-year old regional mining history. At one time, Cornwall boasted 2,000 tin mines and it was a world leader in tin production.

A BBC report entitled "Cornwall: Last Mine Standing" states: "In 1870, Cornwall was the premier tin mining field in the world. Riding high on its success, the industry was blissfully unaware that like the copper industry before it, there was trouble ahead. Foreign competition was to change all that. Overseas fields were producing ores far more cheaply than Cornwall. Renewed competition from Malaya and Bolivia was the final nail in the coffin".

Two, the phenomenal demand for tin from the canning industry in the 1800s *(refer to box story: An army marches on its stomach).*

And three, the discovery of vast tracts of alluvial tin in the Kinta Valley of Perak in 1848. They were easier to mine and cheaper to produce than the deep underground mines of Cornwall. This flung open the door to untold wealth and riches, and sparked the Tin Rush to Malaya… ■

The second wave of Chinese migrants began to arrive in the mid-1800s with the discovery of tin in Perak and Selangor. They came with their shirts on their back, and some rose to become rags-to-riches tin tycoons.

> *'British policy was calculated to encourage the immigration of the Chinese, for the British realised that the industry of this people could create wealth for their new territory."*
>
> ***Historian Victor Purcell in 'The Chinese in Malaya' (1950)***

Chapter 2

The Tin Rush

Malaya's Tin Rush was characterised by feuding Malay chieftains, Chinese triad wars and a royal succession struggle. They caused political and economic instability that hastened British intervention into the tin-rich state of Perak – the first Malay state to become colonised.

Once, a tame elephant named Larut ran amok into the jungle. When finally caught, the animal had a silvery substance smeared over the left leg. Legend has it that this substance was tin and the owner of the elephant was none other than Long Jaafar, a powerful Malay chieftain who is credited with the discovery of tin in Malaya in 1848.

Malay chieftain Long Jaafar, who is credited with the discovery of tin in Larut, Perak. He set a new trend of securing capital from Chinese merchants in Penang and importing indentured Chinese labourers to work the mines.

Believed to be named after the elephant, the district of Larut in the northern Malay State of Perak soon became a bustling centre of large scale tin mining activities. Chinese merchants from the nearby British colony of Penang (one of three Straits Settlements of the British; the other two were Melaka and Singapore) converged here at Long Jaafar's invitation, seeking opportunities in mining. It marked the beginning of a series of discoveries of substantial tin deposits further south – alluvial deposits that were relatively easy to extract.

Mining shanties sprouted across Perak's Kinta Valley, and later, Selangor's Kuala Lumpur and Klang districts. The fervour to mine tin reached feverish proportions, spurred by the intense demand for tin from the burgeoning canning industries of Europe and the USA. The discovery of tin led to an influx of Chinese migrants, even fortune hunters from the gold mines of California and Australia. From the initial three Chinese miners in the district of Larut, the population of miners in the Malay States swelled to 40,000 by 1872.

Malay chieftains and Chinese miners

Driven by the spirit of enterprise, Chinese miners, mainly Straits merchants, began raking in huge profits. They were mine owner-operators who

collaborated with the elite Malay chieftains, and both grew extremely wealthy. In sharp contrast, the coolies who worked the mines were an impoverished lot *(see box story: The Arrival of Chinese Coolies)*.

Before the 1860s, Malay chieftains had a monopoly of the tin trade. Tin excavated on land under their jurisdiction had to be sold to them at a price fixed by them. They were also intermediaries for coolie rations – bought at a low price from Straits merchants and sold at exorbitant rates to mining shanties. The chieftains also used their authority to construct cart tracks to transport tin from the mines to distribution centres.

Datoh Panglima Kinta Muhammad Yusuff, a powerful chieftain of the Kinta Valley, the richest tin field in the world for several decades. He is recognised for steering the growth of Ipoh from a small village to a rich mining town.

Another revenue stream for them was taxes. The Malay chieftains imposed a selection of taxes – on mining supplies sent from Penang, on tin carted out of their district, and on gambling and opium dens established to cater for the Chinese coolies.

However, this system collapsed when the Straits merchants began to deal directly with the mines. Not only did it strike a blow to the personal wealth of the Malay chieftains, it also undermined their traditional authority.

This created friction, and the Malay chieftains, who had until then enjoyed economic domination by virtue of their ability to control the tin supply chain, found themselves on shaky ground.

The Arrival of Chinese Coolies

"The passenger enters into an agreement with the master of the junk, to bind himself as an apprentice to someone at the port of arrival for one year, without wages, only receiving food, clothing and a small sum for barber's expenses, tobacco and other little indispensable luxuries."

The 'sinkeh' or credit system in 1854 according to J.R. Logan, Journal of the Indian Archipelago

KAPITAN CHINA *(left to right) Yap Kwan Seng and Yap Ah Loy were respected leaders of tin mining communities.*

The discovery and development of the tin fields of Perak and Selangor and the Chinese government's legalisation of the coolie trade signalled the second wave of Chinese migrants to Malaysia; the first wave arrived during the heyday of the Melaka Sultanate in the 1400s.

There were two types of Chinese migrant mining labour: indentured or free. The former was a fresh migrant (called *sinkeh* or newcomer) from China brought under the credit ticket system, while the latter was a labourer who was not indebted to the employer in any way. He was usually a migrant from the Straits Settlements. The business of supplying migrant labour was so lucrative that recruiters were sometimes unscrupulous in their methods of obtaining migrant labour.

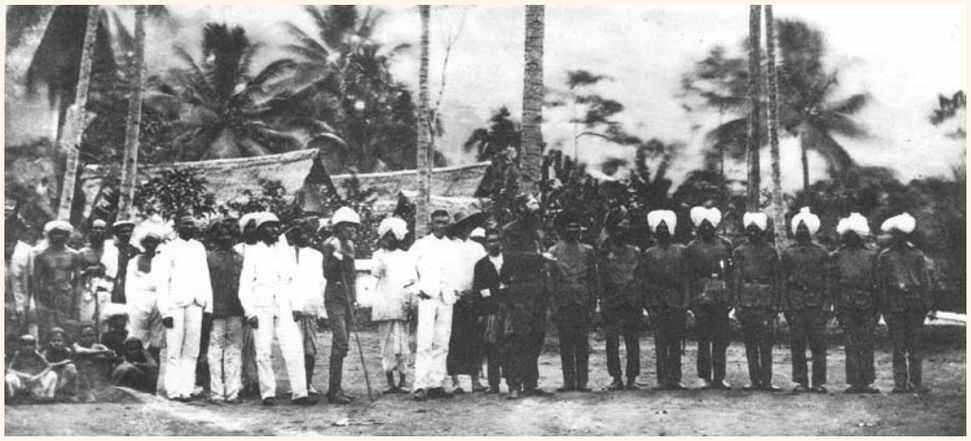
The terms of the *sinkeh*'s contract required the employer to supply a coolie with daily food, a mosquito net, a jacket, two pairs of short trousers, two towels, one sun hat and a pair of clogs. The yearly wage was $42. Of this, $22 was deducted for the cost of passage. The coolie was thus left with $20 during the period of indenture. In reality, he never received any cash. From the remaining $20, deductions were made for opium and other luxury items consumed during the year. It was considered fortunate if an indentured coolie did not remain indebted to his employer till the end of his contract!

Cheap Chinese coolie labour laid the foundation of Malaysia's tin industry that became a force to be reckoned with in the world.

Source: Yap Yat Hoong, The Development of the Tin Mining Industry of Malaya (University of Malaya Press, Singapore, 1969)

Warring factions and feuds

The influx of Chinese miners and coolies had a serious impact on the social fabric of Malay society. Typically, they had secret society affiliations and clashes were frequent, even violent. Two triads dominated the scene: the Ghee Hin and the Hai San, and their bitter rivalry wreaked havoc.



Sikh guards who were brought in by the British to quell unrest in Perak, photographed here in Bukit Gantang, Perak in 1875, with Captain TS Speedy (in black against coconut tree), Dein Mohamed (behind Speedy), Frank Swettenham (stick in hand) and Dr Anderson (white topee).

The seal of the Ghee Hin triad.

The Tin Rush also triggered a Malay succession dispute. What had once been a strictly Malay problem became a racial conflict, with contenders seeking absolute control of tin resources.

To make matters worse, the Malay States possessed only a rudimentary governmental structure, and did not know how to contain the problems caused by mining communities. The Mentri of Larut, for example, had a raggedy force of 40 men to maintain law and order.

Meanwhile, Malay chieftains were also engaged in power struggles as they vied with each other over the control of tin producing lands and water courses. Things came to a head with the eruption of the Larut Wars or *Perang Larut*, a series of feuds that occurred in 1861, 1865, 1871 and 1873. Rioting, looting, plundering and pillaging became the order of the day; murder and mayhem were common. It was one of the most disruptive periods in Malay history.

The Tin Rush also triggered a Malay succession dispute. What had once been a strictly Malay problem became a racial conflict, with contenders seeking absolute control of tin resources. Shrewdly, secret societies offered membership to Malay chieftains, who were competing with each other for the tin wealth.

The outcome was Malay chieftains partnering Chinese miners against other similar alliances. Scheming European merchants with commercial interests in the Malay States also began to covertly exert their influence. Many Straits merchants believed the Malay States had 'limitless potential'. As a result, when there was conflict, everybody became involved.

The Malaysian Chinese movie 'Kinta' produced in 2008 was inspired by the 1880s triad wars in the tin mines of Perak.

GRAVEL PUMP MINING *accounted for more than half the tin in Malaysia between 1966 and 1985 when the country dominated world tin production. Labour intensive, these Chinese-owned mines led to an influx of indentured coolie labour during the late 19th and early 20th centuries.*

A royal power struggle culminated in the installation of Raja Abdullah as the Sultan of Perak by the British Colonial Office after the Pangkor Engagement of 1874. He was later implicated in the assassination of the first British Resident, Sir JWW Birch, in 1875 and exiled to Seychelles.

The final straw

Political and economic tension in the state was further escalated when Sultan Ali of Perak died in 1871, and the crown prince, Raja Abdullah, was by-passed and Raja Bendahara Raja Ismail was proclaimed Sultan of Perak instead. Tin-rich Perak slipped further into turmoil.

Anarchy also reigned in the mining districts of Selangor as a result of warring groups of Malay-Chinese alliances. The strife spread to the British Straits Settlement of Penang and threatened to envelope the entire Chinese community there. British commercial interests in Penang were not amused.

Captain TS Speedy, who later became the first Assistant British Resident of Perak, recorded in 1874:

The 'fleet' of elephants that announced the arrival of Datoh Panglima Kinta Muhammad Yusuff, one of the most powerful chieftains in Perak, 1886.

'So complete was the ruin brought about by this most disastrous warfare, that the country became almost depopulated – villages were demolished, thousands of people were massacred, the destruction to property was enormous, and the land was laid to waste...'

As a result, the mining industry faced heavy losses. Unable to take the economic strain that threatened tin production, prominent Singaporean Chinese merchant Tan Kim Cheng persuaded the by-passed crown prince Raja Abdullah to approach the British Colonial Office with the proposition that the crown prince wished to place Perak under the protection of the British Colonial office, and 'to have a man of sufficient abilities to show him a good system of government.' It was an invitation for British intervention.

What followed was the Pangkor Engagement (aka Pangkor Treaty), signed in 1874 between the Straits Settlements Governor Sir Andrew Clarke, representing the British Colonial Office, and Raja Abdullah, who was recognised as the legitimate Sultan of Perak.

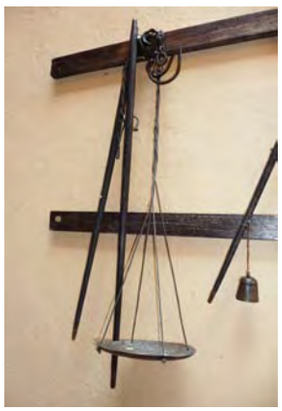
The treaty imposed a penalty of $50,000 on the warring Ghee Hin and Hai San triads, who gave an undertaking of harmony. They surrendered their weapons, and had their stockades destroyed and prisoners exchanged. Excessive financial losses and heavy casualties prompted the war-weary Chinese to finally lay down their arms and resume normal tin mining activities in Perak.

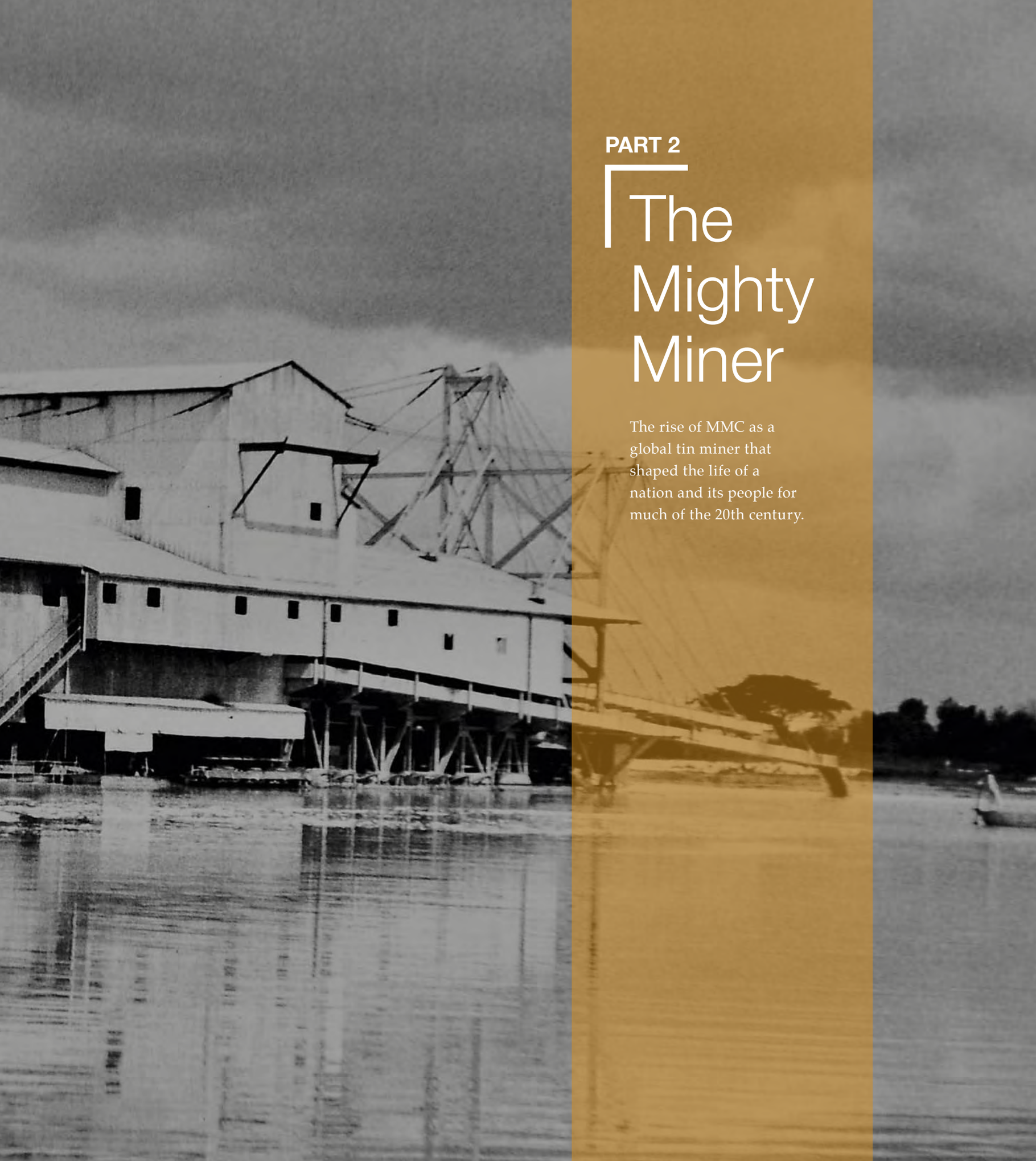
An era of comparative peace, prosperity and harmony followed. However, it did not mark the end of secret societies; it merely signaled the emergence of a new breed of leaders: powerful and influential men who helmed Chinese communities as Kapitan China.

For the British, the Pangkor Engagement represented a great opportunity to expand their influence in Southeast Asia and strengthen their hold on the tin industry. ■

Mining Paraphernalia

Simple mining implements and workware of Chinese coolie labourers, from wide-brimmed hats for sun protection to an assortment of tools for digging and panning. Bicycles were common modes of transport until the arrival of motorcycles.



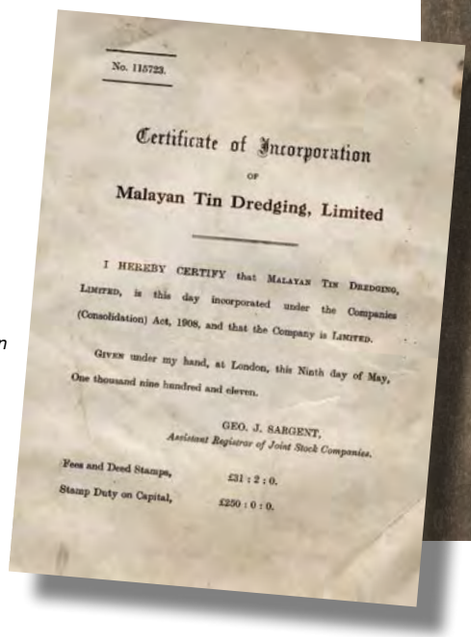


PART 2

The Mighty Miner

The rise of MMC as a global tin miner that shaped the life of a nation and its people for much of the 20th century.

A photograph of the original site office of Malayan Tin Dredging Limited in Batu Gajah Perak taken in 1937. The site office also served as the bungalow that housed the field supervisor, Mr Avery (seated in the centre). Picture courtesy of Encik Yusof Sani bin Arshad.



No. 115723.

Certificate of Incorporation

OF

Malayan Tin Dredging, Limited

I HEREBY CERTIFY that MALAYAN TIN DREDGING, LIMITED, is this day incorporated under the Companies (Consolidation) Act, 1908, and that the Company is LIMITED.

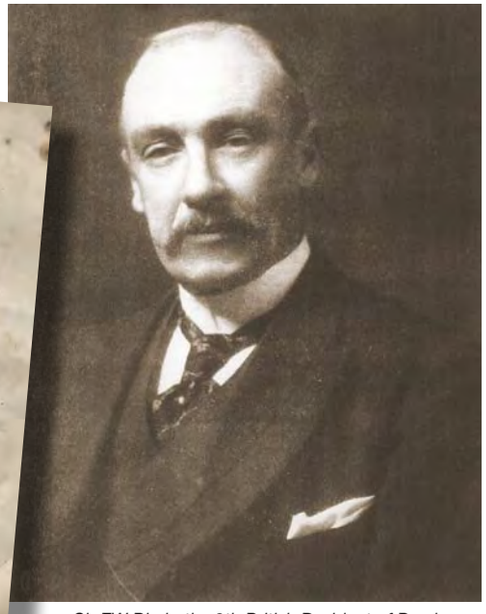
GIVEN under my hand, at London, this Ninth day of May, One thousand nine hundred and eleven.

GEO. J. SARGENT,
Assistant Registrar of Joint Stock Companies.

Fees and Deed Stamps, £31 : 2 : 0.

Stamp Duty on Capital, £250 : 0 : 0.

The 1911 incorporation certificate of sterling company Malayan Tin Dredging Limited, to which MMC Corporation Berhad traces its roots.



Sir EW Birch, the 8th British Resident of Perak (1905-1910) was the founding Chairman of Malayan Tin Dredging Limited. He is the eldest son of Sir JWW Birch, Perak's first British Resident who was assassinated by Dato Maharaja Lela.

Chapter 3

A New Economic Order

Malayan Tin Dredging Limited, the forerunner of MMC, was founded in London in 1911 to invest in the lucrative tin mining industry of Malaya. One of the earliest foreign direct investments in the country, it began commercial operation of its first tin field in Batu Gajah in 1913, and revolutionised Malaysia's mining industry with the introduction of the bucket dredge.

Tin-rich Perak became a battleground of warring parties. The struggle among Malay chieftains for control of tin-producing districts intensified. To worsen the situation, the rivalry between two Chinese triads, Ghee Hin and Hai San, degenerated into open warfare. This combative situation was further escalated when Sultan Ali of Perak died in 1871 and the Sultan-in-waiting, Raja Abdullah was by-passed. The political instability was an open invitation for British intervention on the grounds of restoring law and order so that the tin industry could flourish. It culminated in the Pangkor Engagement of 1874 between Raja Abdullah (who became Sultan Abdullah) and the British Colonial Office, and heralded British entry into the Malay States.

Meanwhile, as news of fortunes to be made in tin spread, Chinese migrants poured into the Malay States, and their population boomed. According to the 1901 Federated Malay States Annual Report, it was estimated that between 1881 and 1900, no less than one and a half million Chinese immigrants arrived in Perak and Selangor.

"… their intention was usually to earn a few thousand dollars to carry back with them to China. Some achieved their aim: but, many others remained behind, either too poor to leave or too successful to wish to leave."

Historian ***Yip Yat Hoong***

The hierarchical social structure of the Chinese community facilitated the smooth operation of tin mines. At the bottom were the labourers or coolies. Above them was the mine owner, who often rose to become a mine advancer, who was a jack of all trades. He was a shopkeeper, tin ore dealer, operator of an opium farm and other revenue sources. Right on top of the pyramid was the all-powerful Kapitan China, who played a pivotal role as liaison officer between the Chinese community and the British administration.

Seated, left to right: DYMM Sultan Idris and Sir Hugh Low – two pioneers of modern Perak.

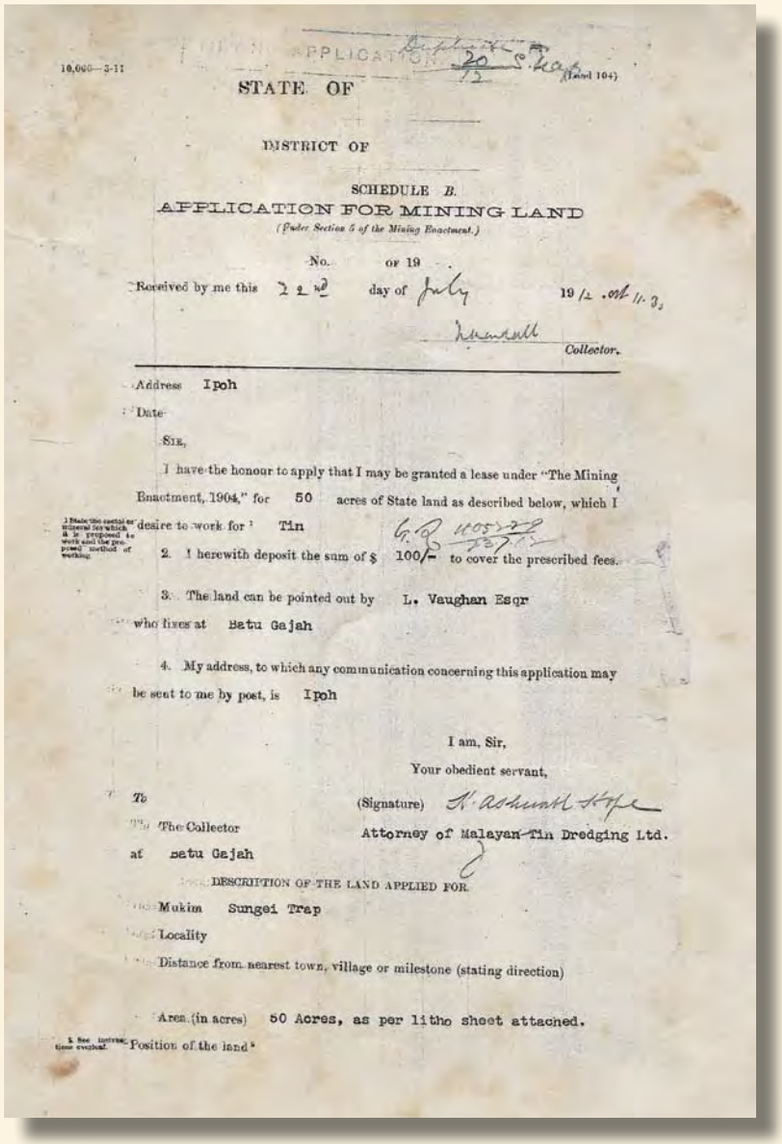
The British were no match for the Chinese tin miners. Even with their extensive mining experience and expertise, the British failed in their initial endeavours. Their superior technical skills and mining techniques were better suited for the underground mines of England than the alluvial tin deposits of Malaya. To make matters worse, their business organisational capabilities did not work with the labour force here.

In his book *British Malaya*, the Federated Malay States' first British Resident-General Frank Swettenham writes:

"British capitalists declined to risk even small sums in the Malay States till the years after the enterprise and industry of the Chinese had established and developed the mines, As a result, until 1883 British capitalists had as yet done little or nothing in Perak."

Applications for Mining Land

Perak's third British Resident Sir Hugh Low wooed European mining expertise and investment to the Kinta Valley by offering huge concessions, and a generous period within which the land had to be selected, defined and worked upon.



STATE OF

DISTRICT OF

SCHEDULE B.

APPLICATION FOR MINING LAND

(Under Section 5 of the Mining Enactment.)

No. of 19

Received by me this 22nd day of July 19 12

Collector.

Address Ipoh

Date

SIR,

I have the honour to apply that I may be granted a lease under "The Mining Enactment, 1904," for 50 acres of State land as described below, which I desire to work for Tin

2. I herewith deposit the sum of $ 100/- to cover the prescribed fees.

3. The land can be pointed out by L. Vaughan Esqr who lives at Batu Gajah

4. My address, to which any communication concerning this application may be sent to me by post, is Ipoh

I am, Sir,

Your obedient servant,

(Signature) H. Ashurst Hope

Attorney of Malayan Tin Dredging Ltd.

To The Collector at Batu Gajah

DESCRIPTION OF THE LAND APPLIED FOR.

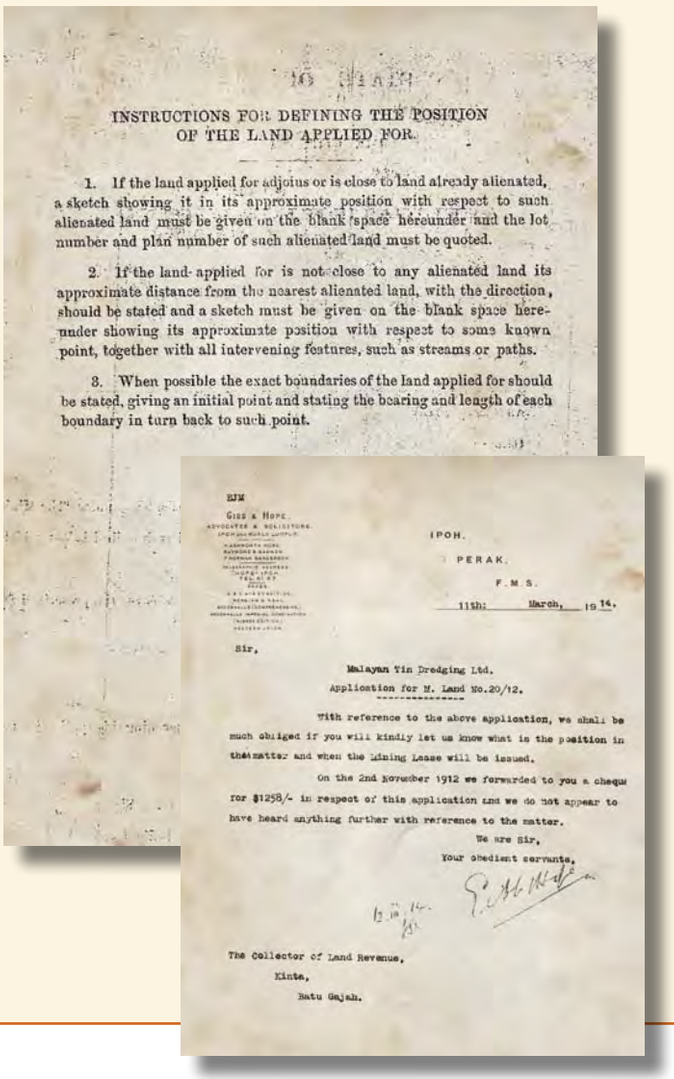
Mukim Sungei Trap

Locality

Distance from nearest town, village or milestone (stating direction)

Area (in acres) 50 Acres, as per litho sheet attached.

Position of the land*



INSTRUCTIONS FOR DEFINING THE POSITION OF THE LAND APPLIED FOR.

1. If the land applied for adjoins or is close to land already alienated, a sketch showing it in its approximate position with respect to such alienated land must be given on the blank space hereunder and the lot number and plan number of such alienated land must be quoted.

2. If the land applied for is not close to any alienated land its approximate distance from the nearest alienated land, with the direction, should be stated and a sketch must be given on the blank space hereunder showing its approximate position with respect to some known point, together with all intervening features, such as streams or paths.

3. When possible the exact boundaries of the land applied for should be stated, giving an initial point and stating the bearing and length of each boundary in turn back to such point.

EJM

GIBB & HOPE,

ADVOCATES & SOLICITORS.

IPOH.

PERAK.

F.M.S.

11th March, 1914.

Sir,

Malayan Tin Dredging Ltd.

Application for M. Land No.20/12.

With reference to the above application, we shall be much obliged if you will kindly let us know what is the position in the matter and when the Mining Lease will be issued.

On the 2nd November 1912 we forwarded to you a cheque for $1258/- in respect of this application and we do not appear to have heard anything further with reference to the matter.

We are Sir,

Your obedient servants,

GIBB & HOPE

The Collector of Land Revenue,

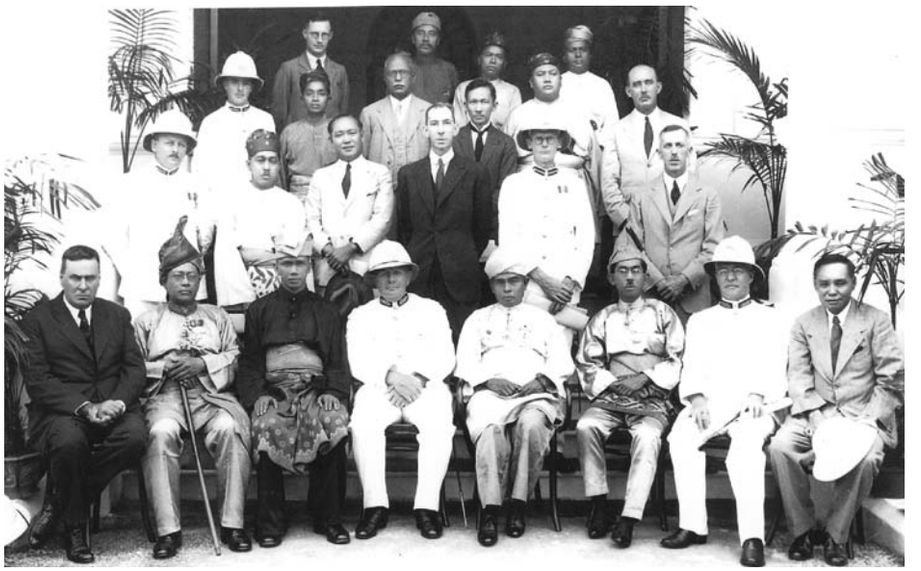
Kinta,

Batu Gajah.

The earliest western tin mining company was France's Societe des Etains de Kinta, based in the Kinta Valley. By 1897, there were just four British/European mining companies, and the supremacy of the Chinese tin miners remained unchallenged.

The tide turns

Alarm bells began to ring with the depletion of reserves and rising production costs in the mines of Cornwall, the centuries-old tin mining bastion of England. There was a shortage of tin to meet the rising demand from the booming tin plating industry, and prices escalated. Malaya's British colonial administration came under heavy criticism from British and European business interests who claimed that it was more concerned with promoting Chinese enterprises. They pressed for greater participation in Malaya's tin mining industry and access to resources. The tide began to turn when in 1896 British mining interests declared:



PERAK STATE COUNCIL IN 1932. *Seated, left to right: Col Rae, Raja di Hilir, Raja Bendahara, BW Elles (British Resident), DYMM Sultan Alang Iskandar, Raja Muda Abdul Aziz, W Gibson (Legal Advisor), and Leong Sin Nam.*

Standing, first row, left to right: IV Cowgill (District Officer, Kinta), Dato Setia, Chung Ah Ming, Dr Hart (State Medical Officer), CL Parker (State Engineer), unknown.

Standing, second row, left to right: NR Jarret (Senior Resident), Dato' Laksamana, L Thivy, Dr Khong, Tengku Menteri and DS Kampe (District Officer, Kuala Kangsar).

Standing third row, left to right: HJ Turner (Assistant Senior Resident), Sheikh Abdurrahman, unknown, and Datoh Panglima Kinta.

"We did not undertake the task of keeping order in the Peninsula for purely philanthropic motives. We went there, as becomes 'a nation of shopkeepers,' because there was something to be made by it – and that something is dependent on the mineral wealth of the country."

Group photo of Chinese tin towkays in 1901.

Costly Try

There were teething problems for some Western players who arrived with modern technologies. British firm Messrs Osborne & Chappel (1906), a firm of consulting mining engineers, for example, introduced a £12,000 suction dredge that had a good track record in the tin fields of Tasmania, Australia. However, this costly machine failed to produce the desired results in the alluvial tin mines of Tanjung Rambutan. It was declared to be 'excellent in principle, but backward in performance'.

"If in 1920, European firms produced 36 per cent of total tin output with Chinese making up 64 per cent of total tin production, by the 1930s, the figures were reversed; European companies took up nearly 63 per cent of total tin output with Chinese mining companies producing the remainder."

*Historian **Yip Yat Hoong** notes in his book 'The Development of the Tin Mining Industry of Malaya'*

It was time for a new economic order, and British authorities in the Malay States unveiled several new policies that struck a blow at Chinese predominance in the tin industry. Secret societies were outlawed; gambling and opium farms abolished. Most significant was the passing of the Perak Mining Code of 1895, the first comprehensive piece of legislation to be enforced in the Federated Malay States. This enactment called for the adoption of more sophisticated mining production techniques in the light of depleting shallow alluvial tin ore deposits. The Code, later adopted by other Malay States, sought to regulate the tin mining industry through technologically superior mining techniques.

The new mining land policy favoured Western enterprises, triggering an influx of investments. Chinese and Malay title holders found themselves coerced into selling out to Western companies. Slowly but surely, UK-registered British 'sterling' tin mining companies, sustained primarily by British capital (denominated in pound sterling), began operating in Malaysia. The Chinese monopoly was broken.

The result of these changes was staggering. Historian Yip Yat Hoong notes: "If in 1920, European firms produced 36 per cent of total tin output with Chinese making up 64 per

Tin Mining Companies In Malaya (1920-1927)

Company (Foreign Registered)	1920		1927	
	Total Issued Capital (£ Sterling)	Percentage of Total	Total Issued Capital (£ Sterling)	Percentage of Total
British	3,644,000	68.1%	8,774,000	72.2%
American	-	-	1,000,000	8.2%
French	191,000	3.6%	191,000	1.6%
Locally Registered	1,517,000	28.3%	2,182,000	18.0%
Total	**5,352,000**	**100%**	**12,147,000**	**100%**

Source: Guide to Malayan Tin Companies, Singapore, 1927

1927: Investments of 'Sterling Companies' in Malayan Tin Mines

Method of Mining	Nos of 'Sterling' Companies	Total Issued Capital (to the nearest £)
Dredging	39	£6,530,000
Others (hydraulic, gravel pump, open cast and lode mining)	12	£2,214,000
All methods	**51**	**£8,744,000**

Source: Guide to Malayan Tin Companies, Singapore, 1927.

About 1,400 square kilometres (approximately 350,000 acres) of land was alienated for tin mining. This represented less than two per cent of the land surface of Peninsular Malaysia. Perak is the state where most mining activities occured. It accounted for nearly two thirds of all mining land in the country; and mining land occupied four per cent of Perak's land surface area.

cent of total tin production, by the 1930s, the figures were reversed; European companies took up nearly 63 per cent of total tin output with Chinese mining companies producing the remainder."

The majority of Western companies were British and their investments quickly multiplied. One of them, and perhaps the most pre-eminent, was Malayan Tin Dredging Limited (MTDL) that was founded in London in 1911 and floated on the London Stock Exchange with a nominal capital of £100,000. It took one mighty step that forever transformed the tin industry of Malaya: it introduced the bucket dredge.

Designed by MSSRS FW Payne and Company of London and New Zealand, this engineering marvel was installed in 1913 in MTDL's first tin field – a 1,000-acre site north of Batu Gajah, Perak. This Dredge No. 1, a steam-powered steel juggernaut with a 150-foot hull and 10 cubic feet buckets, could dig up to a depth of 50 feet, and had a capacity of 80,000 cubic yards per month. It was estimated that in one day, a dredge could dig and treat tin-rich soil in the place of 2,000 Chinese coolies!


LAWS OF MALAYSIA

Act 367

MALAYSIAN CHAMBER OF MINES INCORPORATION ACT 1914

(Revised—1989)

The Malaysian Chamber of Mines began as the Perak Chamber of Commerce that was formed in 1901. It expanded in 1913 to cover the Federated Malay States and was renamed FMS Chamber of Mines. On 10 December 1914, it became a legally constituted organisation enacted by the colonial government.

MTDL, which was domiciled in London, rose to become one of the largest tin dredging companies in the world. The fore-runner of MMC Corporation Berhad, it revolutionised not only the mining landscape but also contributed towards the socio-economic transformation of the nation. The company's bold and adventurous spirit made the tin industry one of the pillars of the Malayan economy in the 1900s, and its multiplier effects were felt far and wide. ■

Heave Ho! The team bringing up soil samples from deep within the ground, using the banka drill; in the 1970s, mechanised drilling replaced this manual method.

MMC Genealogy

Abridgment of Prospectus which has been filed with the Registrar of Joint Stock Companies.

The Subscription List OPENS TO-DAY (Tuesday), the 16th of May, 1911, and will CLOSE on or before the 19th of May, 1911.

MALAYAN TIN DREDGING, LIMITED.

Incorporated under the Companies (Consolidation) Act, 1908.

CAPITAL - - - £100,000,
Divided into 100,000 Shares of £1 each.

Issue of 80,000 Shares, which are now offered for Subscription.

Payable—5s. on Application; 5s. on Allotment; and the balance in Calls as and when required.

DIRECTORS.
SIR ERNEST WOODFORD BIRCH, K.C.M.G. (Chairman), 3, Oakwood Court, Kensington, W., late British Resident of the State of Perak, F.M.S.
SYDENHAM HARVEY BRANCKER BLANDY, M.E. (Freiberg), 35, Queen Victoria-street, E.C., Director of Kilian Kollas Tin and Rubber Company, Limited.
PERCY ELLIS, Highlands, Purley Downs, Surrey, Director of Lahat Mines, Limited.
WALTER JAMES PAYNE, 22, Budge-row, Cannon-street, E.C., Chairman of Lahat Mines, Limited, and Director of Tronoh Mines, Limited.

BANKERS.
CHARTERED BANK OF INDIA, AUSTRALIA, & CHINA, 38, Bishopsgate, E.C.

CONSULTING ENGINEERS.
F. W. PAYNE & Co., 62, London-wall, E.C.

SOLICITORS.
WALTER J. PAYNE, 22, Budge-row, Cannon-street, E.C.
GIBB & HOPE, Ipoh, Perak, F.M.S.

AGENTS IN MALAYA.
NUTTER & PEARSE, Ipoh, Perak, F.M.S.

BROKERS.
ROBERT MACKINTOSH & Co., 66, Old Broad-street, E.C., and Stock Exchange.

AUDITOR.
W. F. JACK, 7, East India-avenue, E.C.

SECRETARY AND OFFICES.
W. H. SWANNELL, 22, Budge-row, Cannon-street, E.C.

ABRIDGED PROSPECTUS.

Dated 13th May, 1911.

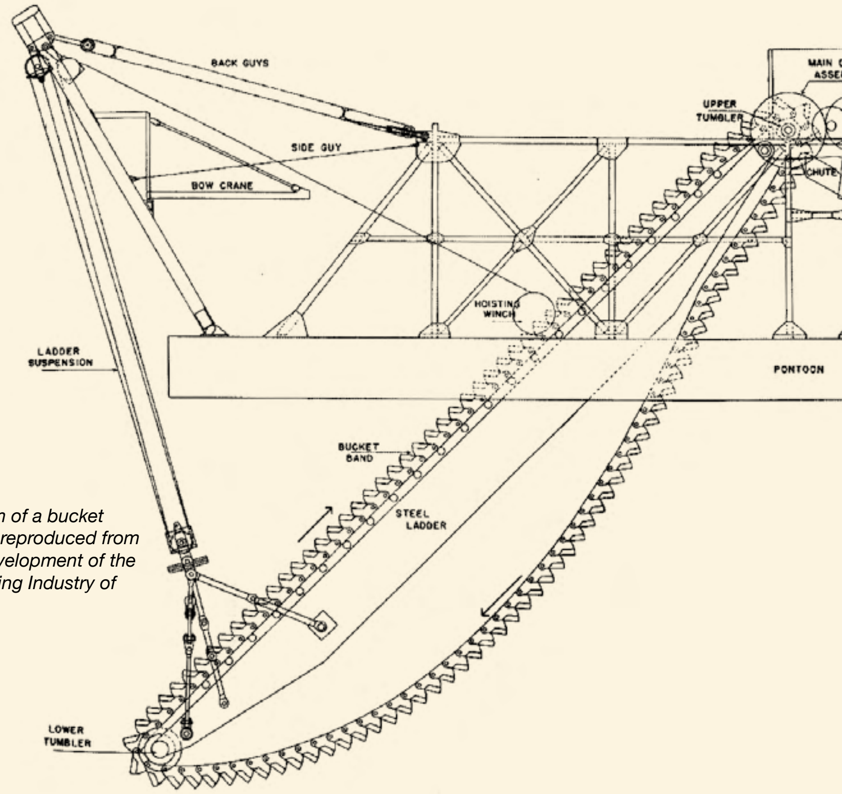
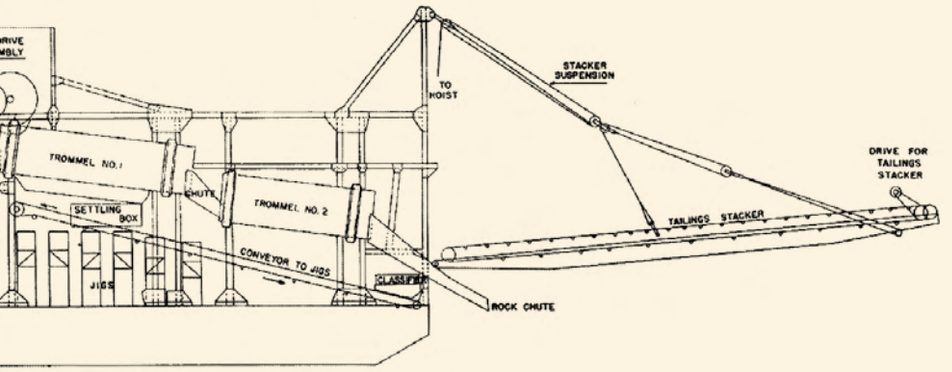


Diagram of a bucket dredge reproduced from The Development of the Tin Mining Industry of Malaya.

The Kinta Valley in the early 1900s was a land of opportunity. The prospects for Malayan tin mining companies were immense, and the colonial government's policies were enabling, particularly for British interests.

British capital was first employed on a large scale in tin mines after the incorporation of Tronoh Mines Ltd in 1901. Tin mining was carried out in Tronoh, a district of Perak, for many years in the 19th century, but it was not until 1897 that a deep layer of tin-bearing gravel was discovered. A large open mine was excavated until a rich deposit was reached. Towards the end of 1898, the Chinese owner of the mine, Foo Choo Choon, engaged a European manager to introduce western methods. Foo then turned to the London capital market for financing, and Tronoh Mines was listed.



The momentum picked up following the boom in Malayan mining shares in 1907 when Malayan tin deposits were hailed as the richest and largest in the world. New players emerged, and they included Malayan Tin Dredging Limited (1911), Kuala Kampar Tin Ltd (1925), Southern Malaya Tin Dredging Ltd and Kramat Tin Dredging Ltd (1926).

They introduced new technologies that traced their roots to the tin mines of Cornwall. Hydro electric power was harnessed as a cheap supply of power. The gravel pump was introduced and it became the most common mining method in Malaysia. Tronoh Mines constructed the first dredge in Malaysia, but it failed during a trial run in December 1912. A month later in January 1913, Malayan Tin Dredging Ltd (MTDL) successfully operated the first bucket dredge in the country. MTDL's success led to the rapid expansion of dredging activities throughout Perak.

Tronoh's Roots

One of the biggest mining ventures in Malaya has been successfully floated in London. A company has been formed to work the land in Tronoh owned by Foo Choo Choon. The company was registered under the name of Tronoh Mines Ltd on December 4th 1901. The capital is £160,000 and the working capital £20,000. The property was examined and reported on by Mr Frederick Wickett of Ipoh, now manager of Kinta Tin Mines Ltd. The property will be fully equipped with modern mining machinery and promises to be the largest and the best paying property in the East. The property was very much over-subscribed, and 2,000 shares only were reserved for local applications.

Penang Gazette, 1902

Tronoh Mines Ltd then ordered a similar machine from the same designer/manufacturer – MSSRS FW Payne and Company.

A system of interlocking directorates allowed British tin companies to control a large number of mines in Malaya. Sir EW Birch, the chairman of MTDL, for example, was also a director of Southern Malayan Tin Dredging. MTDL director WJ Payne, meanwhile, was also on the board of Tronoh Mines and Southern Malayan Tin.

MMC Genealogy

A system of interlocking directorates allowed British tin companies to control a large number of mines in Malaya.

1901

TRONOH MINES, LIMITED.

Situation—Tronoh, Perak, F.M.S. Founded—1901.

Authorised. CAPITAL. Issued.

£250,000 in 5/- Shares. 1,000,000 Fully Paid Shares.

DIRECTORS.

C. V Thomas, W. J. Payne, J. H. Rich, H. Rich and C. V. Stephens.

SECRETARY.

T. P. Patterson, F.C.I.S., 73, Basinghall Street, London, E.C.2.

Investments per Balance Sheet—(1928) £150,700 (at cost).

Cash at Bankers and in Hand—£111,982.

Investments include holdings in the following Tin Companies:—

Kepong Tin Dredging Co., Ltd. Gopeng Consolidated, Ltd.
Kinta Tin Mines, Ltd. Tekka, Ltd.
Pari Tin, Ltd. Tekka Taiping, Ltd.
Pengkalen, Ltd. Sungei Besi Mines, Ltd.
Ramlutan, Ltd. Sungei Way Tin Dredging Co., Ltd.

Dividends paid—1923/1926 inclusive 17/6d. per £1.

Financial year ends—December.

Property.—3,101 acres together with 1,300 acres recently acquired, and which is some 10 or 11 miles distance from the original land. Application for a further area of about 760 acres has been made.

ANNUAL OUTPUTS.

	1923.	1924.	1925.	1926.
Tons ..	610	637	465	367
Piculs ..	16,248	16,700	8,114	6,560

The low value of the ground in 1925 is chiefly attributable to the fact that the area treated for the most part consisted of previously treated ground.

Method of Working.—Dredging.

In operation Three—Capacity per month (about) 270,000 yds.

Under construction. Three— " " (each) 120,000 " "

Calculations of estimated net profits are based on an annual output of 1,000 tons from six dredges. No allowance has been made for profits from investments, tribute, etc.

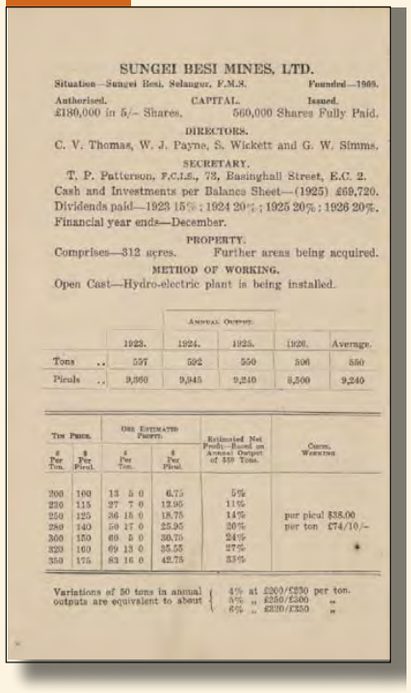
Income from investments during 1926—£21,715.

Profit from tribute during 1925—£10,078.

Tin Price. £ Per Ton.	Tin Price. £ Per Picul.	Ore Estimated Profits. £ Per Ton.	Ore Estimated Profits. £ Per Picul.	Net Profit on Issued Capital Based on Annual Output of 1,000 Tons.	Working Costs.
200	100	21 19 0	11.25	14%	
230	115	36 1 0	18.40	22%	
250	125	45 9 0	23.20	30%	per picul £38.77
280	140	59 13 0	30.40	35%	per ton £76/1/-
300	150	69 0 0	35.20	44%	
320	160	78 8 0	40.00	50%	
350	175	92 16 0	47.20	59%	

Variations of 100 tons in annual output are equivalent to about { 4% at £200/£250 per ton. 5% " £280 " 6% " £300/£320 " 7% " £330 "

1909



SUNGEI BESI MINES, LTD.

Situation—Sungei Besi, Selangor, F.M.S. Founded—1909.

Authorised. CAPITAL. Issued.

£130,000 in 5/- Shares. 560,000 Shares Fully Paid.

DIRECTORS.

C. V. Thomas, W. J. Payne, S. Wickett and G. W. Simms.

SECRETARY.

T. P. Patterson, F.C.I.S., 73, Basinghall Street, E.C. 2.

Cash and Investments per Balance Sheet—(1925) £69,720.

Dividends paid—1923 15%; 1924 20%; 1925 20%; 1926 20%.

Financial year ends—December.

PROPERTY.

Comprises—312 acres. Further areas being acquired.

METHOD OF WORKING.

Open Cast—Hydro-electric plant is being installed.

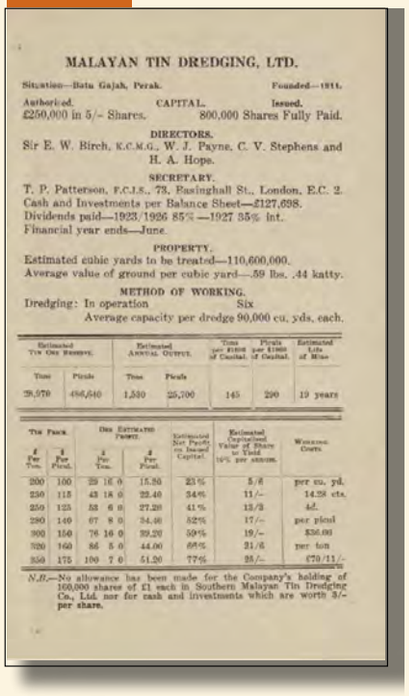
ANNUAL OUTPUT.

	1923.	1924.	1925.	1926.	Average.
Tons ..	597	592	550	506	550
Piculs ..	9,950	9,845	9,240	8,500	9,240

Tin Price. £ Per Ton.	Tin Price. £ Per Picul.	Ore Estimated Profits. £ Per Ton.	Ore Estimated Profits. £ Per Picul.	Estimated Net Profit—Based on Annual Output of 550 Tons.	Comparative Working Costs.
200	100	13 5 0	6.75	5%	
230	115	27 7 0	13.95	11%	
250	125	36 18 0	18.75	14%	per picul £38.00
280	140	50 17 0	25.95	20%	per ton £74/10/-
300	150	60 5 0	30.75	24%	
320	160	69 13 0	35.55	27%	
350	175	83 16 0	42.75	33%	

Variations of 50 tons in annual outputs are equivalent to about { 4% at £200/£250 per ton. 5% " £250/£300 " 6% " £300/£350 "

1911



MALAYAN TIN DREDGING, LTD.

Situation—Batu Gajah, Perak. Founded—1911.

Authorised. CAPITAL. Issued.

£250,000 in 5/- Shares. 800,000 Shares Fully Paid.

DIRECTORS.

Sir E. W. Birch, K.C.M.G., W. J. Payne, C. V. Stephens and H. A. Hope.

SECRETARY.

T. P. Patterson, F.C.I.S., 73, Basinghall St., London, E.C. 2.

Cash and Investments per Balance Sheet—£127,698.

Dividends paid—1923/1926 85% —1927 35% int.

Financial year ends—June.

PROPERTY.

Estimated cubic yards to be treated—110,600,000.

Average value of ground per cubic yard—.59 lbs. .44 katty.

METHOD OF WORKING.

Dredging: In operation Six

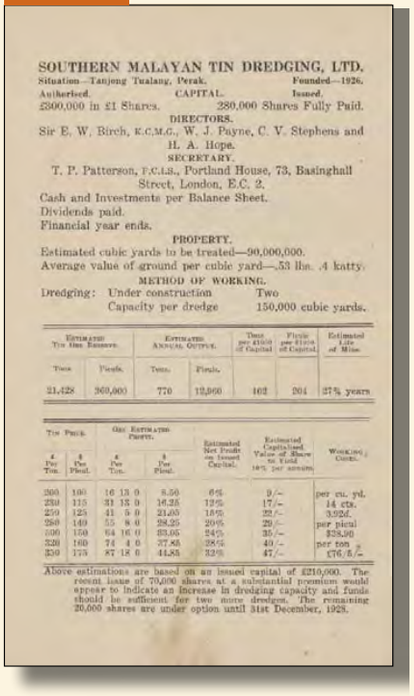
Average capacity per dredge 90,000 cu. yds. each.

Estimated Tin Ore Reserve. Tons	Estimated Tin Ore Reserve. Piculs	Estimated Annual Output. Tons	Estimated Annual Output. Piculs	Tons per £1000 per £1000 of Capital.	Piculs per £1000 per £1000 of Capital.	Estimated Life of Mine.
39,970	486,840	1,330	25,700	145	290	19 years

Tin Price. £ Per Ton.	Tin Price. £ Per Picul.	Ore Estimated Profit. £ Per Ton.	Ore Estimated Profit. £ Per Picul.	Estimated Net Profit on Issued Capital.	Estimated Capitalised Value of Share to Yield 16% per annum.	Working Costs.
200	100	29 16 0	15.80	23%	5/6	per cu. yd.
230	115	43 18 0	22.40	34%	11/-	14.28 cts.
250	125	53 6 0	27.20	41%	13/3	4d.
280	140	67 8 0	34.40	52%	17/-	per picul
300	150	76 16 0	39.20	59%	19/-	£36.00
320	160	86 5 0	44.00	66%	21/6	per ton
350	175	100 7 0	51.20	77%	25/-	£70/11/-

N.B.—No allowance has been made for the Company's holding of 160,000 shares of £1 each in Southern Malayan Tin Dredging Co., Ltd. nor for cash and investments which are worth 3/- per share.

1926



SOUTHERN MALAYAN TIN DREDGING, LTD.

Situation—Tanjong Tualang, Perak. Founded—1926.

Authorised. CAPITAL. Issued.

£300,000 in £1 Shares. 280,000 Shares Fully Paid.

DIRECTORS.

Sir E. W. Birch, K.C.M.G., W. J. Payne, C. V. Stephens and H. A. Hope.

SECRETARY.

T. P. Patterson, F.C.I.S., Portland House, 73, Basinghall Street, London, E.C. 2.

Cash and Investments per Balance Sheet.

Dividends paid.

Financial year ends.

PROPERTY.

Estimated cubic yards to be treated—90,000,000.

Average value of ground per cubic yard—.53 lbs. .4 katty.

METHOD OF WORKING.

Dredging: Under construction Two

Capacity per dredge 150,000 cubic yards.

Estimated Tin Ore Reserve. Tons	Estimated Tin Ore Reserve. Piculs	Estimated Annual Output. Tons	Estimated Annual Output. Piculs	Tons per £1000 of Capital	Piculs per £1000 of Capital	Estimated Life of Mine.
21,428	360,000	770	12,960	102	204	27½ years

Tin Price. £ Per Ton.	Tin Price. £ Per Picul.	Ore Estimated Profits. £ Per Ton.	Ore Estimated Profits. £ Per Picul.	Estimated Net Profit on Issued Capital.	Estimated Capitalised Value of Share to Yield 16% per annum.	Working Costs.
200	100	16 13 0	8.50	6%	9/-	per cu. yd.
230	115	31 15 0	16.25	12%	17/-	14 cts.
250	125	41 5 0	21.05	16%	22/-	3.92d.
280	140	55 8 0	28.25	20%	29/-	per picul
300	150	64 16 0	33.05	24%	35/-	£38.90
320	160	74 4 0	37.85	28%	40/-	per ton
350	175	87 18 0	44.85	32%	47/-	£76/5/-

Above estimations are based on an issued capital of £210,000. The recent issue of 70,000 shares at a substantial premium would appear to indicate an increase in dredging capacity and funds should be sufficient for two more dredges. The remaining 20,000 shares are under option until 31st December, 1928.

One of the few London-based companies that eventually became a part of MMC in 1981 (refer to Appendix: Formation of Malaysia Mining Corporation Berhad, page 229)

Source: Guide to Malayan Tin Companies published by Kelly & Walsh Ltd (1927).

Post-War Tin Boom

1947-1957 Performance Summary

TRONOH MINES LTD.

(*Registered December* 3, 1901.)

Directors.

J. H. Rich, *Chairman*. E. V. Pearce. G. W. Simms. W. V. D. Skrine. D. W. Thomas.
General Manager—J. H. Polglase, Kampar, Perak, Malaya.
Secretary and Offices—H. E. Barrenger, 73, Cheapside, London, E.C.2.
Telegrams: Paynized, London. Phone: City 2648.

Property—Alluvial tin mining areas covering 5,500 acres at Tronoh and Kampar, Perak, Malaya. Three dredges (Nos. 4, 5 and 8) are at work on the Kampar area and another dredge (No. 1) is operating on the Tronoh section. Dredge No. 3 operates on the property in Thailand of a wholly-owned subsidiary (Tin Lay Ltd.). An interest — 661,402 $1 shares — is held in Aokam Tin Ltd., formed to work by grab dredge an alluvial tin area off the coast of Tongkah, Thailand.

Output of Dredges (Tronoh and Kampar)—During year ended December 31, 1956, 9,330,300 cubic yards were treated for 2,633 tons tin concentrates; during 1957, 2,755½ tons.

Capital—Authorised and issued £1,000,000, in 4,000,000 shares of 5s. each. Increased from £300,000 to present amount in January, 1955, by creation of 2,800,000 additional shares of 5s. each which were issued to shareholders credited as fully paid (seven for every three) £605,000 standing to credit of revenue reserve and £95,000 part of profit and loss being capitalised. For particulars of previous increases of capital and share issues, *see vol. for* 1941.

Latest Dividends—For 1947, 30 per cent.; 1948, 65; 1949, 80; 1950, 100; 1951, 115; 1952, 130; 1953, 80; 1954, 95 (80 prior to capital increase and 15 after); 1955, 47½; 1956, 47½; 1957, 10 (interim) July 16, 1957, 10 (interim) October 11, 1957, 10 (interim) January 17, 1958.

Accounts—For year ended December 31, 1956, submitted July 11, 1957, showed a profit of £379,789 after providing £472,071 taxation; adding £311,977 brought forward made £691,766; dividends absorbed £273,125, transferred to general reserve £59,454, written off prospecting expenditure £476, leaving £318,711 carried forward; current assets £2,076,625, shares in subsidiary company £50,288, shares in and loan to Harrietville (Tronoh) Ltd., (in liquidation) £7,500, advances to Tin Lay Ltd. £67,868; current liabilities £388,901. General reserve £350,000. Dredge replacements suspense £75,600. Reserve for income tax 1957-58, £307,100.

MALAYAN TIN DREDGING LTD.

(*Registered May* 9, 1911.)

Directors.

E. V. Pearce, *Chairman*. F. G. Charlesworth. J. H. Rich. E. D. Shearn. G. W. Simms.
General Manager—P. A. Delmé-Radcliffe. Mine Office—Batu Gajah, Perak, Malaya.
Secretary and Offices—H. E. Barrenger, 73, Cheapside, London, E.C.2.
Telegrams: Paynized, London. Phone: City 2648.

Property—Alluvial tin-bearing areas covering approximately 4,825 acres at Batu Gajah in the Kinta Valley, Perak, Malaya and approximately 2,505 acres at Kampong Gajah about 20 miles south of the Batu Gajah area. Equipment comprises four bucket dredges (two small ones at Batu Gajah and two large ones at Kampong Gajah). Another dredge is being installed at Kampong Gajah and is expected to commence operations at the end of 1958 or early in 1959.

Production—During year ended June 30, 1957, 8,675,000 cubic yards treated yielded 2,129¼ tons tin ore; cost per cubic yard 13.65d. During six months ended December 31, 1957, the output was 1,058 tons tin ore.

At June 30, 1957, 123 acres virgin ground remained to be dredged on the Batu Gajah section and 2,236 acres on the Kampong Gajah section.

Capital—£1,000,000, in 4,000,000 shares of 5s. each; 3,600,000 shares are issued and fully paid. The capital was originally £100,000 in £1 shares. For particulars of increases of capital and share issues *see previous volumes*.

Latest Dividends—For 1947-48, 25 per cent.; 1948-49, 50; 1949-50, 25; 1950-51, 25; 1951-52, 85; 1952-53, 120; 1953-54, 80; 1954-55, 20 on £300,000 issued capital and 20 on £900,000 issued capital; 1955-56, 40; 1956-57, 40 (paid 7½ January 29, 1957, April 26, 1957, July 30, 1957, October 31, 1957 and 10 on January 31, 1958); 1957-58, 6¾ (interim) January 31, 1958.

Accounts—For the year ended June 30, 1957, submitted December 19, 1957, there was a profit of £400,122 after providing £153,204 for taxation and £73,974 depreciation; adding £120,767 credit balance brought forward made £520,889; dividends absorbed £207,000, written off prospecting expenses £3,683, transferred to Capital Reserve £200,000, leaving £110,206 carried forward; current assets £1,986,721; current liabilities £954,550. General Reserve £157,562. Income tax 1958-59, £6,050. Provision for dredge replacements £146,222. Capital Reserve towards cost of new dredge £700,000.

Transfer form, common; fee, 2s. 6d. Voting power, one vote per share. The shares are quoted in the Official List. Prices, highest and lowest, 1955: 11s. 6d., 7s. 10d.; 1956: 15s. 9d., 8s. 3d.; 1957: 18s. 7d., 11s. 6d.

SUNGEI BESI MINES LTD.

(*Registered October* 5, 1909.)

Directors—G. W. Simms, *Chairman*. J. H. Rich. W. V. D. Skrine. D. W. Thomas.
H. E. Barrenger, *and Secretary*.
General Manager—H. Dalton-Brown. Mine Office—Sungei Besi, Selangor, Malaya.
Offices—73, Cheapside, London, E.C.2.
Telegrams: Paynized, London. Phone: City 2648.

Property—Tin mining areas covering 400 acres near Sungei Besi, Selangor, Malaya, and 1,087 acres at Kota Tinggi, Johore, Malaya. The Sungei Besi property is worked as an open-cast mine. On the Kota Tinggi property, which was acquired on the absorption of Pelepah Tin Dredging Ltd. in March, 1941, a dredge is installed and at March 31, 1957, of a total of 1,087 acres held under mining lease, 708 acres had been dredged but not all of the balance can be worked by the dredge and some of the undredgeable ground is let out on a tribute basis.

Output—For year ended March 31, 1957, total production was 1,285½ tons tin concentrates; nine months ended December 31, 1957, 993¼ tons.

Capital—£163,530, in 817,650 shares of 4s. each; all the shares are issued and fully paid. For particulars of alterations of capital *see previous volumes*.

Latest Dividends—1947-48, 10 per cent.; 1948-49, 60; 1949-50, 65; 1950-51, 62½; 1951-52, 90; 1952-53, 70; 1953-54 to 1955-56, 40 each year; 1956-57, 70; 1957-58, 15 (interim) October 18, 1957, 15 (interim) January 21, 1958.

Accounts—For year ended March 31, 1957, submitted December 19, 1957, showed a net profit of £173,126 after providing £49,258 taxation; adding £86,458 credit brought forward made £259,584; dividends absorbed £65,822, written off prospecting £6,606, reserved for road and railway deviations £30,000, transferred to general reserve £71,492, leaving £85,664 carried forward; current assets £654,549; current liabilities £145,398. General reserve £290,000. Capital reserve £7,043. Future taxation £57,462. Dredge replacements provision £25,444. Reserve for road and railway deviations £86,200.

Transfer form, common; fee, 2s. 6d. Voting power, one vote per share. The shares are quoted in the Official List. Prices, highest and lowest, 1955: 11s., 7s. 7d.; 1956: 12s., 6s. 10d.; 1957: 16s. 10d., 11s. 3d.

SOUTHERN MALAYAN TIN DREDGING LTD

(*Registered September* 20, 1926.)

Directors.

E. V. Pearce, *Chairman*. E. D. Shearn. J. H. Rich. G. W. Simms. F. G. Charlesworth.
General Manager—P. A. Delme-Radcliffe. Mine Office—Batu Gajah, Malaya.
Secretary and Offices—H. E. Barrenger, 73, Cheapside, London, E.C.2.
Telegrams: Paynized, London. Phone: City 2648.

Property—Alluvial tin-mining areas in the Tanjong Tualang District, Perak,

SOUTHERN MALAYAN TIN DREDGING

Malaya, of which 1,422 acres remained to be worked at June 30, 1957. Equipment consists of six dredges. No. 6 dredge commenced operating in August, 1957. Mining leases are also held over 468 acres in the Chenderiang Valley which together with mining titles to be issued over a further 529 acres, are estimated to contain 100,000,000 cubic yards with an estimated recoverable value of 0.426 lb. per cubic yard. A dredge will be transferred from the Tanjong areas to work the Chenderiang property.

Output—During year ended June 30, 1957, 12,173,000 cubic yards were treated; total production of tin concentrates was 2,221 tons; area worked 107 acres; costs 11.36d. per cubic yard. For six months ended December 31, 1957, 2,029½ tons.

Capital—Authorised: £1,500,000, in 6,000,000 shares of 5s. each; issued £1,441,667 in 5,766,668 shares of 5s.; unissued 233,332 shares of 5s. each. The capital was originally £300,000 in £1 shares. Increased from £500,000 to present amount in January, 1955, by creation of 4,000,000 new shares of 5s. each and £1,009,167 (being £980,000 from general reserve and £29,167 from capital reserve) capitalised by issue of seven shares credited as fully paid for every three shares held. For particulars of previous alterations of capital *see vol. for* 1941.

Latest Dividends—For 1947-48, 50 per cent.; 1948-49, 60; 1949-50, 80; 1950-51, 100; 1951-52, 120; 1952-53, 120; 1953-54, 80; 1954-55, 46¾ (20 on £432,500 capital and 26¾ on £1,441,667 capital); 1955-56, 33⅓; 1956-57, 33⅓; 1957-58, 6¾ (interim) January 29, 1958.

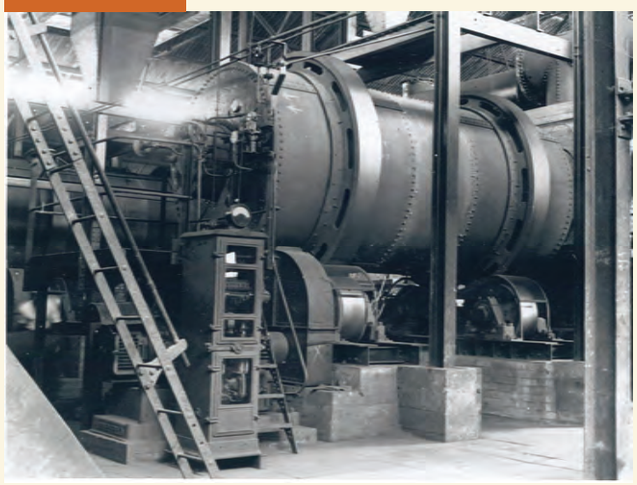
Accounts—For year ended June 30, 1957, submitted December 19, 1957, showed a profit of £322,796 after providing £167,647 taxation; adding £77,779 brought forward made an available total of £400,575; dividends absorbed £276,320, transferred to development reserve £40,000, written off prospecting expenditure £4,368, leaving £79,887 carried forward; current assets £1,945,059, unsecured loan to Aokam Tin Ltd. £100,954; current liabilities £903,915. Income Tax 1958-59, £2,300. General Reserve £307,367. Reserve for development £40,000. Provision for dredge replacements £127,124. Provision for cost of river deviations £4,901.

Transfer form, common; fee, 2s. 6d. The shares are quoted in the Official List. Prices, highest and lowest, 1955: 9s. 6d., 6s. 10d.; 1956: 12s. 3d., 6s. 7d.; 1957: 12s. 10d., 8s. 7d.

Source: Mining Year Book 1958, compiled by Walter E Skinner.

MMC Genealogy

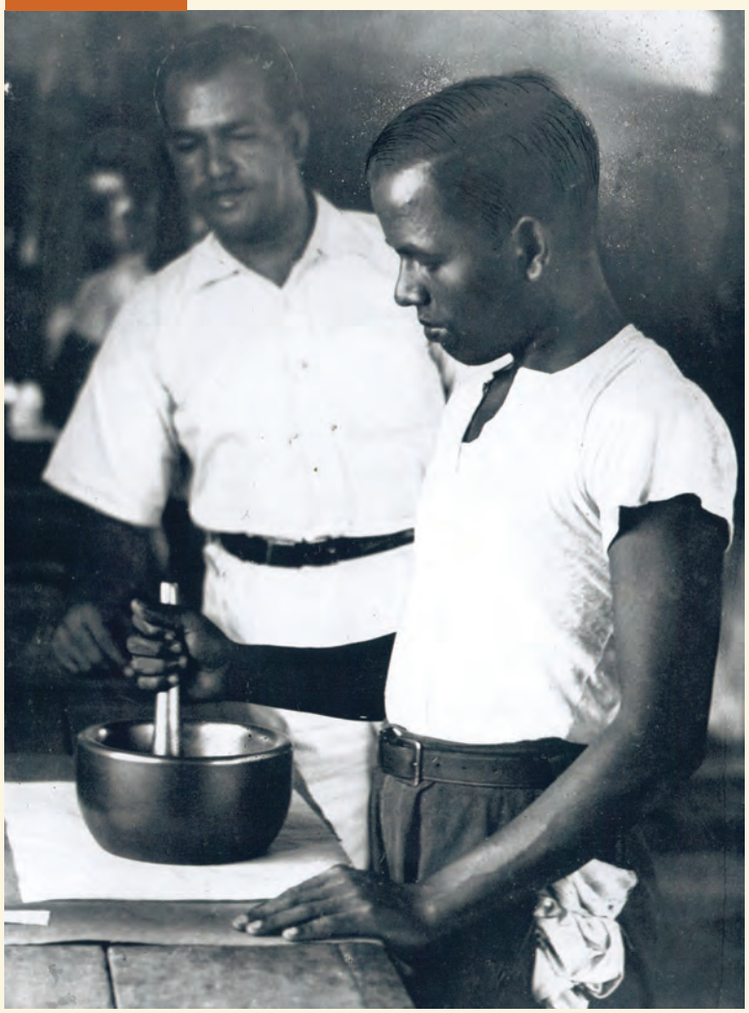
1930s



A roaster tin ore is treated to remove impurities such as arsenic, lead, bismuth, antimony and sulphur.

Unrefined molten tin ladled into moulds.

1940s



Sampling tin ore to test its quality. Grinding a sample of ore untill it is finer than even table salt. The grinding is done in a special steel mortar.

1950s

Tin ore is brought ashore for smelting

The United States tin mission at a mine in Tanjong Tualang. Walking in front (left to right): General Thomas B Wilson, leader of the US tin mission; PA Delme-Radcliffe, Assistant Manager of Tronoh Mines Ltd; George Weaver (USA), and HP Bramble (USA).

The Mentri Besar of Perak, Mohamed Ghazali bin Haji Jawi, pressing an electric button to launch an $8-million dredge belonging to Malayan Tin Dredging at a mine near Ipoh. Looking on is PA Delme-Radcliffe (seated right), general manager of the company.

MMC Genealogy

1964

Prime Minister Tunku Abdul Rahman Putra (left) admiring a model of the Malayan Railway sub-station near a tin mine. Dredging operations were one of the highest consumers of electricity.

1965

Prime Minister Tunku Abdul Rahman Putra (far right) addressing 400 tin and iron ore miners at a dinner in Ipoh, Perak,

1970

Prime Minister Tun Abdul Razak Hussein greeting Woo Ka Lim, a prominent tin miner who represented Malaysia at the Internasional Tin Council conference. Looking on are Chin Foo, a miner; A Rahim Noor, a lawyer; and VN Kathirgamer, a planter.

1974

Prime Minister Tun Abdul Razak Hussein being introduced to participants of the 15th session of the International Tin Council held in Kuala Lumpur. To the right is the ITC Executive Chairman, HW Allen

MMC Genealogy

By the 1920s, the London-based tin mining companies were linked financially. By the late 1930s, there were 20 such companies, which between them accounted for about a third of Malaya's total tin production, and they were controlled or partly owned by Anglo Oriental (Malaya) Ltd (AO), a subsidiary of London Tin Corporation Ltd (LTCL).

AO was established in 1937 as the mine management arm of LTCL. The investment holding company reasoned that with mining companies headquartered in Britain, there was a need for mine management services to run its overseas mines. AO managed mining companies that were wholly or partly owned by LTCL, and they included Southern Kinta Consolidated, Lower Perak Tin Dredging, Kuala Kampar Tin Fields, Kamunting Tin Dredging, Berjuntai Tin Dredging and Malayan Tin Dredging. Several of these mining companies were also owned by the MDTL Group.

This arrangement proved to be cost efficient and profitable, and shareholders were well rewarded. Anglo Oriental Mining Corporation Ltd's monthly bulletin TIN (May 1929) reports:

"At the end of 1928, there were 89 dredges in the Federated Malay States; at the beginning of 1920, there were only 18. This is a symptom of the movement toward more efficient production."

In 1959, Associated Mines (Malaya) (Assomin) was incorporated to manage tin mines owned by Charter Consolidated Limited. This brought the following companies under its ambit: Tronoh Mines Ltd, Sungei Besi Ltd, Sungei Way Dredging Ltd, Ayer Hitam Tin Dredging Ltd, and later Kepong Dredging Ltd (1964).

By 1976, tin mining companies were riding high, and shareholders were well-rewarded.

After Malaysia's independence, the winds of corporate ownership change began to sweep across the country in the 1970s. They were apart of the government policy to increase Malaysian equity in the tin mining industry, one of the twin pillars of the economy then. A series of take-overs and mergers occurred, which resulted in the transfer of several mining companies quoted in the London Stock Exchange to the Kuala Lumpur bourse. It eventuated in the birth of the largest mining group in the world: Malaysia Mining Corporation Berhad in 1981 *(full story in Chapter 8)*.

Pernas Charter Management Sdn Bhd was established in 1977 as Malaysia Mining Corporation's mine management arm. It represents the merger of mine management companies Anglo Oriental (Malaya) and Associated Mines Ltd.

The homecoming of London-based tin mining companies

1976

Scheme of Arrangement
under section 206 of the Companies Act 1948

concerning

LONDON TIN CORPORATION LIMITED,

LONDON TIN (MALAYSIA) SDN. BHD.

and

NEW TRADEWINDS SDN. BHD

THE LONDON GAZETTE, 13TH JULY 1978

LONDON TIN CORPORATION LIMITED

At an Extraordinary General Meeting of the above-named Company duly convened and held at Sri Timah, 2½ mile Jalan Damansara, Kuala Lumpur, on 4th July 1978, the following Special Resolution was duly passed:

"That the Company be wound up voluntarily and that Encik Abdul Rahim Aki and Encik Faisal Siraj be and are hereby appointed Liquidators for the purpose of such winding up with powers to act jointly and each one of them severally."

Dated 4th July 1978.

(247) *Janus Sudin*, Chairman.

1977

THIS DOCUMENT IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION

MALAYAN TIN DREDGING, LIMITED

PROPOSED RECONSTRUCTION

by means of a

SCHEME OF ARRANGEMENT
under Section 206 of the Companies Act 1948

THE ACTION TO BE TAKEN BY YOU IS SET OUT IN PARAGRAPH 11 ON PAGE 10.
NOTICES OF THE MEETINGS TO BE HELD ON TUESDAY, 30th MAY, 1977 ARE SET OUT ON PAGES 16 AND 17.

"Few people are aware of the enormous amounts of capital investment required in a corporate mining venture. These days, dredges are very large, and very expensive. Berjuntai Tin Dredging's No. 8 dredge, one of Malaysia's newest dredges, is a case in point. This dredge has a price tag of just over $17.6 million. It is difficult to grasp the enormity of the sum involved, but it may help if you consider that the Kuala Lumpur Hilton, with all its refinements, cost only $12 million."

Anglo Oriental (M) Sdn Bhd's Wong Kong Tong Tin, December 1976

1978

This is to announce
the change in name of

NEW TRADEWINDS SENDIRIAN BERHAD
to
MALAYSIA MINING CORPORATION BERHAD (MMC)

MMC represent the largest tin investment corporation in the world having significant interest in the following companies:

TIN MINING	Country of Operation
Amalgamated Tin Mines of Nigeria (Holdings) Ltd	Nigeria
Askam Tin Berhad	Thailand
Austral Amalgamated Tin Berhad	Malaysia
Ayer Hitam Tin Dredging Malaysia Berhad	Malaysia
Berjuntai Tin Dredging Berhad	Malaysia
Bidor Malaya Tin Sdn Berhad	Malaysia
Kampong Lanjut Tin Dredging Berhad	Malaysia
Kamunting Tin Dredging Malaysia Berhad	Malaysia
Kramat Tin Dredging Berhad	Malaysia
Kuala Kampar Tin Fields Berhad	Malaysia
Lower Perak Tin Dredging Berhad	Malaysia
Malayan Tin Dredging Malaysia Berhad	Malaysia
Southern Kinta Consolidated Malaysia Berhad	Malaysia
Southern Malayan Tin Dredging Malaysia Berhad	Malaysia
The Sungei Besi Mines Malaysia Berhad	Malaysia
Tongkah Harbour Tin Dredging Berhad	Malaysia
Tronoh Mines Malaysia Berhad	Malaysia
MINING MANAGEMENT & SERVICES	
* A O (Australia) Pty Limited	Australia
* A O Nigeria Limited	Nigeria
* Anglo-Oriental (Malaya) Sdn Berhad	Malaysia
Associated Mines (Malaya) Sdn Berhad	Malaysia
* The Anglo-Oriental and General Investment Trust Limited	United Kingdom

MALAYSIA MINING CORPORATION BERHAD
Bangunan Moccis, Kuala Lumpur, Malaysia.

*wholly owned subsidiaries

Almost a decade in the making, the Malaysianisation of the tin mining industry is marked by the following milestones that are now an integral part of MMC's history:

July 1976: Acquisition of LTCL by Malaysia's special purpose vehicle New Tradewinds Sdn Bhd, a joint venture between Pernas Securities Sdn Bhd and mining company Charter Consolidated Ltd. Charter Consolidated Ltd's equity was the injection of London-listed tin mining companies after they had transferred their domicile to Kuala Lumpur. The companies were: Tronoh Mines Sdn Bhd, Ayer Hitam Mines Sdn Bhd and Sungei Besi Mines Sdn Bhd. LTCL becomes London Tin (Malaysia) Berhad after the transfer of domicile.

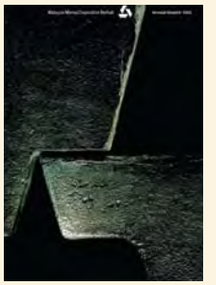
May 1977: MTDL is acquired by New Tradewinds and listed on the Kuala Lumpur Stock Exchange (KLSE) as Malayan Tin Dredging Berhad (MTD).

January 1978: New Tradewinds is renamed and listed on the KLSE as Malaysia Mining Corporation Berhad.

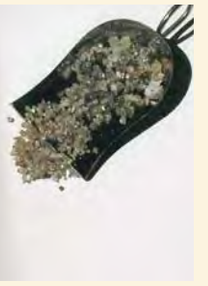
April 1981: Malaysia Mining Corporation Berhad is acquired by Permodalan Nasional Berhad.

October 1981: Merger of MTD and Malaysia Mining Corporation Berhad. The enlarged entity adopts the name Malaysia Mining Corporation Berhad. The older MMCB is renamed MMC (1976) Berhad.

1982 Post-merger annual report





"The tin ingot graphically portrayed on the cover is the end product of the tin mining industry in Malaysia as epitomised by the enlarged MMC Group which is involved in all aspects of the tin industry, from initial geological exploration to mine development and management, smelting and the marketing of tin worldwide."

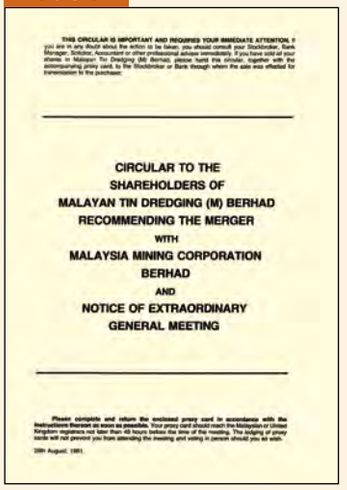
Malaysia Mining Corporation Berhad Annual Report 1982

1981

THE TIN COMPANIES' MERGER

Exciting prospects lie ahead of the new group

The significance of the two groups getting together will be better appreciated if it is seen from the viewpoint of what it achieves by way of equity restructuring under the New Economic Policy, the prospects for future development and the expansion of the industry in such areas as engineering and export of technology.



THIS CIRCULAR IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION.

CIRCULAR TO THE SHAREHOLDERS OF MALAYAN TIN DREDGING (M) BERHAD RECOMMENDING THE MERGER WITH MALAYSIA MINING CORPORATION BERHAD AND NOTICE OF EXTRAORDINARY GENERAL MEETING

Kapal Korek

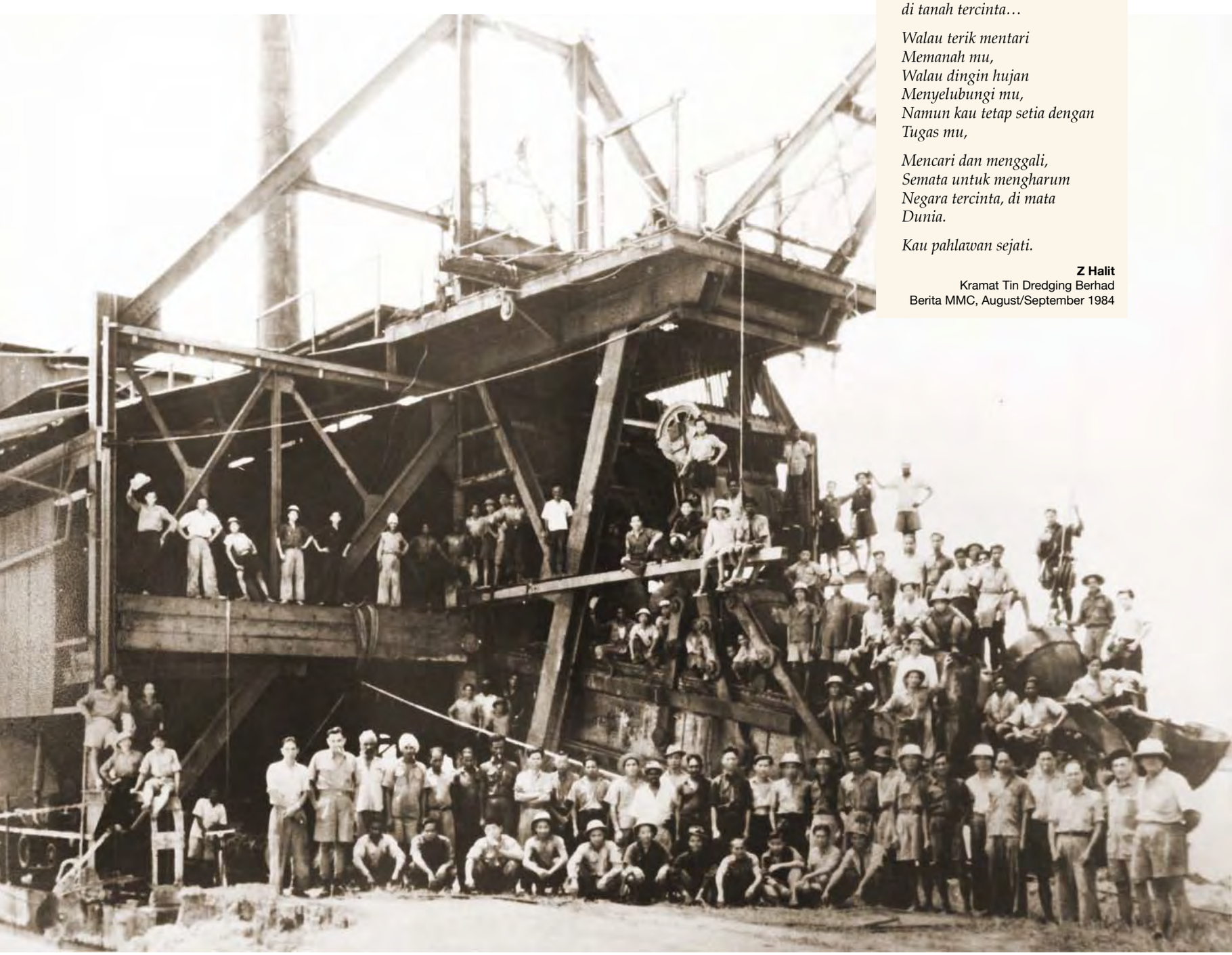
Kau gagah perkasa,
Membelah bumi,
Mencari karun berharga
di tanah tercinta…

Walau terik mentari
Memanah mu,
Walau dingin hujan
Menyelubungi mu,
Namun kau tetap setia dengan
Tugas mu,

Mencari dan menggali,
Semata untuk mengharum
Negara tercinta, di mata
Dunia.

Kau pahlawan sejati.

Z Halit
Kramat Tin Dredging Berhad
Berita MMC, August/September 1984



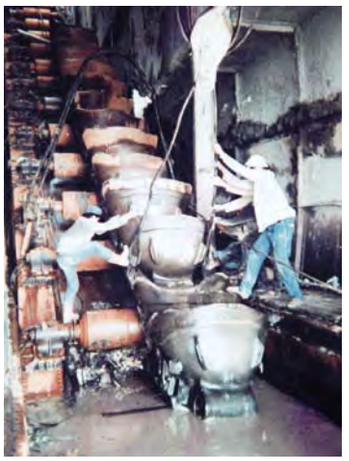
EMPLOYMENT OPPORTUNITIES *The bucket dredge is a floating factory that can accommodate about 300 staff at any one time. Operated 24/7, it had three shifts of workers during the heyday of the tin industry. Off-site was the office of the mine manager supported by maintenance workshops and other ancillary facilities. On average, a dredge employed about 1,000 people.*

Chapter 4

The Steel Ladies

Bucket dredges proved ideal for Malaysia's swampy tin mining land. These 3-storey high floating factories introduced Malaysians to new technologies and competencies that were needed to operate them efficiently.

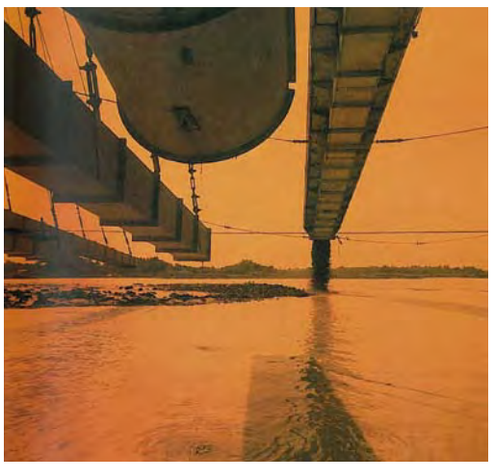
Malayan Tin Dredging Ltd (MTDL) played a pivotal role in Malaysia's tin industry and economy. It revolutionised tin mining when it introduced the country's first bucket dredge that began commercial operations in 1913 in its first tin field near Batu Gajah, Perak. It was a costly investment, and the steel lady did not disappoint. It had a colossal capacity, digging deep and delivering great returns.



The backbone of a bucket dredge is a chain of buckets, each costing £100 in the 1920s. The lip of the bucket cuts into the ground and carries ore-bearing soil up a ladder, drops it off at the top, and begins its downward journey to start the process again.

Within a space of three years, the company commissioned another three more dredges, similar to its No. 1 Dredge. All operated simultaneously, and at full capacity. Heady with success, MTDL built more and more dredges for new fields operated by its sister companies. By 1924, it became the largest tin dredging company in the world.

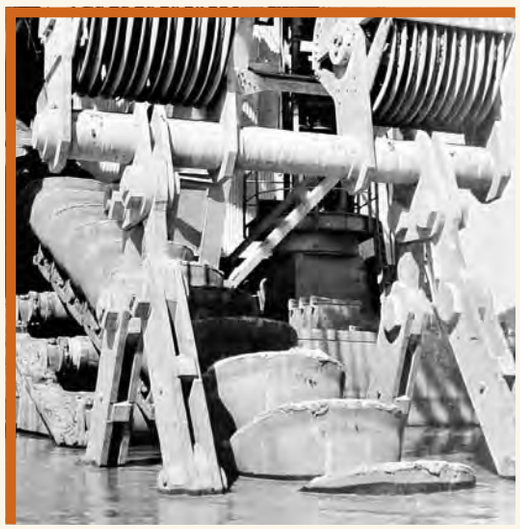
The arrival of these steel ladies was timely. Till then, mining involved conventional methods that were restricted to well-drained, shallow and easily accessible deposits at foothills and the sides of river valleys. These reserves had become exhausted, and Chinese miners began to look elsewhere. In reality, these fields had not been fully exploited by conventional mining that only 'picked out the eyes' of a mine targeting easy-to-reach alluvial deposits. The result was an uneven and incomplete exploitation of deposits in waterlogged sites or ore embedded deeper in the ground.



A rear view of the dredge from the over-burden chute.

The newly-introduced dredge settled well into this unexploited terrain. Not only could it scoop deeper, further and faster than other mining methods, it also recovered more tin from swamps and river flats. As demand for tin escalated, the number of dredges multiplied. By 1929, there were 105 dredges, owned mainly by sterling companies such as MTDL. The highest number of dredges ever recorded in Malaya was 123 units in the 1940s.

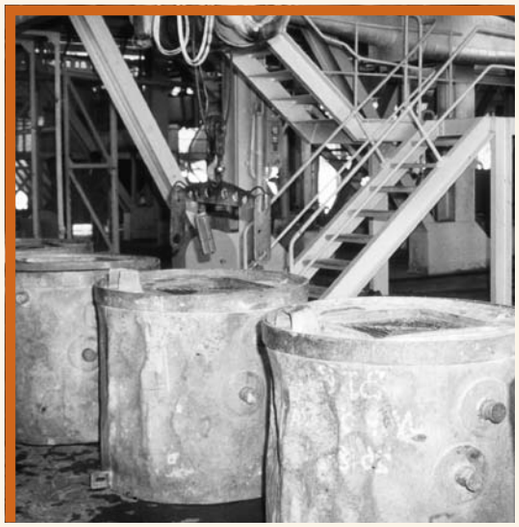
The Process of Dredging



A **EXCAVATION** *by the bucket band that scoops mineral laden alluvium and discharges it inside the dredge.*

B **DISINTEGRATION** *of material by revolving screens (trommels).*

C **SEPARATION** *by jigs to recover crude concentrates.*



D **COLLECTION** *of tin concentrates in drums for transfer to a treatment plant.*

E **DISCHARGE** *of unwanted materials into the paddock from the rear of a dredge.*


AHT Nº 2 DREDGE

The control room, from where the dredge master oversees the entire operation.

A dredge is like a 3-storey high factory floating on a paddock, an artificial lake. Weighing up to 5,000 tons, these giant steel structures were peerless for their performance in low-lying water-logged areas. Their primary function was to scoop out tin-rich soil from the waterbed and separate the ore from the rest of the silt.

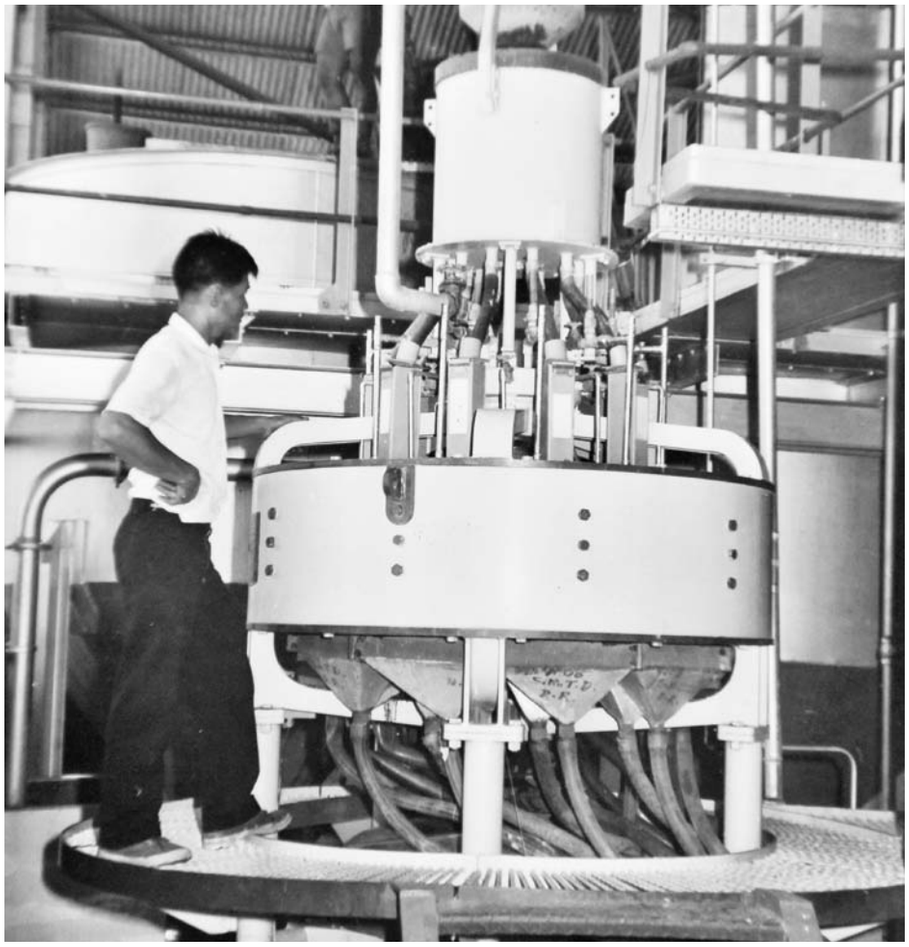
Anchored to the lake bank by steel ropes and lines, the dredge floats on a paddock, moving slowly forward, and vigorously sideways. All movements of the juggernaut are simultaneous – and the result is a deafening clatter of moving parts such as buckets, tumblers and jigs.

The backbone of the dredge is the heavy-duty steel ladder from which hung about 120 buckets, each weighing a hefty ton. These are the mechanical scoops that dig deep into the tin bearing soil, and bring back tin-laden alluvium for processing inside. Excavated materials are hauled onto revolving screens (trommels), where they are broken up by high pressure jets of water. Large stones and rubble are retained by the screens whilst tin bearing materials are sieved first before being discharged into jigs.

Federation of Malaya stamp with a tin dredge issued in 1957, the year of the country's independence from Britain.

On average, a dredge has thirty jigs, where vibrating cables separate sand from heavy tin-bearing materials that sink, and are deposited into bins. These bins are then loaded onto barges and transported to a nearby treatment plant.

Many dredges were built before World War II, and several have the distinction of reaching depths below 100 feet. Costing approximately RM30 million each then, they operated 24/7 at the peak of production, running initially on steam, and later electricity with the advent of this public utility. Indeed, tin mines were the impetus for electrification in Malaysia.



INSIDE THE DREDGE *Wet high tension intensity magnetic separator that extracts magnetic material from non-magnetic tin ore (cassiterite).*

Dredging created countless job opportunities for locals, and there was technology transfer from international dredging specialists.

The cost of operating a dredge in 1929 was exorbitant, and it could exceed RM3.4 million a year. To recover this outlay, dredges strived to be models of productivity.

Dredges created countless job opportunities for the locals, and there was technology transfer from international dredging specialists. The end result was the creation of a wide spectrum of skills, from those of a dredge-master to technicians and teams of dredge-hands who were bound by one common goal: to keep their mighty machine moving without mishap.

Other Mining Methods

Malayan tin occurs chiefly as alluvial deposits on the western foothills of Peninsular Malaysia, spanning the states of Perak, Selangor, Negeri Sembilan and Johor. This is Malaysia's Tin Belt, and it is dominated by two clusters – the Kinta Valley and the Klang Valley.

Depending on the location of the ores, a variety of mining methods prevailed, besides the dredge. They are:

Dulang-washing or panning

One of the earliest methods of mining, *dulang*-washing or panning was used to recover tin from mine tailings and river beds. The *dulang* is a wooden pan with a 50cm diameter that is used to scoop tin-bearing earth from a stream. Swirled just below water level, lighter sediments are washed off, leaving the heavier ore-laden materials at the bottom.

Dulang-washing was the preserve of families, mainly women and children, and it required individual permits. Amounts recovered were very small but this ultra-small

scale operation collectively accounted for about five per cent of Malaysia's output at one time. *Dulang* washers usually sold their ore to larger mines.

Lampan method

Like *dulang* washing, the *lampan* method that was common among Malays for centuries, required little capital and preparation. Here, a narrow stream was diverted and rechanneled to create a small sluice. Standing in the shallow channel, coolies used *cangkul* (Dutch hoe) to remove tin-bearing soil from the bank into the running water. The water then washed away the earth, and tin-bearing material was recovered from the bed of the channel.

Open cast '*lombong*' method

The Chinese introduced the open cast *lombong* method. Here, a large pit was dug into the ground, and tin-bearing soil carried to the surface in baskets. As the pit grew deeper, ladders made of tree trunks or bamboo poles were installed on the sides to facilitate coolie movement. Tin-rich soil brought to the surface was washed in a trough of running water to separate the ore from the earth.

A variety of digging implements made their appearance in this type of mine. Most notable were the *cangkul*, the chain pump, and the water-wheel or *chin chia*. These mines flooded easily and the water wheel drained excess water from the mine pit. Once mined, the ore was smelted in a brazier at the mining site or transported for smelting elsewhere.

There was a breakthrough in *lombong* mining with the introduction of the steam engine and centrifugal pump in 1877. However, few Chinese miners adopted Western equipment; their *lombong* mines were small scale labour-intensive operations. In larger outfits, labour accounted for as much as 80 per cent of total production costs.

Gravel pump mining

This method was effective and efficient for extracting ore from difficult-to-reach limestone pinnacles. Using high-pressure jets of water, tin-bearing soil is first dislodged. The soil is then washed down to a sump or pool at the lowest part of the mine, before being pumped onto a gently sloping wooden structure called a *palong*. The *palong*, with its scaffolding was a rickety-looking contraption of primitive engineering charm.

As the soil flows down the *palong*, wooden bars at regular interval (riffles) trap the heavier tin ore, leaving the rest of the soil to be dumped as tailings. The trapped tin ore is collected and sent for smelting.

Large gravel pump mines are capable of producing 1,000 tonnes of tin per year. Gravel pump mining has contributed most to Malaysia's tin production. At its prime in 1966, there were 1,021 gravel pump mines in the country.

When a Bucket Band Breaks…

Unlooping entangled buckets.

On 10 July 1983, the back eye of a bucket band of AK2 at Tronoh Mines broke while operating at a 13.5-metre ladder depth.

Dredging manager Bill George describes the recovery operation: "For safety, earth equipment was used for digging, and the bucket band located 50 feet below water level. Two divers from the Penang Diving Services located the lead bucket that had snagged onto the port side hanger bar. Buckets that emerged from the paddock were found to be looped – the loop with a tail of 44 buckets was the longest experienced dredging operators had encountered." The onerous task of unlooping then began... The band was eventually reconnected on 24 July, and the dredge resumed operations on 29 July.

Teamwork, the hallmark of dredging operations.

TT No. 5 Dredge: a living legacy

Dredges belonging to Malayan Tin Dredging and its sister companies came under the management of Pernas Charter Management Sdn Bhd (PCM) in 1977. At the height of the tin industry, PCM was responsible for 40 dredges. The decline and subsequent collapse of the tin industry in 1985 saw a sharp reduction in the number of active dredges. Their number dwindled in the 1970s, and they were eventually dismantled and sold as scrap. One has been preserved for posterity – the Tanjung Tualang No. 5 (better known as TT No. 5) that served tirelessly for 44 years. It is the last surviving dredge in Malaysia, and was donated to the Perak State Government to serve as a dredge museum.

TT No. 5 is a landmark along the Batu Gajah-Tanjung Tualang state road.

Today, the heritage dredge, located 10-km from Batu Gajah, Perak, is a landmark along the Batu Gajah-Tanjung Tualang state road.

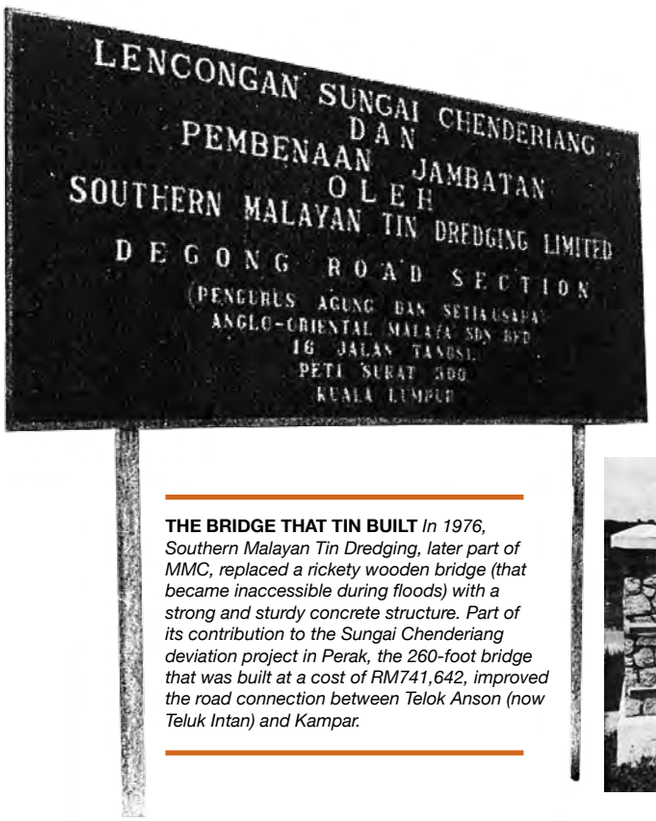
Built in 1938 by MSSRS FW Payne and Company, it was the pride of Southern Malayan Tin Dredging (M) Berhad, where it worked non-stop scouring one of the richest tin fields in the world until it was dismantled in 1982. That is 44 years of 24-hour service.

Powered by electricity, TT No. 5 was specially equipped to work tailings. Its pontoons are 75 metres long and 19.5 metres wide. The 117 manganese steel buckets, considered 'state-of-the-art' then, proved to be most durable. Each bucket has a capacity of 0.51 cubic metres, capable of digging to a depth of 31.5 metres.

More than half a million ringgit was spent to refurbish TT No. 5 that opened to the public as a museum. ■

Tin revenues contributed to infrastructure development in Kuala Lumpur in the early 20th century. Pictured here is an aerial view of Kuala Lumpur railway station and surrounding areas in 1937.

Mining companies made substantial contributions towards rural road infrastructure.



A free 24-hour ferry service was operated by Tronoh Mines Ltd prior to World War II. The ferry service reduced travel time between the mining area and the nearby town of Kampar. With the closure of the mine in 1976, the ferry was donated to the Perak state government.

THE BRIDGE THAT TIN BUILT *In 1976, Southern Malayan Tin Dredging, later part of MMC, replaced a rickety wooden bridge (that became inaccessible during floods) with a strong and sturdy concrete structure. Part of its contribution to the Sungai Chenderiang deviation project in Perak, the 260-foot bridge that was built at a cost of RM741,642, improved the road connection between Telok Anson (now Teluk Intan) and Kampar.*

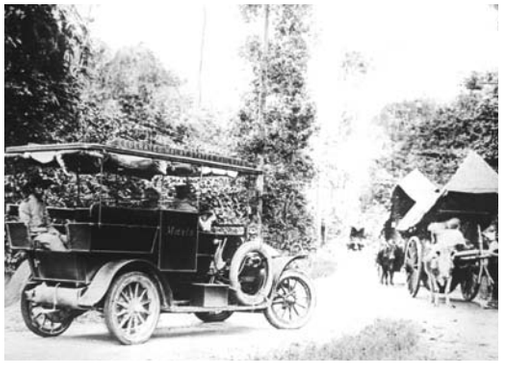
Chapter 5

Roads, Railways and Towns

Tin revenue made Malaysia a star performer among the British colonies. To keep up the sterling performance of tin mines, the Colonial Government as well as mining companies invested in the development of a comprehensive road, rail, town and utility network that laid the foundation of modern infrastructure in Malaysia.

A primary role of the British Colonial Office in Malaya was to serve the interests of British businesses here. Foreign direct investments from Britain began to pour in when world demand for tin and rubber surged in the early 1900s. They included prominent investors such as the London Tin Corporation Ltd and Charter Consolidated Ltd, both investment holding groups of global mining companies. In addition, there were several tin mining companies listed on the London Stock Exchange, which resulted in an inflow of British capital into the country. Among the London-based public listed companies with operations in Malaya were Malayan Tin Dredging Ltd, Tronoh Mines Ltd and Ayer Hitam Tin Dredging Ltd. They invested heavily in mining and smelting, and introduced new machinery and technologies. In return, they expected good returns.

Bullock carts replaced elephants as a mode of transport when roads were first built in the late 1800s.



In Malaysia, motorcars overtook other forms of transportation in the early 1900s, paving the way for vigorous road building across the country.

Their operational and financial success depended on a system of modern infrastructure. And this was where the British Colonial Office played its part. As the government of the day, it ploughed money into infrastructure development, laying down the foundation of a modern road and rail system, electricity and piped water supply as well as other public utilities.

By the 1880s, public infrastructure accounted for the bulk of government expenditure, with funds derived from substantial tin revenues. Road building became a priority. They replaced draught animal tracks, mainly trails cut for elephants used to transport tin. One of the earliest roads connected the mining town of Batu Gajah to the jetty at Papan, Perak. Built by the Public Works Department,

it was an unmetalled cart road, four miles in length and six feet wide. It was used by bullocks drawing heavy ore-laden carts.

Progress in building roads was slow, difficult and expensive. As Frank Swettenham put it:

> *"It is not an easy task to construct really well-graded roads through an unexplored country, covered with virgin forest and dense undergrowth of a moist, tropical climate with hill and swamp alternating, and rainfall from 80-160 inches annually."*

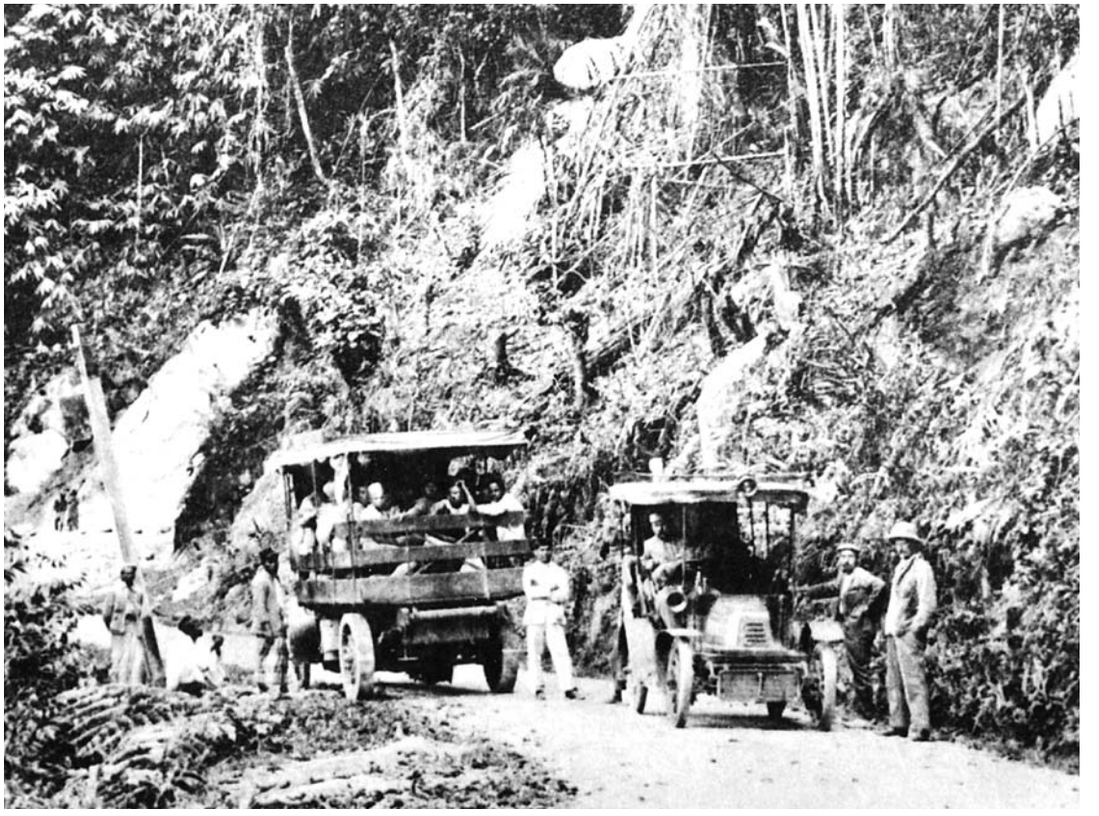
British engineers were recruited from the Ceylon Public Works to design the roads, while construction was left in the hands of migrant labour from Ceylon, Bengal, and local Chinese and Malay labourers.

Indentured Indian labourers toiled under sweltering heat to build and repair roads in the 1900s.

"There were three types of cart roads: earth, gravel and metal. Using funds from its rich tin revenues, Perak found herself the proud owner of the finest metalled roads in the Federated Malay States."

***Ambrose B Rathborne**, an Australian engineer who lived in Malaysia in the 1880s as a planter and entrepreneur.*

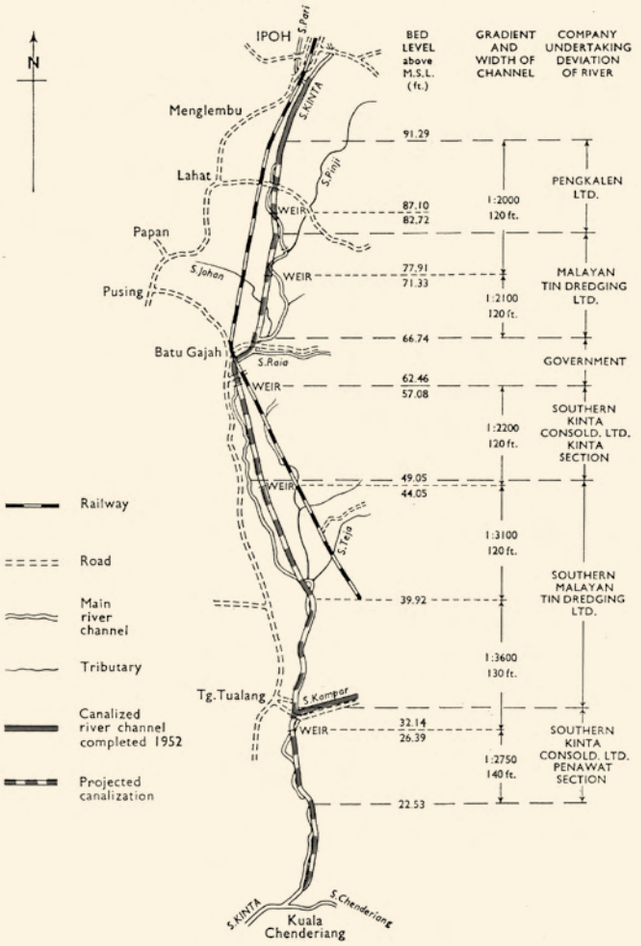
By 1906, the Federated Malay States of Perak, Selangor and Negeri Sembilan – all tin rich states – had a total network of approximately 1,600 miles of metalled roads and 270 miles of unmetalled roads. When tin production escalated, especially after the introduction of dredges by Malayan Tin Dredging Ltd (MTDL) in 1913, more roads were built. The advent of the automobile in the country in the early 1900s spurred more road building. After World War I, the entire west coast of Peninsular Malaysia was served by the main North-South trunk road that started in Padang Besar at the Malaysia-Thai border to Johor Bahru, opposite the island of Singapore.



Auto mail service (motor service) along Kuala Kubu-Kuala Lipis Road in 1910.

Taming the Kinta River

Plan showing the proposed Kinta Conservancy Scheme



The frequent flooding of the Kinta River was the bane of the mining industry and the river had to be tamed. The Perak State Government, Malayan Tin Dredging Limited and four other mining companies undertook the colossal task of re-engineering it for flood mitigation. After a 3-month study, in 1927 they decided to deviate 21 miles of the river around Batu Gajah. The mining companies were required to divert roads, rebuild bridges and re-connect tributaries. In exchange, they were given rights to mine an additional 1,300 acres of rich tin-bearing alluvium. Postponed during World War II, this ambitious river deviation project was eventually completed in 1950. The Kinta River was rejuvenated with the construction of a 22-mile long canal, seven feet deep with a 120 foot-wide river bed. Five weirs were installed at selected intervals to break the flow of the water down to a total drop of 27 feet.

Constructing a section of the river deviation.

Tin Mining Philanthropists

Chinese tin tycoons were generous benefactors, and became known for their contributions to health and education. In 1881, Kuala Lumpur's Kapitan China Yap Kwan Seng started the Poo Shin Tong clinic that provided free medical services to the mining community. The clinic was later upgraded to Hospital Tung Shin (tung shin means 'giving to charity' in Chinese), a popular private hospital today.

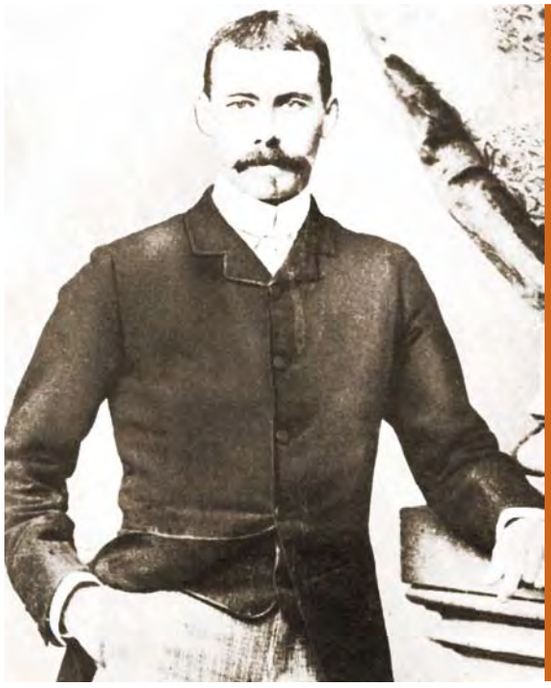
Miners Foo Choo Choon and Leong Fee established the Perak Community Centre (now Perak Community Specialist Hospital) in 1904 to provide free maternity services. The land was donated by another prominent miner, Cheah Cheang Lim.

Leong Fee

Cheah Cheang Lim

Foo Choo Choon

Kuala Kubu Railway Station in Selangor in the early 1900s. The railway line, which was opened in 1903, facilitated rail travel between Perak and Selangor.



Sir Frank Swettenham in 1884

FMS Resident-General Frank Swettenham argued with the Colonial Office in London that to attract investors, it was necessary to have a good transport system.

The rail incentive

The Public Works Department also built railways, and trains quickly established their supremacy as a speedy, comfortable and convenient mode of transporting cargo and passengers. A trip by bullock cart was no match to a journey by train.

The first railway track was built in Perak. It was the brainchild of British Resident Hugh Low who raised funds for railway construction with the collaboration of the Chinese community who paid $2 royalty on the export duty of $10 per "bahara" of tin imposed by state authorities. The bulk of funding, however, came from the state budget. Construction of the 1-metre gauge track began in 1882, and on 1 June 1885, the 8-mile Taiping to Port Weld (now known as Kuala Sepatang) track was opened. Built at a cost of £7,000 per mile, it was considered the most expensive project of its time.

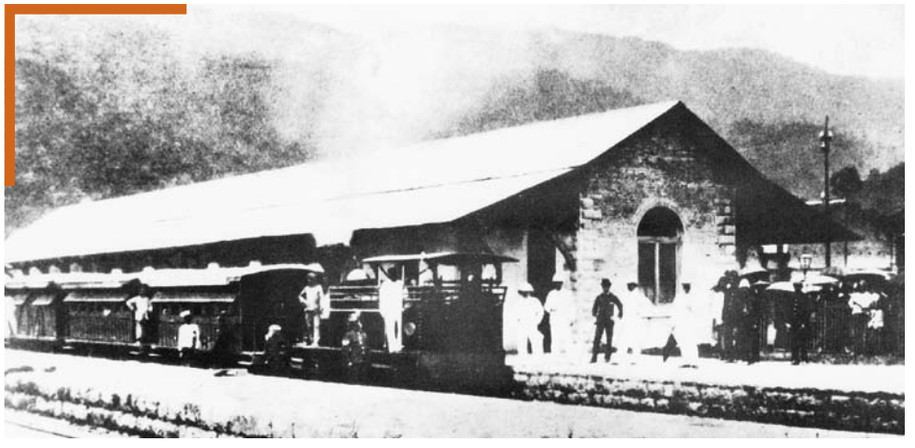
Between 1885 and 1896, more railway tracks were constructed, usually short lines along the tin-rich foothills of the west coast of Malaya. A year after the historic Taiping-Port Weld link, the Kuala Lumpur-Klang line was officially opened. This track was later extended to Port Swettenham (now Port Klang). Next, a line was built in Negeri Sembilan, between Seremban and Port Dickson. These piecemeal railway lines served tin mines that flourished across Perak's Kinta Valley and Selangor's Klang Valley, conveying tin to ports and supplies to mines.

Railway station, Batu Gajah, Perak (1897) served tin mines as well as the colonial administration.

Railway station, Batu Gajah, Perak (2011).

The formation of the Federated Malay States (FMS) of Perak, Selangor, Negeri Sembilan and Pahang in 1896 led to the establishment of a national rail network. Much of the credit for this goes to FMS Resident-General Frank Swettenham who argued with the Colonial Office in London that to attract investors to Malaya, it was necessary to have a good transport system. By July 1909, the west coast railway network was completed. It stretched from Prai in the north to Johor Bahru in the south. Feeder roads were built to railway stations resulting in a seamless transportation system that provided for easy movement of goods and people.

Other communication links followed. Telegraph and postal services existed along railway routes. Where there were no post offices, railway stations served as telegraph offices.



The launch of the 8-mile Port Weld-Taiping Railway Station in 1885; the first official railway line in the country, it was considered the most expensive project at that time.

Great Feat!

The oldest railway bridge in Malaysia is the Victoria Bridge in Karai, Perak. Built in 1897 by the Perak State Railway, it was considered an engineering feat as it was the most advanced bridge in the Far East at that time. With the opening of this bridge, the entire west coast, from Prai to Johor Bahru, was linked by rail. To commemorate its historical importance, a 50 sen stamp was issued in 2008.

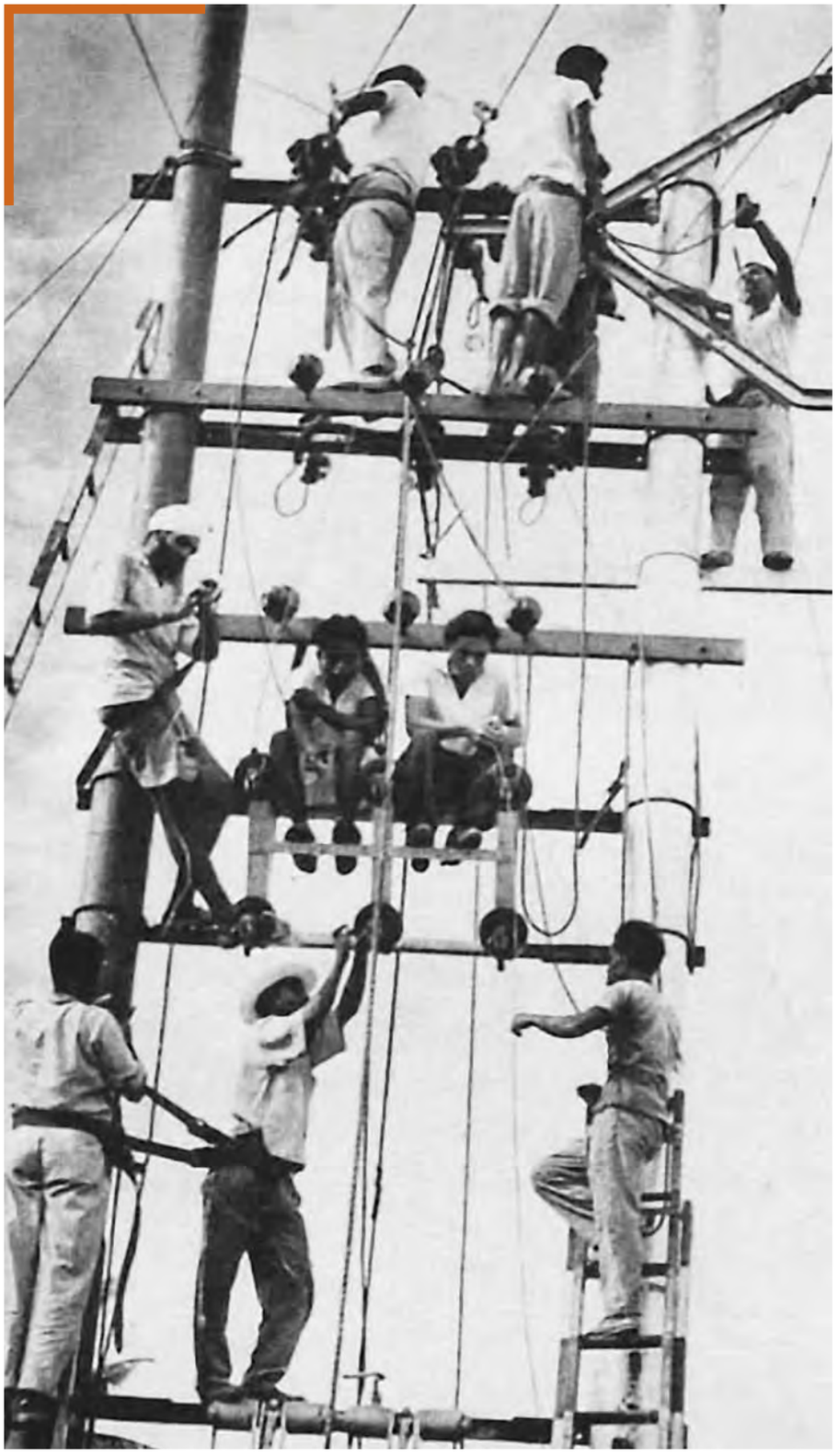


Photo courtesy of Tenaga Nasional Berhad

Installation of transmission lines for the National Electricity Grid – construction began in 1965 and the grid was completed in 1976.

In 1894, mining tycoons Loke Yew (left) and his partner Thamboosamy Pillai (right) installed the country's first electric generator to pump water in their tin mine in Rawang, Selangor.

The advent of electricity can be traced back to the mining industry when mining tycoons Loke Yew and his partner Thamboosamy Pillai installed the country's first electric generator in 1894.

Mining companies were one of the largest consumers of electricity in Malaysia, accounting for about 70 per cent of national consumption in the early 1900s. Electricity supply was provided by government utility departments as well as private companies that built hydroelectric power stations. Meanwhile, public electricity made its debut in Penang in 1904, and soon, one by one, the towns across the country became electrified.

Over the next few decades, a modern infrastructure network evolved in Malaya, and it made the country an attractive destination for investors.

Perak River Hydro

In 1926, the Perak River Hydro Electric Power Company Limited was registered in London to supply power to the tin mines in the Kinta Valley. A hydroelectric dam was built at Chenderoh, north of Kuala Kangsar, to supply electricity to the mines and dredges of the Kinta Valley as well as for domestic use. The 'hydro' as it was known, rose to become the country's largest power company until it was taken over by the Central Electricity Board (now Tenaga Nasional Berhad) in 1955.

MANSION OF MINING MAGNATE LOKE YEW, *at 273A, Jalan Medan Tuanku, Kuala Lumpur. A 1904 article in the English daily Malay Mail reported on the much-awaited completion of the grand Loke Mansion declaring it: "one of the most palatial residences in the town." Originally set on 11 acres of landscaped gardens, it is reputedly the first residence in Kuala Lumpur to glow with electricity. Much of the land has since been sold, and the mansion remains a concrete reminder of an illustrious tin mining past in the heart of Kuala Lumpur today. It is now occupied by a legal firm.*

BATU GAJAH 1905 *The cricket team, many of whom were also golfers, with their young Malay caddies seated on the ground, with golf sets. Batu Gajah was the centre of European social life in the late 19th and early 20th centuries. As a result, private clubs were established for the exclusive use of colonial officers, and European miners and planters. One of the clubs was the Kinta Gymkhana Club, which was founded in 1890; it later added a 9-hole golf course to its facilities.*

The role of MMC

New roads and railway networks "opened up" the country. They also led to the urbanisation of the Malay States. For centuries, the people, who were mainly farmers and fishermen, lived in self-sufficient settlements along rivers. But the emergence of the tin mining industry and arrival of migrants changed this landscape. Now, settlements mushroomed along trunk roads and rail halts. Frank Swettenham observes:

"In the Kinta Valley, barely two years after a stretch of road was completed, there are towns and villages, mines and orchards over almost the whole of the 12 miles that linked Batu Gajah to Ipoh."

The new settlements began as mining hamlets where workers were housed, and shops, recreational and entertainment amenities mushroomed to serve them. As their population grew, schools, clinics, post offices, police bases, fire stations, hospitals and banks began to appear. This pattern was common, especially around MMC mines, which transformed settlements such as Batu Gajah, Tanjung Tualang, Kampar and Tronoh in Perak, and Batang Berjuntai and Puchong in Selangor into bustling commercial centres during the heyday of the tin mining industry. ■

BIRCH MEMORIAL CLOCK TOWER *in Belfield Street, Ipoh is a dedication to Perak's first resident Sir JWW Birch who was assassinated in 1875 while still in office. The memorial was built in 1909 at the behest of his son, Sir EW Birch, the 8th British Resident of Perak and a founding director of Malayan Tin Dredging Ltd.*

Batu Gajah: Where MMC Began Mining Operations

The mansion of Toh Indera Wangsa Ahmad that was built in 1916. It was later occupied by the Royal English School.

Batu Gajah had a large European community in the 1800s and early 1900s.

Batu Gajah government staff outside their office building in Changkat.

The history of Batu Gajah, Perak is entwined with Malaysia's tin mining industry. Once a remote and sleepy village, it rose from its slumber when it became the river port for the tin mines of Papan. The village was sited on a rise, an ideal location for a river staging centre. British Resident Hugh Low reported that a sum of $849 was paid to the local residents to appropriate their land and clear it.

The youth club in Batu Gajah that was established for the Muslim community in 1921.

By 1893, the land was sold to traders who served the port. The village grew steadily into a commercial centre, and received another shot in the arm after the discovery of vast tracts of tin deposits in the vicinity. It grew in stature as the district administrative centre of the Kinta Valley. New public buildings appeared, built by the Public Works Department at the cost of $20,000. More buildings followed – accommodation for government staff, court houses, postal and telegraph offices, a hospital and a jail that could accommodate 134 inmates. Using convict labour, Batu Gajah became the most extensively landscaped town in the Kinta Valley. Public works also included new roads, widening and upgrading of existing ones, and a feeder network to the railway station. By 1917, the town was substantially laid out.

In 1908, upon the recommendation of the first government geologist, John Brooke Scrivenor, the geological office was shifted from Kuala Lumpur to Batu Gajah to study closely the tin resources of Kinta and Larut. In 1927, the office was upgraded to the Geological Survey Department of the Federated Malay States.

The most renowned and successful mining company based in Batu Gajah was Malayan Tin Dredging Ltd. It began with dredging operations in Batu Gajah in 1913, and later expanded to surrounding towns such as Tanjung Tualang and Tronoh. The company's employees lived in self-contained gated communities with housing, sports and recreational facilities. The company's Kampung Gajah football team was known for miles around, with players consisting of both local and colonial staff. In recognition of the company's contributions to the community, a road was named after it. Malayan Tin Road runs alongside the railway track leading from the mines to Kampung Gajah.

Taman Tasik Titiwangsa, a rehabilitated tin mine, that is now a popular metropolitan recreational park in Kuala Lumpur.

Chapter 6

The Way We Were

Here is a snapshot of life in Malaysia Mining Corporation Berhad's tin mines as seen through the eyes of five men who spent most of their working lives in and around the company's dredging operations in Perak and Selangor.

A dredge can be likened to a self-contained factory with an average of 1,000 workers trained to perform different tasks, many of them specialised skills exclusive to the mighty machines. During the peak of production, the dredge was operated around-the-clock in isolated areas. Usually, there was one or a collection of dredges at a mine, depending on the vastness of deposits.

There was continuous on-the-job training at a dredge, where Malaysians learnt how to operate, repair, maintain and improve the efficiency of the mighty machine.

Working in a mine was not the most appealing of propositions. Therefore, to attract good staff to remote outposts, dredge owners offered employment packages that included free housing, transportation, medical facilities, sports and recreational facilities.

As a result, MMC's reputation as a good employer grew, and it helped forge a close-knit community of workers, built around the nucleus of one or more dredges in a common neighbourhood. Herein is found the beginnings of the MMC family, with distinctive values that are cherished till this day.

Everything was systematic and fair

Gajabathi a/l Retnam, *who joined Berjuntai Tin Dredge No. 7 as a dredge hand in 1973, and was later redeployed as driver.*

"We were not issued uniforms but had to wear life jackets and safety helmets before boarding a motor boat to cross the paddock to reach the dredge. Boots and gloves were also issued for workers in certain sections of the dredge. For the company, safety was a priority.

Berjuntai Dredge No. 7 was considered the biggest of all dredges in MMC then. Owned by Pernas Charter Management, it stood 3-storeys high and employed about 1,000 people. It also had a surau for Muslim staff.

The dredge operated 24/7, and the staff were divided into three 8-hour shifts. The first shift was from 7am to 3pm, the second from 3pm to 11pm, and the third was from 11pm to 7am. After one week, workers were given a day off before starting again on another shift.

My job was not specific. I was more or less the general handyman. We were bused to the dredge, from pick-up points at the company housing area. If we missed the bus, we had to cycle or walk. We had a 20-minute break for lunch. Our lunch, which was cooked at home, and left at specific pick-up points for delivery to the dredge. After lunch, it was back to work; no delays, and dilly-dallying was not tolerated.

The company paid us promptly. My starting salary was $4.85 a day. We were paid twice a month – once on the 7th and again on the 21st. When we left the dredge on pay day, there would be creditors lining up outside to collect their dues. Luckily, the perks of the job more than compensated for the small salary. We were also given

A TOWN CALLED BERJUNTAI TIN

A thriving comunity of 3,700 people live at one of the largest tin mines in the country

IT'S a good stretch of road all through the 64 kilometres to Batang Berjuntai, north-west of Kuala Lumpur. After a while the rolling green of the countryside is replaced by a bare landscape which slowly changes to leached white sand dunes and mining pools.

A signboard at the road junction is the only indication you are at Berjuntai Tin Dredging Berhad. The mine is the largest in terms of the number of dredges it has.

We finally arrived at the main administrative office area. There are no fences around the property to show where it starts and ends. The extent of the mine is apparent as Berjuntai stretches out for as far as the eye can see in all directions from where we stood.

This is no average mine. It is more like a small town. On its 4,047 hectares lives a thriving community of 3,700 people.

There are five housing areas — the mine workers call them camps — on the mine and many of the workers have been living there for 10 years or more.

"A lot of our workers are third generation workers. The mine started operations in 1938 and a lot of the families carry on the tradition of working on the mine," says Encik Razman Ariffin, the mine manager.

He adds that Berjuntai Tin is a self-contained community as there are many facilities available on the property itself.

"There are coffee shops, dhoby shops, tailors, a bicycle repair shop, a clinic and others. As the people are made up of different races there are also places of worship like a mosque, an Indian temple, a Sikh temple and several Chinese shrines," he adds.

There are even movies to go to twice a week. "It is very different kind of life we lead here in Berjuntai," says Razman who took up his post only three months ago.

"We had to adapt to the quiet life after years of living in Kuala Lumpur. Even though it is only 64 kilometres from the city, we felt we were really far

Berjuntai Tin Dredging Bhd is a self-contained community within its 4,047 hectares and most of its workers have been living there for more than 10 years in the five housing areas or 'camps' there...

☐ One of the mining 'camps' on the mine. It looks just like any housing estate and you forget you're actually on a mine.

that of a district officer or penghulu. "I find the actual operation of the mine quite simple but dealing with people is something else. The workers treat me like a counsellor and come to me with all sorts of problems.

"The matter can be something as small as a neighbour playing music a little too loudly at night. Sometimes I feel like a judge," says Razman.

He says the younger group are moving out of the mine and heading for the city's bright lights. "It is the usual rural-urban migration. There are nine dredges but only six are in operation, so we only have about 300 workers now.

Life centres around the dredges but there are also periphery services which support the running of the mine. These are the motor and electronic repair shops.

RAZMAN may just be learning to live the quiet life but for some people this is the only kind of life they know. Mr K.V. Nair, a surveyor at

driver. One is married and lives in Kuala Lumpur but the rest of them stay with Encik Harris and his wife in a two-room house on the mine.

The camp they are in is relatively new — it was designed by Mr Nair and built in 1986. It looks like any housing estate in the country except their backyard is a tin mine.

Like many of the other families whose children also work on the mine, Encik Harris's only son has just started work as an apprentice at the mine's electronic repair shop.

"I prefer to work on the mine than anywhere else. Here we have many conveniences like water and electricity, which is paid for by the company. Even the house we are staying in is provided for us.

"There is also free medical treatment and our children's transport to school which is subsidised by the company," says Encik Harris who used to do odd jobs in his kampung.

Inside their house there is a refrigerator, a television set, a cassette player and a sewing machine, all that is necessary to make life comfortable. Puan Maimun Long, Encik Harris's wife, is a housewife. When the children go for the twice weekly movies

Our houses were in a gated area with 24-hour security. We knew everyone and looked out for each other. For entertainment, we watched movies screened in the *padang* (playing field) on weekends. English movies, especially John Wayne ones, were popular. So were Malay, Tamil and Chinese movies.

a 2-month bonus every year. We received bonuses even when the economy was down!

Berjuntai Dredge No. 7 was located in the jungle, and the staff lived about nine kilometers away in 2-bedroom brick terrace houses. Housing was free, and the company also paid for water and electricity. The staff later were given the option of buying over the houses they occupied in Kampung Batang Berjuntai. I bought my home then and still live there. Even retired MMC personnel could buy their homes.

Our houses were in a gated area with 24-hour security. We knew everyone and looked out for each other. There was a clinic with three full time hospital assistants available during and after working hours. In case of accidents, there was a standby ambulance to ferry serious casualties to hospitals in Kuala Lumpur.

Evolution

Batang Berjuntai has been in existence since the 1920s when it was covered with rubber plantations. Tin mining took off in the 1940s when Berjuntai Tin and Pacific Tin was established. It is from here that Kampung Berjuntai Tin got its name. It was renamed Kampung Berjuntai Jaya in 1998. In 2006, the Sultan of Selangor officiated it as Kampung Bestari Jaya. There is no more tin mining here; instead this is the location of Universiti Industri Selangor (UNISEL).

For entertainment, we watched movies screened in the *padang* (playing field) on weekends. English movies, especially John Wayne ones, were popular. So were Malay, Tamil and Chinese movies. Senior staff watched the same movies, except they did so in their club house. There was even a company beach bungalow in Port Dickson that the staff could rent for RM10.00 per day.

Before the British left, we celebrated Merdeka Day with sports events. Now we have the Annual MMC Family Day.

The company also looked after our children. We lived far away from schools, so school transportation was subsidised. We could also apply for scholarships and study loans for our children to go to college or university. Some children were given the opportunity to work and study – they could serve as apprentices in the company while studying to become electrical charge-men.

I left my job as a dredge hand in 1979, but the continuous grating sound of moving machinery never leaves you. I can still hear the noise ringing in my ears."

In 1982, Gajabathi was re-deployed as a driver at the corporate head office, a position he retained until his retirement in 2010.

I am proud to be a part of this history

Ng Kien Foo, *who joined the company in 1972 as a clerk and is now the area administrator at Pernas Charter Management.*

"I joined Southern Malayan Tin in 1972 after completing Form 5. My starting salary was RM150 per month. It was increased to RM180 after a three month probation period. It was big money then. The staff never had to worry about wages in MMC. We were and are always paid on time.

The company always looked after our welfare, and life has been good. Otherwise, I would not have worked here for 38 years!

I had a 7 am to 4 pm desk job at the site office in Kampung Gajah, which was responsible for five dredges on about 1,000-acres. During the economic downturn in the 1980s, I was retrenched, but quickly reemployed at another MMC subsidiary, Austral Amalgamated Tin. When this operation wound down, I was employed by MMC Kampung Gajah. The company then rehired me as an administrator for Pernas Charter Management in 2006.

For the most part, my job involved recording and documenting company assets such as dredges. Dredges are identified by numbers. SK 2 represents Southern Kinta's No. 2 dredge. This makes identification, purchasing, repairing and documentation easy.

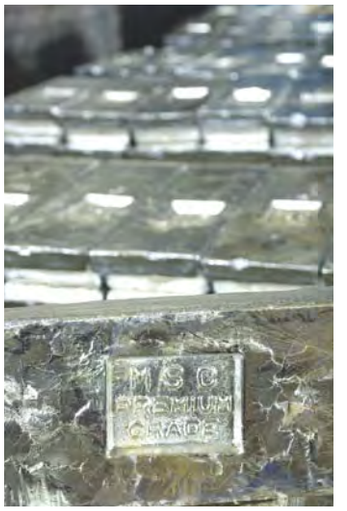
Dredges consume plenty of electricity. Before Tenaga Nasional, private power company Perak River Hydro used to supply electricity to a dedicated substation in Batu Gajah that transmitted power directly to our dredges. Each dredge had its own charge men, electricians and electrical engineers to monitor the electricity input, output, surges and repair any electrical damage.

Tin concentrates from dredges were packed into bins and transported by sampan and motorboat to a nearby tin storage shed for separation and treatment. The ore was then dried, repacked and loaded onto lorries for delivery to goods trains heading to Prai, where there is a smelter.

After the 1970s, trains were no longer used for transportation. Instead, lorries directly transported tin to smelters, where they became 100-pound ingots ready for export.

The 1970s were good years. The five dredges at Kampung Gajah alone employed more than 1,000 workers. The company provided housing for staff and their families on a 20-acre site in the neighbourhood. Senior management lived in bungalows, executives in semi-detached houses, and the rest of the staff occupied *rumah panjang* (long house).

Security guards frequently patrolled the dredge site and housing area. Armed security personnel were stationed at the tin storage sheds to prevent pilfering of the highly-prized tin ore. Tin theft was a serious offence, and suspects were subject to internal investigation. When found guilty, they had the option of resigning or receiving a letter of termination from the company. It became a police matter when the amount was substantial.



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LOTUS IN A MINING POND *at Kampung Gajah, as seen through the lens of Ng Kien Foo in 1991.*

The tin industry is now history, and many assets are reminders of a glorious past. Several company properties have been put to good use. The MMC office in Batu Gajah was donated to Universiti Teknologi MARA (UiTM) to serve as a Staff Training Centre. Meanwhile, Changkat Tin's Apprentice Training School was turned over to Giat MARA, a government-run apprenticeship programme. Our Tanjung Tualang Dredge No. 5 is now a tin mining heritage museum.

For me, MMC is not just any company. It is about Malaysia's tin history. And I am proud to have been a part of it. ”

We enjoyed a good quality of life

Charles Gordon Capel, *who started as a dredge supervisor in 1970 and was later appointed project manager of Gas Malaysia.*

"My friends encouraged me to join Malaysia Mining Corporation in 1970. I was then a 27-year old marine engineer, and felt comfortable moving from water to water. I was hired as a dredge supervisor at MMC Kampung Gajah, where I served for four years. During this period, I acquired the Dredge-master's Certificate of Competency and became a dredge master.

I then began to move from one mine to another – Sungkai (1974-1976), Keramat Tin (1976-80), Bidor Malaya Tin (1980-1985), Austral Amalgamated Company (1985-1990), and coming full circle at MMC Kampung Gajah (1990-1993). By the time I left mining, I had served the company for 23 years.

In the 1970s, Malaysia was the biggest producer of tin. Staff were given on-the-job training to meet production targets. You don't learn these skills at university; what we had was 'hands on' experience. And we were the most knowledgeable dredging company in the world for tin mining.

Many of our bosses were expatriates, who were demanding, even dictatorial. Slacking was not tolerated. I worked under Roy Greenwood (Australian), Charlie Newton (English), Adrian D'klyuer (Dutch) and later Datuk Ab. Sukor Shahar (Malaysian).

Time was of the essence on a dredge. We had revenue targets to meet and the dredge operated within fixed budgets. During the tin boom, the days were crazy as we worked 24/7 to get tin production levels up. Then, when tin prices slumped in the 1980s, there was no production to meet the budget.

Life on board a dredge was stressful. With 900 to 1,000 employees under your care, vigilance, quick-thinking and nerves of steel are prerequisites.

A critical concern daily was to ensure steel cables anchoring the dredge were kept stable. Sometimes, the equilibrium is upset by motorboats speeding across the paddock, ferrying crew back and forth after each shift. Barges ferrying tin bearing 'amang' are another danger. Once, there was a collision, and the headlight of a dredge snapped. The impact caused buffaloes nearby to become airborne. It only goes to show the power of the dredge.

On another occasion, there was panic when a live 500 ton World War II bomb was dug up by Dredge No. 8 in MMC Kampung Gajah. We had to shut down the dredge, and the police and bomb disposal squad alerted.

My job was demanding and my children's early education was in rural schools. It was a sacrifice I made and I have no regrets because of the quality of life the company provided.

In the 1970s, Malaysia was the biggest producer of tin. Staff were given on-the-job training to meet production targets. You don't learn these skills at university; what we had was 'hands on' experience. And we were the most knowledgeable dredging company in the world for tin mining.

We lived in a gated community well before it became fashionable. My children grew up in an environment where race was never an issue. We bonded with other staff families, practising the 1Malaysia concept even then, and the company can take credit for it.

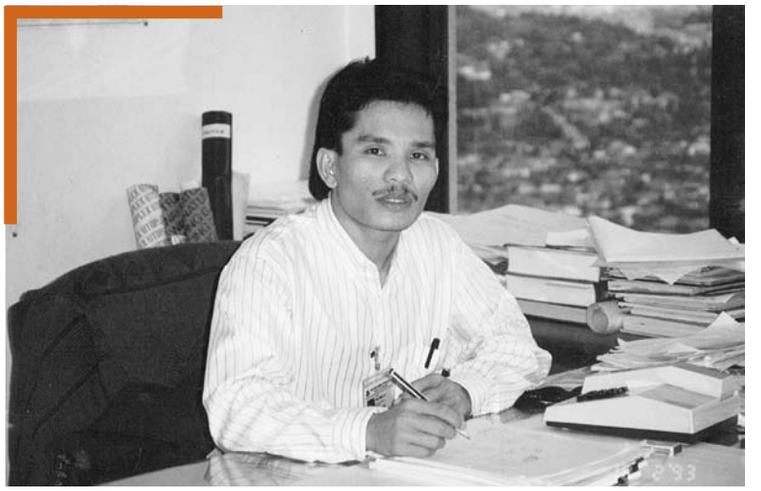
Home was a fully-furnished double-storey bungalow, with free electricity, gas and there was transportation for school-going children as well as the staff. There was a club house with a swimming pool, snooker room and tennis courts for senior staff of MMC Kampung Gajah. There was also a dispensary, an ambulance and three hospital assistants available around the clock.

When tin prices slumped in the 1980s, the company embarked on a new direction. Staff had to be retrenched, and I was one of them. It was a very sad moment because the dredges were dismantled and sold as scrap metal, closing a chapter in history.

Fortunately, my loyal service did not go unnoticed. When MMC needed a project manager for its natural gas distribution subsidiary, I was hired. I consider myself lucky to have this second chance with MMC. ”

My talents were recognised

Wan Abdullah Wan Derahman, *who joined as a clerk with the Exploration Department and is now a Land Executive at the head office.*



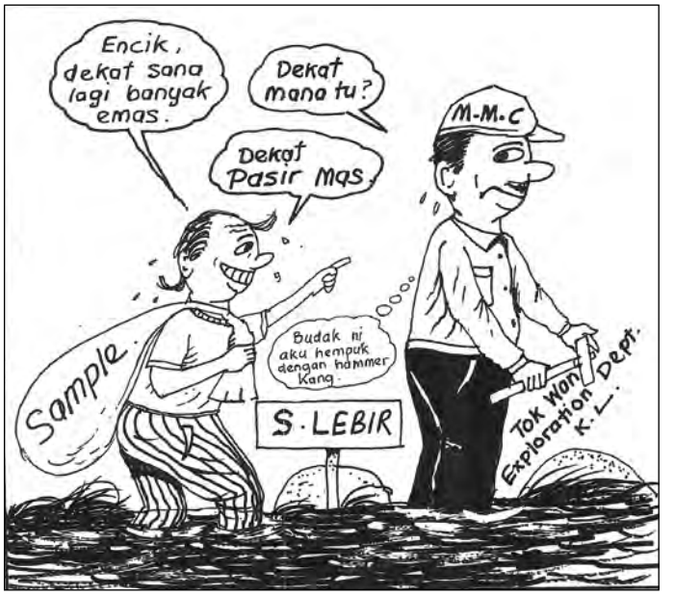
"I was 23 years old when I joined MMC in 1981 after completing my Form 6. I had worked for the company as a contract staff. I used to collect soil samples in Gua Musang for the Exploration Department that was conducting feasibility studies at a gold prospecting site there.

A full time vacancy arose in the department, and I was successful in my interview that was conducted by general manager, Dr Jaafar Ahmad. I was appointed as a clerk, and work was pretty routine, but I gained recognition for my sporting and creative talents.

My passion then was sports. The sports club – Kelab Sukan Rekreasi MMC – was one of the best around. And its motto was *Rekreasi Membina Semangat* (recreation builds the spirit). I took this to heart, and played to win. I became the striker of the MMC football team that belonged to the Selangor League. I stopped playing football after a serious injury (torn ligament) during a friendly match with the Bank Negara team in 1998.

I also played sepak takraw, volleyball and badminton. In badminton and volleyball, our Kelab organised friendly matches. It was a challenge playing with tall players from the Russian Embassy and other Europeans. We could not match them in height, so we tried to outclass them with our smashes and volleys.

Unknown to many, I was an avid chess player. I took part in the Melayu-Malaysia Open Chess Individual Championship held in Kuala Lumpur in 1986 and 1987, and was pleasantly surprised to become a champion in some of the matches. I decided to introduce chess to the Kelab, and members elected me as the first chess convenor in 1986. I became a two time champion in the MMC Closed Chess Competition. My sweetest sporting memory was the friendly chess match with Malaysia's second seed Peter Long, with whom I played close to a draw.



MMC LAND BANK *A property in Batu Ferringhi, Penang*

Another passion of mine is writing poetry and drawing cartoons. I submitted them to the company's newsletter *Berita MMC*, and I was pleased when my work was published. From then on, I became a regular contributor. Inspired, I then took up a journalism course, and have a certificate.

Then, after 12 years with the company, I was retrenched during the mining crisis that forced MMC to downsize. When I received my letter on 31 December 1993, I was unprepared for it. I lost my job, and lost my friends. At MMC, co-workers become close friends.

For the next one and half years, I was unemployed, until the Personnel Department rehired me in 1995 as a Land Assistant in the head office. I have seen the Land Department change over the years, under five chairmen and seven chief executives.

> The MMC sports club was one of the best around. And its motto was Rekreasi Membina Semangat (recreation builds the spirit). I took this to heart, and played to win.

In the 1980s, the Land Department had about 25 staff, and there was a lot of red tape. The clerk reported to a chief clerk, who reported to an assistant land officer, who reported to the land officer, who reported to the manager. The manager was responsible to the general manager. MMC offices occupied plenty of floor space – the head office took up 10 floors then.

The department is much smaller now, and has one staff – me, the executive in charge. My job is to safeguard MMC's land-bank and expedite issues related to them. As a result, I often meet with city and municipal council officials, district officers, politicians, even state executive councillors and chief ministers (menteri besar) on land matters.

Looking back, MMC has nurtured me well. It recognised my sporting and creative talent early on. It also instilled in me the confidence to meet people in high places and negotiate with them. In one instance, in 2007, the management entrusted me with a special assignment that resulted in substantial savings for the company. In appreciation, I was given the Special Recognition Award in 2007, the only staff in the company to be acknowledged this way. ”

The best days of my life!

Datuk Ab. Sukor Shahar, *who was appointed as a mineral dresser in 1970, and retired as executive director, operations & technical in 2002.*

"I graduated from the Imperial College of London in 1970 as a mining engineer specialising in mineral technology. I was offered a job by Charter Consolidated in London to work in its Malaysian mines that were managed by Associated Mines (AM).

I began work at the head office in August 1970, and was assigned to a research project on Ulu Sokor gold mines undertaken by the Mines Research Institute in Ipoh. The project did not see fruition because the deposit was deemed uneconomic as gold prices were relatively low then.

Subsequently, I was transferred to Ayer Hitam Tin as a mineral dresser, a position that was renamed as a mineral processing engineer to give it a better image. During these years, I realised that working was a continuous process of learning. Experienced foremen, for example, knew more about the practical side of dredges than I did. At Ayer Hitam Tin, I redesigned and completed the reconstruction of a new mineral processing plant within the existing facility.

In 1972, I was transferred to Sungei Besi Mines as a mine metallurgist, and again redesigned and reconstructed a new mineral processing plant.

I don't know whether my success at reconstruction prompted the

management to promote me to a job that made me the first Malay assistant mine manager at Bidor Malaya Tin in late 1973. I accepted without hesitation. Bidor Tin operated four dredges, and here I learnt the intimate details of mine management – from technical operations to inventory and cost control, support facilities, human resource management and social responsibilities.

Early in my stint at Bidor Tin, I realised that on pay day every fortnight, most workers disappeared to Teluk Anson (now Teluk Intan), about 30 km away, to spend their money at the *pasar malam* (night market). Productivity dropped the next day. I came up with a solution – start our own *pasar malam* at Bidor Tin. It not only served our workers but also became popular with the nearby community.

Management and senior staff at most mines were mainly expatriates until the formation of Malaysia Mining Corporation Berhad in 1981. By then, the two mining groups, Associated Mines and Anglo-Oriental, had merged and came under the control of Pernas Charter Management.

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Subsequently, the Malaysianisation programme took off, and efforts were intensified to identify appropriate and suitable Malaysians to fill positions vacated by expatriates.

I was promoted to mine manager of Bidor Tin in 1977, and later that year transferred to Berjuntai Tin Dredging, the biggest mine in the group. It had seven dredges with assets in excess of RM200 million. I was honoured to be given this responsibility at the age of 31.

Within a year, there was another promotion, when I was appointed Area Controller in Perak, based in Batu Gajah. I was required to supervise 30 dredges, from Taiping in the north to Slim River in the south. I was apprehensive about these rapid promotions, and conveyed my sentiments to the then Director of Personnel Zakaria Budin. He replied, "We can't wait. We don't have time!" These words still ring in my ears.

Another promotion followed, when I was made general manager of Pernas Charter Management, the mining arm of MMC. It brought me back to the corporate head office in 1982, where I continued in various positions until my retirement in 2002 as executive director of MMC.

The 32 years of uninterrupted employment within the same organisation is something I will never trade with anyone. The most cherished years were those I spent in the mines, where I interacted regularly with staff and the community, which involved different personalities, and from different ethnic backgrounds. As mine manager, I had to wear many hats – sometimes as a judge, marriage counsellor and *penghulu* (village chief).

A peculiar experience in the mines is that I slept well with the constant eerie noise of dredges at work. But when the sound stopped, I will wake up. Silence meant a mechanical breakdown – an unwelcome situation because it would affect production targets we had set. This led to another habit – you are forever on standby outside of normal working hours. When you live in a mining camp, you are practically working 24-hours.

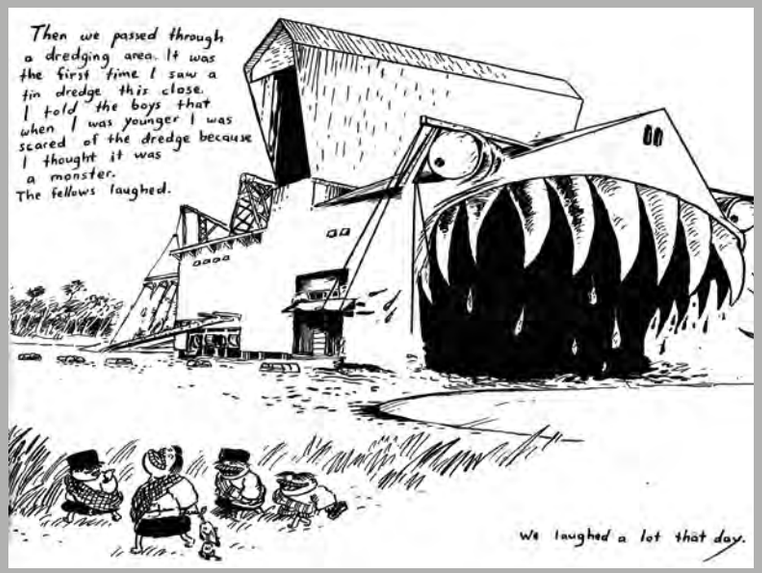
While most memories are sweet, the bad ones are related to the collapse of the mining industry in the 1980s. Declining tin prices rendered our operations uneconomic. I experienced the most painful task of gradually closing unprofitable mines. Eventually,

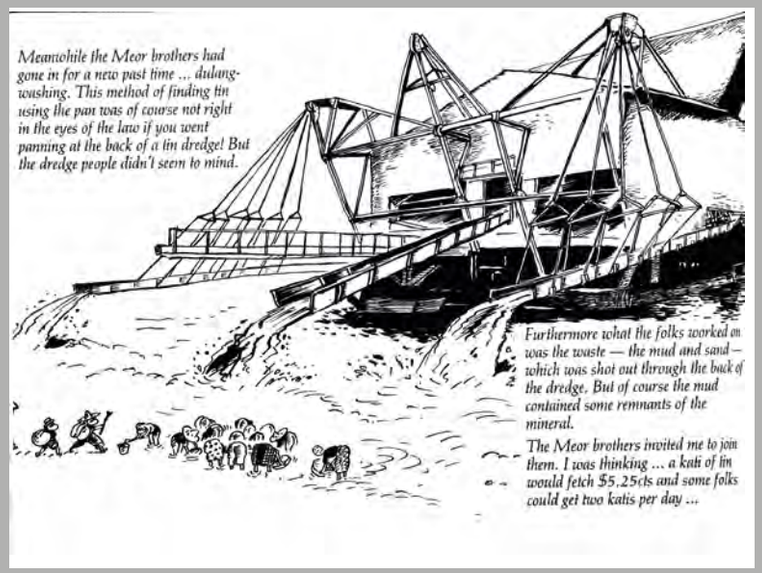
The most cherished years were those I spent in the mines, where I interacted regularly with staff and the community, which involved different personalities, and from different ethnic backgrounds.

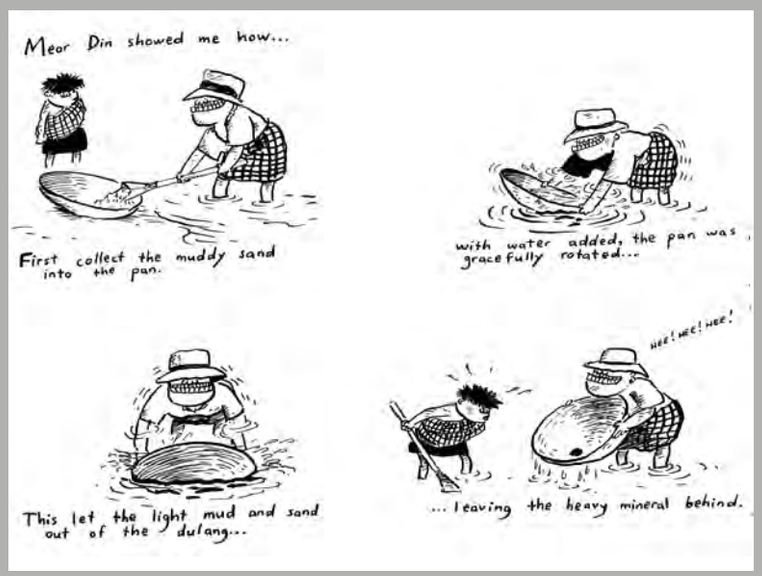
we retrenched about 7,000 staff, including several senior members of management.

The Personnel Department conducted the retrenchment exercise professionally. We tried our best to find alternative jobs for retrenched staff in other industries, but there was a general economic downturn in the country. We allowed mine workers to continue living in the mining camps while we persuaded state governments to recognise these camps as part of the worker's housing schemes.

In Perak, we were successful. Less so, in Selangor, except for our mining camps in Batang Berjuntai Tin. For all the pain we have gone through, I take comfort in knowing that most retrenched staff continue to remain friends despite their adversities. ”



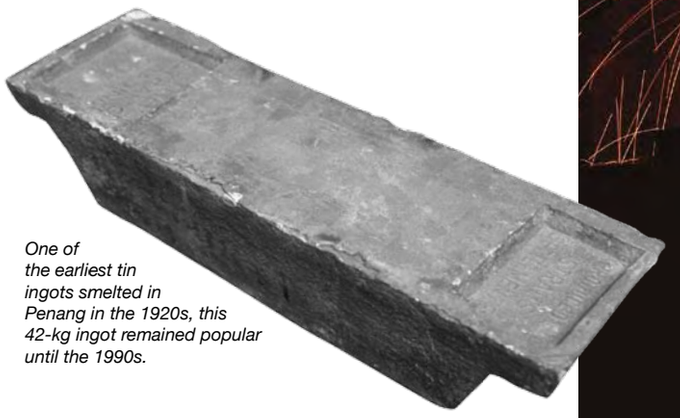




Courtesy of Datuk Mohd Nor Khalid (Lat).

TIN MINING ACCORDING TO LAT *One of the most-read cartoonists in Southeast Asia, Malaysia's Lat (Datuk Mohd Nor Khalid), grew up in the village of Kota Baru, Perak, the heartland of Malaysia's tin mining industry. In his inimitable way, he illustrates tin mines as he saw them as a little kampung (village) boy in the 1950s.*

Tin ore or cassiterite, also known as tin oxide (SnO_2), from mines is sent to a smelter to be reduced to metallic tin. This is done by mixing tin ore with limestone and anthracite, and smelting the mixture in furnaces heated to temperatures of 1200-1400°C to produce crude tin. The molten tin is then poured into refining kettles where it is treated to remove the last traces of impurities, and refined to become Straits Tin. The tin is finally cast into ingots each weighing 100 pounds, and is ready for export.



One of the earliest tin ingots smelted in Penang in the 1920s, this 42-kg ingot remained popular until the 1990s.

In 1999, Malaysia Smelting Corporation introduced the 29-kg ingot in response to consumer demand for ingots that were smaller, lighter and easier to handle.

'Straits' is traditionally to tin what 'Sterling' is to silver. It is tin metal that has long been chosen by industrialists throughout the world in preference to other brands because of its high purity, unvarying high quality with a minimum guaranteed analysis of 99.87 Sn. Straits Tin comes from Malaysia, the world's leading tin producing country since 1883.

Source: Straits Tin From Malaysia by David Wong Chin Duing, Secretary, Tin Industry (Research & Development Board) published in TIN Monthly Bulletin, October 1980.

Chapter 7

The Rise and Fall of Tin

Malaysia Mining Corporation Berhad rode the rollercoaster of the international tin market's peaks and troughs with alacrity… until October 1985, when the global tin market collapsed. It was the beginning of the end of its tin mining days.

The impetus for large scale tin mining in Malaysia came from the Industrial Revolution that began in England in the 1800s and gradually swept across Europe and the United States. It changed the way people lived and worked. Machines were invented to replace hand tools, and it led to the mass production of goods and the expansion of world trade.

In this scheme of things, tin became a sought after item. The silvery, malleable and ductile metal did not easily oxidise in air, and was ideal as a coating on other metals to prevent corrosion. It became the metal of choice for plating iron and steel used to produce machinery and parts. The phenomenal growth of the automobile industry, and railway and shipping infrastructure further boosted the demand for tin. Its low toxicity, meanwhile, underscored its popularity in food packaging. Tin-plated metal, usually steel, was cast into different shapes to store food for months, even years. This gave birth to the word 'tin' that became synonymous with food preserved in metal containers.

READY FOR EXPORT *Straits Refined Tin ingots, each weighing approximately 29 kg, are packed into 1,000-kg bundles. Each bundle is steel-strapped with 34 ingots.*

According to Wong Lin Ken's *Western Enterprise and the Development of the Malayan Tin Industry to 1914*:

"By the third quarter of the 19th century, the tinplate industry proved to be the most decisive factor in nurturing the growth of tin mining all over the world."

Malaya, with its abundant and rich alluvial tin resources, became the target and ultimately, the prized possession of the British Colonial Government. Every bit of tin mined was exported to meet burgeoning industrial demand in the United Kingdom and the United States. Tin mining was a highly profitable business, with booming demand for the metal overseas.

Versatile Tin

Tin is one of the most environmentally-friendly metals. It is popular for industrial use because of its versatility and outstanding physical and chemical properties such as:

- corrosion-resistance
- non-toxicity
- lubricity
- malleability
- alloyability with many metals
- low melting point
- ductility
- low coefficient of friction
- solderability
- low vapour pressure
- adaptability to compounding and processing
- wetting and adhering potential
- electro-deposition compatibility

Industrial Uses of Tin

Tin plate

- Food cans
- Other containers: oils, paints, polishes, cosmetics, medical preparations, aerosol cans, non-returnable drums
- Other wares: caps, closure and crown corks, kitchen utensils, gas meters, advertising signs, light engineering parts, electrical equipment

Tin and tin alloy coatings

- Pure tin: food-processing equipment, milk cans, water heating equipment, cooking utensils, copper wire conductors, steel wire, pins, electrical and electronic components, fasteners, automobile pistons
- Tin-nickel: watch parts, oil lamps, infra-red reflectors, musical instruments, drawing instruments, handbag frames, electrical connections, scientific apparatus, refrigeration equipment, printed circuits
- Tin-copper: bronze finish for metal furniture and utensils, haberdashery and ornaments
- Tin-zinc: hydraulic brake parts, fire extinguishers, car and cycle accessories, electrical components
- Tin-lead: terneplate for roofing and containers, petrol tanks, engine bearing overlays, electronic equipment, fire extinguisher bodies

Tin alloys

- Tin-base: bearings for petrol and diesel engines, bearings for electric motors and machinery, costume jewellery, counting mechanisms, organ pipes
- Pewter: beer tankards, tea services, coffee pots, plates and other domestic utensils and ornaments

OSCAR, THE TIN MAN
Few realise that the Oscar, the statue that stands for excellence in the film industry, is largely made of tin. Beneath the gold, the statuette's interior is a metal mixture called britannium, also called Britannia metal. This is an alloy of tin (93 per cent), antimony (5 per cent), and copper (2 per cent). The alloy is known for its smooth texture and silvery appearance.

- Tin-aluminium: bearings for car and truck engines, marine engines and pump parts
- Fusible alloys: fire extinguishers, alarms, boiler safety plugs, fusible links, special solders and seals, textile drying
- Type metals: printing alloys
- Miscellaneous: die casting alloys, dental amalgams, packing rings, special alloys including columbium-titanium-zirconium base
- Cast iron: Pearlitic irons, heat-resistant irons

Worked and other forms

- Foil: electrical condensers, wrappings, gun charges, vulcanisation of rubber capsules, food processing, food machinery
- Extrusion: pipes for chemical and food plants, collapsible tubes for food, pharmaceutical, cosmetic and paint products
- Powder: tin-coated paper, tinning pastes, bearings, filters and spraying
- Molten: 'float' glass

Chemical compounds

- Oxide: vitreous enamel opacifiers, ceramic glazes, polishing powder
- Chlorides: weighting natural silk, electroplating baths, soap perfume stabilisers, silvered glass mirrors, chemical reducing agent, electricity conducting glass surfaces
- Flouride: toothpaste
- Sulphate: electroplating baths
- Octoate: catalyst for polyurethane manufacture
- Monobutyltin: stabilisers for plastic film
- Dibutyltin: stabilisers for PVC plastics, veterinary uses, catalysts
- Dioctyltin: stabilisers for plastic bottles, water pipes, wrappings
- Tributyltin: industrial fungicides, insecticides, anti-fouling paints, disinfectants
- Triphenyltin: agricultural fungicides

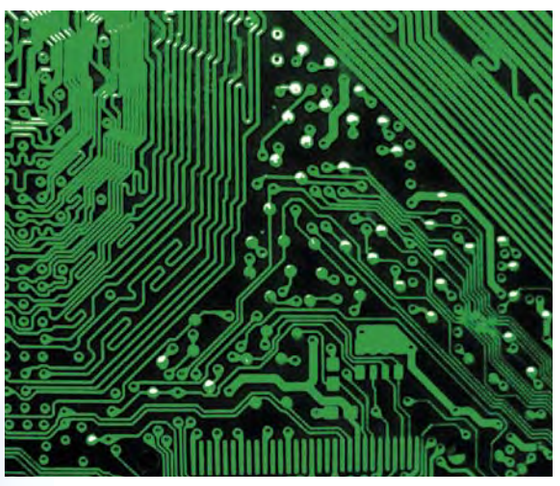
Solder

Electrical connections in radio, television, generating and distribution equipment, telephone exchanges, car radiators and heat exchangers, sheet metal joining and filling, container seaming and sealing

Bronze

Marine and railway engineering, hydraulic engineering, bearings and bushes, chemical plant pumps, valves, pipe unions, paper-making screens, statuary, bells, coins and medals, architectural ornaments.

Source: Tin Industry (Research & Development) Board, Malaysia House, London, United Kingdom



"Malaya plays an important part in the world's tin industry; 62,000 tons of tin were mined in the Federated Malay States in 1928, and the Straits Settlements smelted nearly 98,000 tons; thus British Malaya produces more than a third of the world's tin, and smelts more than half."

Tin Monthly Bulletin of Anglo-Oriental Mining Corporation Ltd, April 1929.

Commercial dredging, pioneered by Malayan Tin Dredging Limited (MTDL) in 1913, resulted in high yields. With the success of its initial dredge, the company introduced more dredges that benefited from improved economies of scale. However, like all primary commodities, market forces controlled and determined the price and volume of sales. To stabilise prices, tin producers formed one of the earliest commodity cartels. With some measure of protection, Malaysia grew in stature as a world leader in tin production over the next 60 years or so, from 1920s to 1980s. It was a period of robust profitability, punctuated by a few bad years caused by global events.

World War I and the aftermath

The industry in Malaya faced its first setback with the outbreak of World War I (1914-1918), when tin mining came to a standstill. International shipping ceased, and there was no transportation for tin exports or imports of machine parts to build more dredges. Large stocks of tin accumulated and caused a post war slump. The decade that followed illustrated the magnitude of price fluctuations. Between 1920 and 1930, there were two tin booms and two slumps.

"To have news value is to have a tin can tied to one's tail."

T E Lawrence
(1888-1935)

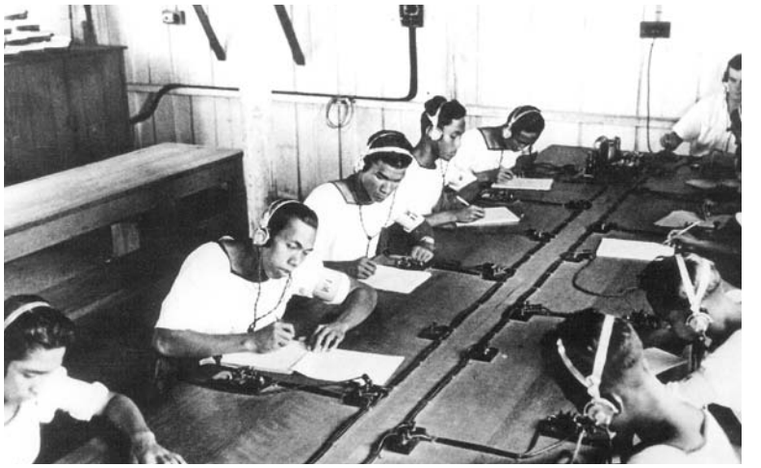
To safeguard the tin industry, the governments of the Federated Malay States and the Netherlands East Indies created a stockpile. Known as the Bandeong Pool, its aim was to artificially regulate the supply of tin and hence control tin prices based on the economics of supply and demand. This continued into 1924 when the price of tin reached RM124.19 per picul (RM2.05/kg).

Undeterred by price volatility, the industry witnessed an investment boom from 1920-1927, and foreign equity in the Malayan tin industry doubled. British investments alone accounted for almost an incredible 70 per cent. There was optimism over the future of tin. By 1927, total foreign investments stood at about £9 million, rising further in the years that followed. To increase production and boost profits, bigger and better dredges were introduced. The greatest number of tin dredges operating at any one time occurred in 1929, when there were 105, and not a single dredge was idle. Then trouble struck!

The Great Depression and Japanese Occupation

It reared its ugly head in the form of the Great Depression. Described as the "longest, most widespread, and deepest depression of the 20th century", it originated in the USA in 1929, when the stock market crashed. Its impact rippled across every corner of the globe, and hardest hit were industrialised countries, the markets for Malayan tin. The price of tin dropped drastically from RM104.38 per picul (RM1.73/kg) in 1929 to RM72.89 per picul (RM1.21/kg) in 1930. Several tin mining companies that were public listed

Malayan Army transport drivers before World War II.



Malayan navy telegraphists before World War II.

In the Kinta Valley, dredges belonging to the Malayan Tin Dredging Limited were taken over by Mitsui Kosan Kabushiki Kaisha, which focused on mining operations in tin-rich Perak.

(Far left) The Dai Nippon stamp was issued in 1942, during the Japanese Occupation.

(Left) The BMA Malaya stamp was issued in 1945 by the British Military Administration (1945-46) upon their return after World War II.

The Straits dollar (above) was the legal tender of Colonial Malaya. During World War II, Japanese currency (left) became the legal tender of the country.

on the London Stock Market were hit hard when their share prices plummeted, and money became scarce.

Miners introduced voluntary, and later compulsory production restrictions. Retrenchment followed, and unemployment grew. Between 1929-1933, the number of tin mines operating in Malaya fell from 1,322 to 994, about 25 per cent. Employment dropped by about 60 per cent, from 104,000 to 43,000 staff. Yet, Malaya managed to decrease production by only 7.5 per cent. The free fall of prices continued as supply outstripped demand.

After the Great Depression, tin production took off with a vengeance and hit an all-time high in the 1940, when annual production peaked at 80,651 tons. Alas, the uptrend was rudely interrupted when the winds of war gusted across Malaya, culminating in the Japanese Occupation of Malaya in December 1941 during World War II. The war occurred in two theatres of action – Europe and Asia. In Malaya, the British were overpowered. The retreating British army executed its 'scorched earth' strategy, burning all equipment and machinery as they retreated. Mine machinery was dismantled, vital parts cannibalised, mine holes and dredges flooded beyond repair. In their haste, the damage was not

extensive, and the Japanese restarted mining operations upon gaining control of the tin-rich British colony.

In the Kinta Valley, dredges belonging to the Malayan Tin Dredging Limited were taken over by Mitsui Kosan Kabushiki Kaisha. They began to repair and restore dredges, using parts from unworkable dredges. The Japanese focused on the mines in Perak, which accounted for two thirds of the 54,000 tons produced during the Japanese Occupation. It was modest compared to pre-War production, and prices rose during this period – from $44/picul in 1942 to $68/picul in 1943 and $135/picul in 1944.

When the British returned after World War II in 1945, they found the industry in a shambles.

The Japanese Army's surprise invasion of British Malaya during World War II – soldiers cycled into the Peninsular from the north, while the British Army lay in wait in the South (Singapore).

The 37th annual general meeting of Malayan Tin Dredging Limited was held on December 15, 1948 in London. Mr H Ashworth Hope, chairman of the company, in the course of his speech, said: "I greatly regret having to report that two of our staff, Messrs Urquhart and Best, were murdered by communist terrorists on November 15, while proceeding to the new area along our railway line. In the circumstances, we have decided to curtail further work on this area until assured of more adequate police and military protection."

Tin Monthly Bulletin, January 1949.

During the Malayan Emergency (1948-1960), dredge workers were transported in special armoured vehicles to the mines. Miners were targets of attack by communist terrorists who waged guerilla warfare from dense jungles.

Mining machinery, especially dredges, were partially or totally ruined through improper use, lack of mechanical supervision and routine maintenance, and excessive looting.

A programme of rehabilitation followed, and British investors dispatched their Tin Inspection Committee to survey mining sites. The post-war British Government wanted to revive its crown jewel and as an incentive, it paid compensation to investors to restart mining operations. About 85 per cent was claimed by British miners and the rest by Chinese-owned operations. Long term loans at low interest rates were also extended to Chinese miners and European companies to get the industry back on its feet again.

Kuala Lumpur Tin Market

"The KLTM has demonstrated the ability to manage globalisation and to compete in the international arena, driven by continuous improvements in its trading facilities."

Dato' Seri Dr Mohd Ajib bin Annuar
chairman of the Kuala Lumpur Tin Market
Tin Story: Heritage of Malaysia (2010)

Malaysia's stature as a tin industry leader was raised further when the Kuala Lumpur Tin Market (KLTM) commenced trading on 1 October 1986. It was the only physical tin market outside of the London Metal Exchange.

At the launch, KLTM Chairman Tan Sri Dato' Nasruddin Mohamed said: "For the past 75 years, the price reference point for over 60 per cent of the world's tin production has been the Penang Market. Today, a new market will take over from the Penang Market."

The Penang Tin Market had no trading room, no floor traders, or even a call chairman. All business transactions were conducted entirely by telex or telephone and was operated by two smelting giants – Malaysian Smelting Corporation (an MMC company) and Datuk Keramat Smelting.

KLTM, on the other hand, served as a platform for buyers and sellers to meet and determine the right price for their tin. It was hailed a millionaire's club then because members who wished to trade had to be backed by a banker's guarantee of at least RM1 million.

Three glorious decades

The years that followed can well be called the heyday of tin mining in Malaysia. For the next three decades – 1950s, 1960s and 1970s – Malaysia's tin industry was unstoppable. Between 1954 and 1964, there were 35 tin dredging companies controlling 75 dredges and responsible for 45 per cent of the total tin output. Malaysia Mining Corporation's Ayer Hitam Tin Dredging (M) Ltd in Puchong, Selangor entered the *Guinness Book of Records* for producing the largest quantity of tin in a month by a single dredge – 13,249 piculs (801 tonnes) of tin concentrate in November 1976. Another of its dredges – AHT No. 2 – holds the record for reaching the greatest depth – 247 feet below the original ground surface. It is a feat unsurpassed by any other bucket tin dredge till this day.

The Korean War stimulated a frenzy of stockpiling by the United States, causing tin and rubber prices to soar. By 1950, Malaya became the principal dollar earner for the whole of the Commonwealth.

Source: TIN, Vol.3, No.4, December 1976

Unloading tin ingots.

American supermarket in 1955, when canned food items were in demand by shoppers.

The tin can was yesterday voted as the No. 1 kitchen invention of all time… it is seen as being even more useful than a gas stove, which was second in the poll. One third of the 2,000 adults quizzed said tin cans have 'revolutionised the way we cook and value them higher than electric toasters and electric kettles.

Daily Express, United Kingdom, 04 August 2009

TIMAH

Oh Timah…
Kau yang amat berharga
Lahirmu amat besar maknanya
Menjadi punca ekonomi negara
Namun agong di merata dunia

Insan di dunia...
Mencari rezeki dan kekayaan dari mu
Membanting tenaga tanpa rasa jemu
Kehilangan mu manusia bisa jadi buntu
Kehidupan mereka tidak menentu

Timah...
Hadirlah kau dalam bumiku
Bumi Malaysia tanahairku
Semoga MMC bertambah maju
Bertambah kukuh ekonomi negaraku

Jamaludin Haji Dorani
Bidor Tin Dredging
Berita MMC January/February 1985

Malaysia Mining Corporation Berhad was a world leader in alluvial tin dredge mining (above) and open cast mining (right) for the greater part of the 20th century.

The Malayan Emergency (1948-1960), when communist insurgents waged guerilla warfare in a bid to topple the government and install a communist regime, failed to slow the industry. Production continued to rise, and overtook pre-war levels. Even the flight of foreign capital to the lucrative oil fields of the Middle East did not deter production as local companies stepped in to fill the vacuum.

A discernible change began to occur in the 1970s. It did not relate as much to production volumes as it did to mine ownership. British companies that had hitherto dominated the tin industry underwent a programme of Malaysianisation. After more than a decade of independence, the government launched the New Economic Policy in 1974 that sought to increase bumiputera corporate equity. One of the targets was British rubber and tin mining companies. Through a series of corporate manoeuvres, mergers, formation of new entities, exchange of shares, and a lot of negotiations, the Malaysian Government, through its investment arm Perbadanan Nasional (PERNAS), wrested control of British-owned mining companies operating in the country. Several were merged to create the Malaysia Mining Corporation Berhad in 1981. It became the world's largest tin mining giant.

THE MINES RESEARCH INSTITUTE, IPOH, PERAK *The Chief Minister of the Federation of Malaya, Tunku Abdul Rahman Putra (later Malaysia's first prime minister), launched the Research Division of the Department of Mines in Kuala Lumpur in 1951. Entrusted to improve the production of tin in the post war years, the division was later upgraded to a research institute and relocated to Ipoh, Perak, the heart of Malaya's Tin Belt.*

The pre-eminence of the tin industry was celebrated through the issuance of stamps in 1974, in conjunction with the 4th World Tin Congress held in Malaysia in October that year.

Few people are aware that in spite of Malaysia not being a major tin mining producer now, it is still home of the world's largest custom-made tin smelter and refiner, thanks to its continuous technology upgrading and transformational efforts.

Dato' Seri Dr Mohd Ajib bin Annuar
Chairman of the Kuala Lumpur Tin Market (2010)

The applications of tin had also evolved. It was now sought as an important raw material for solders, and used in the manufacture of printed circuit boards, and electrical products such as computers, air conditioners, water heaters and audio visual equipment. Malaysia was rapidly industrialising and became an attractive investment destination for world renowned electronics and electrical multinationals which established factories here, therefore creating a growing domestic demand for tin.

By 1979, Malaysia was producing almost 63,000 tonnes of tin per annum, and accounted for 31 per cent of world output. Malaysia was the world's king of tin, and the industry employed 40,000 people.

Distress signals at a mining seminar in 1977: the steady decline of the tin industry became the primary subject of discussion at seminars and conferences. Speakers above include (left to right): Chief Inspector of Mines, Dato' Salleh, Deputy Ministers of Primary Industries Paul Leong and Lew Sip Hon, Tengku Tan Sri Ngah Mohamad, Secretary-General of the Ministry of Primary Industries, and Abdul Rahim Aki, President of the States of Malaya Chamber of Mines.

The death knell

By the early 1980s, Malaysia's tin reserves were rapidly depleting. Production costs had risen due to escalating employment and energy costs. To make matters worse, there was competition from low-cost producers such as Bolivia and China. The food packaging industry now had other substitutes, namely aluminium, paper and plastic that were cheaper alternatives. To make matters worse, the Malaysian Government was pursuing a policy that called for a broader and more diversified economic base. The tin industry no longer enjoyed special favoured status.

On 24 October 1985, the London Metal Exchange suspended trading indefinitely, precipitating the collapse of the tin market. The price of tin fell by half and sent shockwaves around the world of tin producers.

Lew Sip Hon, Deputy Minister of Primary Industries addressing a tin industry seminar.

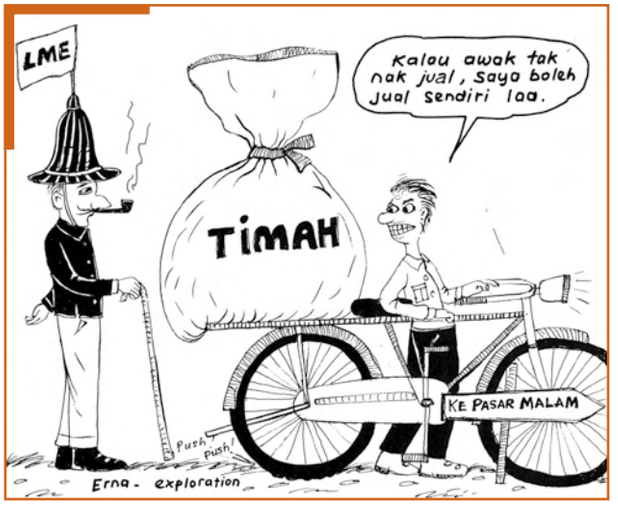
But the death knell came from the entity entrusted to safeguard the industry – the London-based International Tin Council (ITC). On 24 October 1985, the London Metal Exchange suspended trading indefinitely, precipitating the collapse of the tin market. The price of tin fell by half and sent shockwaves around the world of tin producers.

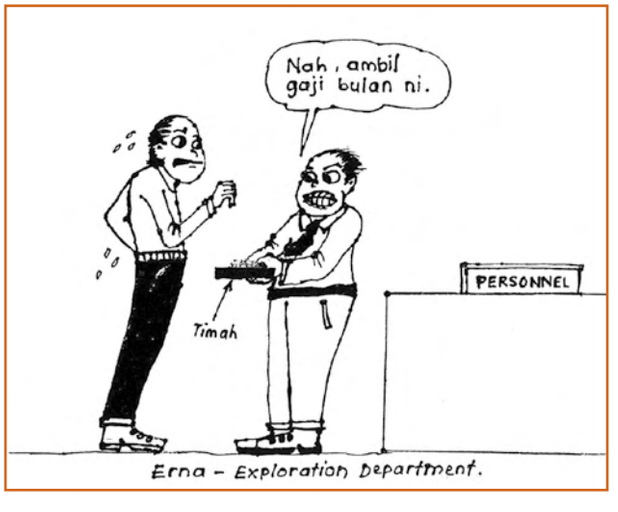
ITC was a cartel of 22 leading tin-producing and consuming nations that regulated world supply and price of tin through measures beneficial to its members. It assigned production quotas to members and bought surplus whenever prices fell below a certain level. The operation of the ITC was governed by International Tin Agreements (ITAs).

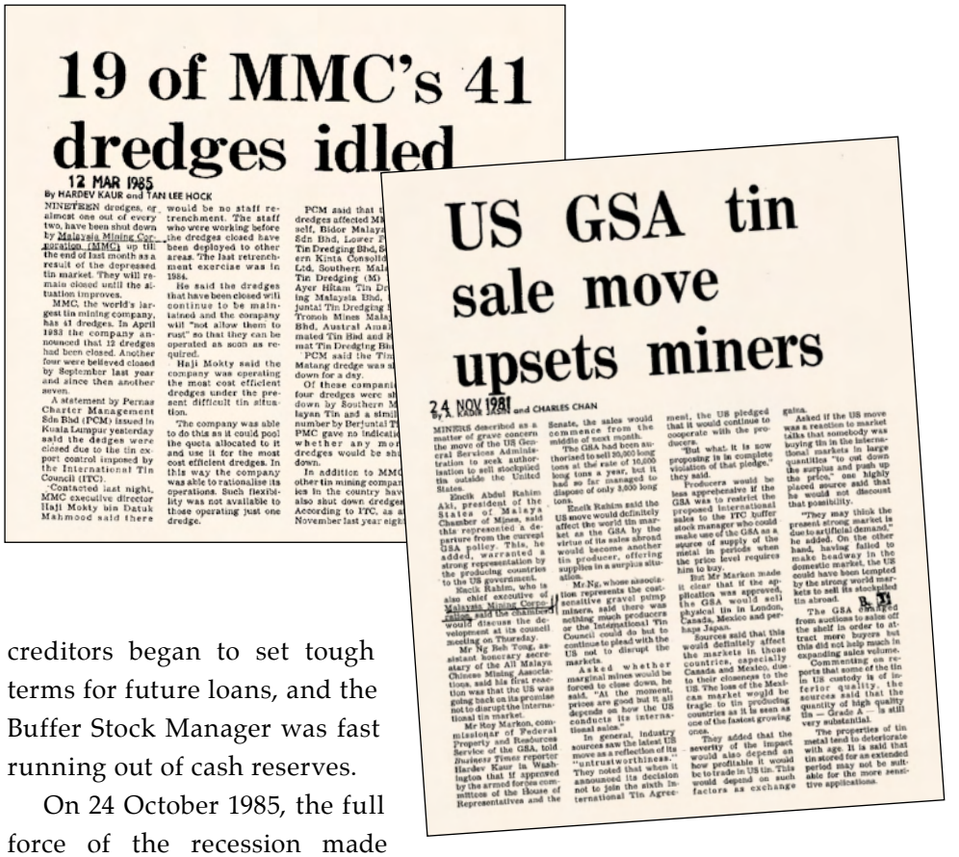
Hew (2002) and Gibson-Jarvie (1986) provide an insight of the chain of events that led to the collapse of the tin market in 1985. The first set of three ITAs began between tin producers in 1931, and was effective until the outbreak of World War I. The second set of six ITAs began in 1956, with the same objectives. This time, they included consumers as well. The first four ITAs were relatively free of friction, but the fifth ITA later turned out to be thorny. It permitted the Buffer Stock Manager to trade forward on the London Metal Exchange. At the same time, the price reference, hitherto in pound sterling, at the London Metal Exchange was shifted to

Penang and priced in Malaysian ringgit per picul (later in kilograms). The ringgit was then pegged to the US dollar.

The sixth ITA came into force in the midst of the recession of 1982. Tin consumption was down, and non-ITC members such as Brazil and China were flooding the market. Export control became ineffective as the ITC now controlled less than 60 per cent of world production. The ITC became burdened with excessive stockpiles, while it continued to support the floor price with heavy borrowings. To finance its stockpiling activities, the ITC borrowed nearly $500 million from 16 international financial institutions. The creditors began to set tough terms for future loans, and the Buffer Stock Manager was fast running out of cash reserves.







19 of MMC's 41 dredges idled

12 MAR 1985

By HARDEV KAUR and TAN LEE HOCK

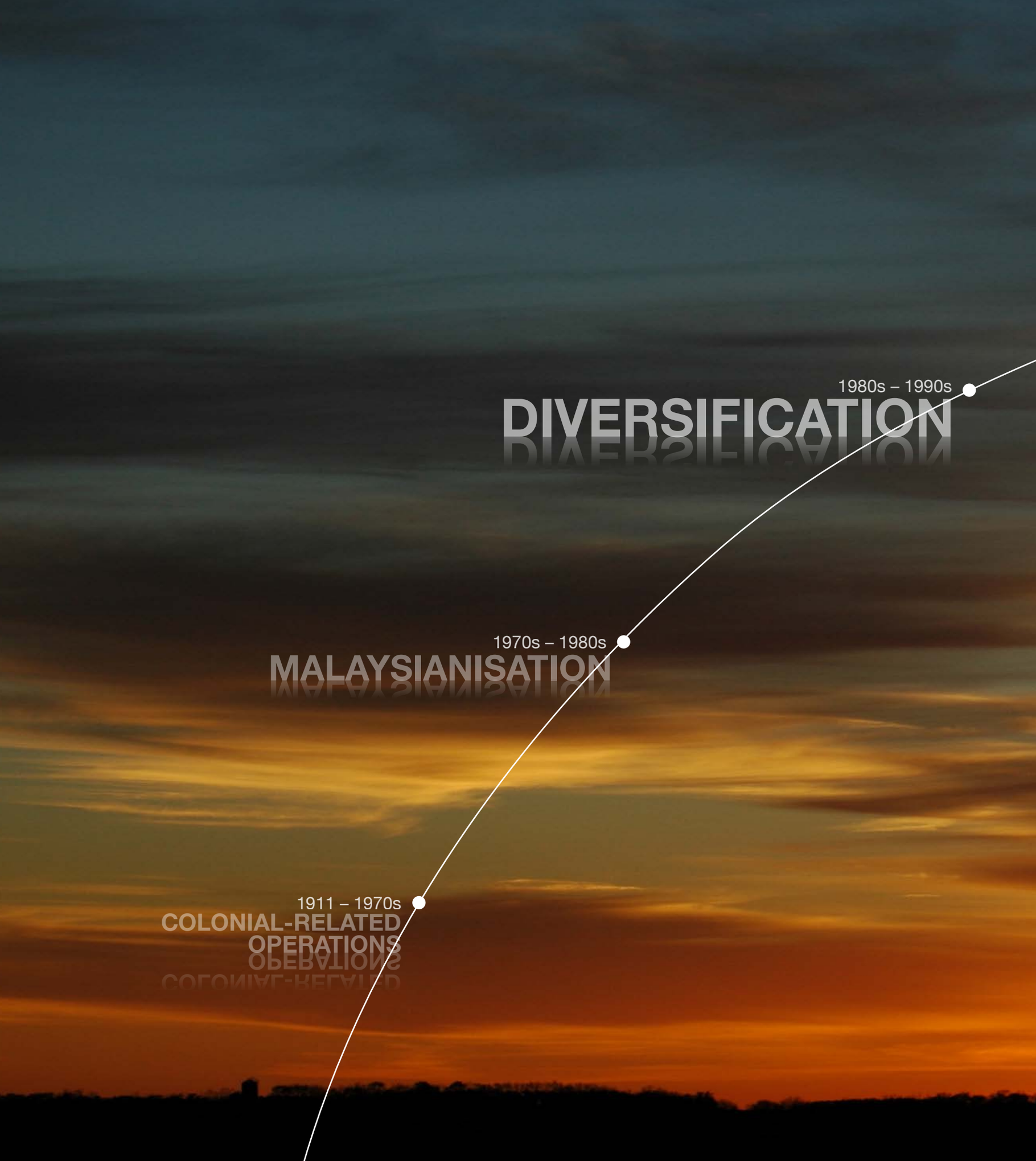
US GSA tin sale move upsets miners

24 NOV 1981

By KAMA JASIN and CHARLES CHAN

On 24 October 1985, the full force of the recession made itself felt. The US dollar collapsed. The devaluation of the dollar against the pound meant the ringgit also devalued against the pound. The Buffer Stock Manager's position deteriorated rapidly as the fall in sterling-denominated tin prices led not only to margin calls from brokers but also requests for additional collaterals from bankers. On the same day, the Buffer Stock Manager informed the London Metal Exchange that the ITC would not be operating in the market, effectively defaulting on all purchase contracts. Tin trading was suspended on both the London Metal Exchange and the Kuala Lumpur Tin Market.

When tin trading resumed at the Kuala Lumpur Tin Market on 3 February 1986, tin price averaged RM19.56 per kg for the month, dropping further to RM14.69 per kg in April, compared to the pre-crash price of RM29.75 per kg on 23 October 1985. Prices continued to languish for more than a decade, and tin mining activities declined. Mines suffered forced closures, and thousands lost their jobs. MMC began to dismantle its dredges, many of them were sold as scrap. Staff were retrenched, and offered attractive severance packages to soften the blow of unemployment. Once feted as a global mining giant, MMC was now staring into an uncertain future. ■


1980s – 1990s
DIVERSIFICATION
1970s – 1980s
MALAYSIANISATION
1911 – 1970s
COLONIAL-RELATED
OPERATIONS

2000 onwards

TRANSFORMATION

PART 3

Paradigm Shifts

Three bold moves transformed Malaysia Mining Corporation Berhad from a tin mining giant to a diversified conglomerate. First, the homecoming of London-domiciled tin mining companies. Second, the Group's exit from tin mining altogether. Third, the reinvention of the Group in line with the economic growth sectors of 21st century Malaysia.

CHAMPIONS OF CHANGE

"To improve and sustain the progress and prosperity that we have achieved would require a great deal of human talent and technical competence of the highest order… We can achieve this if there is an alliance – an alliance of ideas and an alliance of efforts between the people and Government. Let us go forward together, steadfast and unswerving in our resolve to bring even greater progress to our people."

Malaysia's second Prime Minister Tun Abdul Razak, 28 August 1967
(at the 10th Anniversary of Independence Exhibition held in Kuala Lumpur)

Abdul Rahim Aki
Group Chief Executive
25 November 1976 – 3 May 1984

Dato' Junus Sudin
Chairman
10 October 1981 – 31 December 1981
13 October 1977 – 19 September 1979

Raja Badrol Ahmad
Chairman
20 September 1979 – 10 October 1981

Tan Sri Dato' Mohd Desa Pachi
Group Chief Executive
4 May 1984 – 31 December 1984
Executive Chairman
1 January 1982 – 4 May 1984

Tan Sri Dato' Nasruddin Mohamed
Chairman
4 May 1984 – 1 September 1996

Tan Sri Ibrahim Menudin
Group Chief Executive
1 March 1986 – 7 September 2001

Tan Sri Dato' Jaffar Hussein
Chairman
5 September 1996 – 11 August 1998

Raja Tan Sri Muhammad Alias Raja Muhammad Ali
Chairman
25 September 1998 – 16 June 2000

Dato' Wira Syed Abdul Jabbar Syed Hassan
Chairman
7 July 2000 – to date

Dato' Seri Ismail Shahudin
Group Chief Executive
1 August 2002 – 31 March 2006

Feizal Ali
Chief Executive Officer, International
1 March 2008 – 30 April 2010
Group Chief Executive
1 September 2006 – 29 February 2008

Datuk Hj Hasni Harun
Group Managing Director
3 May 2010 – to date
Chief Executive Officer, Malaysia
1 March 2008 – 2 May 2010

The new deal for control of London Tin—and a pledge

Tin industry control to move from London to KL

London Tin's homecoming plan opposed

13 MAY 1977

Malaysian firms take over British tin role

By SUSAN BEVAN

11 JUN 1977

London Tin to hold EGM to consider Pernas' offer

23 JUN 1976

A stubborn giant gets a big heave-ho

31 JAN 1978

Pernas Charter to manage top mining firms

30 July 1976
Pernas Securities' New Tradewinds Sdn Bhd acquires London Tin Corporation Ltd. Transfer of domicile to Malaysia – formation of London Tin (Malaysia) Berhad.

10 May 1977
New Tradewinds Sdn Bhd acquires Malayan Tin Dredging Ltd. Transfer of domicile to Malaysia – formation of Malayan Tin Dredging (M) Berhad.

2 January 1978
New Tradewinds renamed and listed as Malaysia Mining Corporation Berhad.

3 April 1981
Permodalan Nasional Bhd acquires Malaysia Mining Corporation Berhad.

10 October 1981
Malayan Tin Dredging Berhad merges with Malaysia Mining Corporation Berhad. Enlarged group named Malaysia Mining Corporation Berhad.
(The older Malaysia Mining Corporation Berhad is renamed MMC (1976) Berhad.)

MMC-MTD merger means more public control over tin

17 SEP 1981

Bringing tin under national control

16 SEP 1981

MMC-MTD MERGER

The making of the giant tin company

10 OCT 1981

BUSINESS TIMES FOCUS ON WORLD TIN INDUSTRY

Giant Bumi tin group in the making

2 SEP 1981

By TOH YEE LIAM

GROUP RESULTS: PAGE 5

MINING FIRMS AGREE TO MERGE

25 AUG 1981

Chapter 8

The Changing of the Guard

Mergers, acquisitions and takeovers were the order of the day in the 1970s, resulting in the homecoming of British-based mining companies and the formation of Malaysia Mining Corporation Berhad (MMC) on 10 October 1981.

On 16 May 1975, a mystery buyer bought two million shares of the London Tin Corporation Ltd (LTCL). The buying spree continued discreetly over the next eight days, until more than 20 per cent of the British mining giant was taken over. The identity of the buyer was unveiled: Tradewinds Sdn Bhd, a subsidiary of Malaysian investment company, Pernas Securities Sdn Bhd.

It was a daring 'raid' that stumped the international investment community. The brainchild of Perbadanan Nasional Bhd (PERNAS) Chairman Tengku Razaleigh Hamzah, the transactions were part of a calculated move to gain control of Malaysia-based tin mining companies listed on the London Stock Exchange, and subject to the decisions of British shareholders. The game had just begun…

PERNAS Chairman, Tengku Razaleigh Hamzah, masterminded the homecoming of several UK-based tin mining companies that derived their revenues from operations in Malaysia. This eventually led to the formation of Malaysia Mining Corporation Berhad in 1981.

The LTCL traces its beginnings to the Anglo Oriental Mining Corporation of London that was established in 1925, and had investments in the United Kingdom, Nigeria, Burma, Thailand and Malaysia. The investment company expanded its reach rapidly as demand for tin surged, and it became a powerful international corporation with a strong influence on tin production and pricing patterns. It subsequently set up the London Tin Syndicate (later renamed London Tin Corporation) to monitor its investments. The powerful LTC also acted as a registrar of tin mining companies.

A subsidiary was established in Malaya, called the London Malayan Tin Trust, which was responsible for 10-12 per cent of the tin output in the country. It also established Anglo-Oriental (Malaya) Ltd (AO) to provide management and technical services in Malaya. In the 1950s, AO acted as an agent for mining companies such as Kampung Lanjut Tin Dredging, Kramat Tin Dredging, Kuala Kampar Tin Fields, Larut Tin Fields and Lower Perak Tin Dredging.

ACT 1: Take-over of London Tin Corporation Ltd

Tengku Razaleigh had set his sight on the take-over of LTCL, the world's largest tin group. Tin was one of the twin pillars of the Malaysian economy for decades, yet ownership of premier Malaysian mines continued to be in colonial hands years after independence. Other miners were mainly Chinese, and the government reasoned that the acquisition of foreign-owned mines by the recently-established government vehicle PERNAS would increase bumiputera participation in the industry *(refer to box story: MMC and the New Economic Policy).*

PERNAS shopped for a partner for the take-over of LTCL valued at £34 million. The first partnership with Haw Par Brothers fell through because the latter could not raise funds for the general offer. The second partnership with Charter Consolidated Limited proved successful. Charter Consolidated had been eyeing LTCL for some time, and the PERNAS overture represented a timely meeting of minds. Charter Consolidated had invested heavily in Malaysia's tin mining industry since the mid-1960s, and its management arm Associated Mines had several big tin producers under its wing.

"The London Tin Corporation Ltd take-over is a feather in the cap of Pernas Securities. It also brings nearer the day when there will be the fair division of corporate holdings that is one of the chief aims of the New Economic Policy."

New Straits Times
(11 June 1976)

SUNGEI BESI MINES MALAYSIA BERHAD *(top and above): MMC once owned and operated the world's largest and deepest open cast tin mine. Located near the Kuala Lumpur–Seremban highway, it covered about 550 hectares and had deep alluvial deposits. Mining here began in 1909, and the mine was eventually closed with the depletion of reserves and high production costs. Today, the area has been rehabilitated into a lakeside residential and commercial development called Mines Resort City.*

MMC and the New Economic Policy

In November 1969, the government established an agency called Perbadanan Nasional Bhd (PERNAS) to promote greater participation of bumiputeras, particularly Malays, in the economy of the country. This decision came in the aftermath of the country's worst race riots in May 1969, which drew attention to the cracks in nation-building. The resounding message of the riots is that while independence had resulted in a shift of political power from British to Malay, there was no corresponding shift of economic power.

The New Economic Policy is the brainchild of Malaysia's second Prime Minister Tun Abdul Razak.

Then, in 1971, the government unveiled the New Economic Policy (NEP) to correct this imbalance. The NEP was an affirmative action programme that sought to empower bumiputeras to play a bigger role in the economy. A key NEP goal was to increase bumiputera corporate ownership to 30 per cent by 1990. Several government agencies were incorporated to achieve this agenda, and leading the charge was PERNAS. Among its priorities was to increase the bumiputera stake in foreign companies, especially those involved in tin mining and plantation agriculture, the twin pillars of the Malaysian economy. They were mainly British investments that occurred during the colonial period. PERNAS succeeded in acquiring key companies, notably Malayan Tin Dredging Ltd, London Tin Corporation Ltd, Sime Darby Ltd and the Guthrie Group.

To encourage private bumiputera individuals to participate in the corporate market, PNB launched a unit trust scheme known as Amanah Saham Nasional. It was launched in 1979 by Tun Hussein Onn, Malaysia's third Prime Minister.

Another driver of the New Economic Policy is Permodalan Nasional Berhad (PNB), which was established in 1978 to accumulate and manage capital on behalf of bumiputeras. Several PERNAS acquisitions were eventually transferred to PNB, and they included Malaysia Mining Corporation Berhad (MMC).

The merger of MMC and Malayan Tin Dredging Berhad was a NEP landmark. Malaysia's *Business Times* (19 October 1981) declared:

With the merger of Malaysia Mining Corporation and Malayan Tin Dredging, bumiputeras are now a force to be reckoned with in the tin mining industry. With a single stroke, the merger brings bumiputera ownership in tin mining closer to 30 per cent, in keeping with the New Economic Policy. Increased bumiputera ownership is effected by Permodalan Nasional Berhad, which will eventually hold 56.6 per cent of the new enlarged company to be named Malaysia Mining Corporation Berhad.

Control of the LTCL would strengthen its mining operations in Malaysia.

Tengku Razaleigh mobilised a small committee to handle the bid for London Tin Corporation. It consisted of PERNAS directors Dato' Junus Sudin (who later replaced Tengku Razaleigh as PERNAS Chairman, and served as MMC Chairman from 1977 to 1979 and 1981) and Raja Badrol (MMC Chairman, 1979-1981), both members of the London Tin Board. Also in the team was Azman Hashim, with NM Rothschild & Sons appointed as the financial advisor. For the take-over bid, partners Pernas Securities and Charter Consolidated formed a special purpose vehicle called New Tradewinds Sdn Bhd. Pernas Securities took up a 71.35 per cent stake while Charter Consolidated had a 28.65 per cent interest in New Tradewinds. Charter Consolidated paid for its share by injecting into the new company Tronoh Mines Sdn Bhd, Ayer Hitam Mines Sdn Bhd and Sungei Besi Mines Sdn Bhd, after changing their domicile from London to Malaysia.

The bid for the LTCL caused a stir among minority shareholders of the parent company as well as quoted subsidiaries. They feared the loss of a steady flow of dividend payments, and voted against the take-over and transfer of domicile from London to Kuala Lumpur.

UPGRADING TECHNICAL SKILLS
The MMC Apprentice Training Centre was established in Tanjung Tualang, Perak to ensure a continuous supply of skilled artisans in the mines. The self-contained vocational college offered apprenticeships in both mechanical and electrical trades. The centre's first batch consisted of 355 apprentices, 74 per cent (263) of whom were bumiputeras.

MINES Resort City in Selangor is a tourist attraction located on the site of Sungei Besi Mine, once the world's largest and deepest open cast tin mine owned by Malaysia Mining Corporation Berhad.

The British Government was more conciliatory and understood Malaysia's aspirations to take control of its main natural resource, and the Bank of England and Take-over Panel assisted by including the dollar premium in the bid price. Complex negotiations followed. Ivan Fallon wrote in the *Daily Telegraph (April 1977)*:

"The City Take-over Panel formula is a painstakingly worked-out compromise, the one solution which it offered in what has become one of the most bitter and protracted bid situations on record."

For PERNAS, the delay proved a blessing. The Malaysian ringgit had risen, and the bid price fell. Instead of paying the full bid price of 197 3/16 pence per share, the 43.51 per cent dollar premium reduced PERNAS outlay to 137.4 pence per share (RM3.02 per share). On 30 July 1976, LTCL was officially sold. The British Group entered into voluntary liquidation, and all assets and liabilities were transferred to the Malaysia-based New Tradewinds Sdn Bhd, which became the fourth largest tin miner in the world.

1979: Malaysian delegation at the International Tin Research Institute in London (ITRI). ITRI is the headquarters of the International Tin Research Council that was established in 1932 to maintain and extend the uses of tin. Until the collapse of the tin market in 1985, it was financed by six of the major tin producing countries of the world: Bolivia, Indonesia, Malaysia, Nigeria, Thailand and Zaire. Australian tin producers made voluntary annual contributions. ITRI's laboratories are located at its headquarters in Greenford, Middlesex, London.

It was pretty rough going, but Pernas Securities and Charter Consolidated's special purpose vehicle New Tradewinds never deviated from its course. Slowly and steadily, it emigrated one UK-public listed mining company after another to Malaysia.

ACT 2: Take-over of Malayan Tin Dredging Ltd

PERNAS had slayed the dragon LTCL. Exhilarated by the exercise, New Tradewinds launched another take-over bid the following year. The target this time was Malayan Tin Dredging Ltd and its crown jewels: Southern Malayan Tin Dredging Ltd, Southern Kinta Consolidated Ltd, and Kamunting Tin Dredging Ltd. They were quoted companies still listed in the British bourse.

Again, it was a pretty rough going, but New Tradewinds never deviated from its course. Slowly and steadily, it emigrated one public listed mining company after another to Malaysia. Newspapers in Malaysia and the UK had a field day reporting on the complexity of the deals right up to the minutiae of final dividend negotiations with shareholders.

On 10 May 1977, the shareholders of Malayan Tin Dredging Ltd approved the change of domicile. Over the next couple of years, all assets and liabilities of the Malayan Tin Dredging Ltd were transferred to Malaysia.

It was a victorious homecoming of tin mining companies that had for decades made money in Malaysia and repatriated profits back to London.

Sri Dermawan, One of the World's Largest Tin Dredges

On 26 September 1982, the Sultan of Perak launched Sri Dermawan. The RM26 million dredge was owned by Timah Dermawan Sdn Bhd, a joint venture between Malaysia Mining Corporation Berhad (40 per cent), Perak State Development Corporation (30 per cent) and Tronoh Mines Malaysia Berhad (30 per cent).

Sri Dermawan was notable for the revolutionary moulded rubber screen plates fitted to its twin trommel screens. These rubber plates were more efficient than the steel plates commonly used. This innovation was developed locally, and incorporated into the dredge that was designed and constructed by Malaysia Mining Corporation's subsidiary Pernas Charter Management Sdn Bhd.

MMC's first Group Chief Executive Abdul Rahim Aki (left) and JW Bridewell at the 66th Annual General Meeting of the States of Malaya Chamber of Mines in May 1977. Rahim Aki replaced Bridewell as the Chamber's first Malaysian president.

In the 1980s, tin mining concessions were awarded to MMC to explore minerals and operate mines in partnership with state government agencies. MMC signed a joint venture agreement with Kumpulan Perangsang Selangor in 1980 (above) to exploit deep-seated tin deposits in a 4,000-acre mine in Ladang Brooklands, Kuala Langat, Selangor.

On 2 January 1978, New Tradewinds Sdn Bhd was renamed Malaysia Mining Corporation Berhad, and listed on the Kuala Lumpur Stock Exchange.

Act 3: Rationalisation of Resources

Following its triumphs in the UK, New Tradewinds quickly settled down to rationalising its new acquisitions. First on the agenda were new boardroom appointments for companies in the reconstituted London Tin (Malaysia) Berhad (LTMB) to represent the new shareholder. The new board appointments included Junus Sudin as Chairman, and Raja Badrol Ahmad, Azman Hashim, Lee Siew Choong and AJW Owston as Directors.

Another priority was the appointment of a Group Chief Executive for LTMB. Rahim Aki was selected for this position. A contemporary of former PERNAS Chairman Tengku Razaleigh Hamzah at Queen's University, Belfast, Abdul Rahim was an economist who had worked in both the public and private sectors. As Malaysian Trade Commissioner in London between 1972 and 1973, Abdul Rahim had served as a permanent delegate to the International Tin Council. This experience served him well.

In 1981, Malaysia Mining Corpration Berhad signed an agreement with the Kedah State Government to explore and develop the state's mineral resources. This was the fourth such agreement between MMC and state governments. Similar agreements were concluded with the state governments of Johor, Kelantan and Negeri Sembilan. Gold and base metals were prospected in Kelantan, while tin bearing areas were identified in Negeri Sembilan.

Goodbye and...

Thank You!

1. ***Mike Russell*** *bade farewell after 30 years in Malaysia. Mike first came to Malaysia at the age of two with his parents to visit his grandfather who was based here. The country must have left a lasting impression because he headed back after graduating from the Colorado School of Mines in 1953 at the age of 22. He climbed the ladder of success, and served as chairman of Anglo Oriental in 1977 prior to his appointment as a director of Pernas Charter Management Sdn Bhd. He retired as MMC General Manager, Mining Operations in 1984.*

2. ***WB Freear*** *retired as mine manager of MMC Kampong Gajah, Perak in 1984, after 30 years in the company. Keen on local history, the Englishman amassed a fine collection of local artifacts that he planned to display in his 'Malaysia Room' back in his home in Cornwall.*

3. ***George Cummings***, *who worked with the company for 26 years, at his farewell dinner in 1985 at the Southern Malayan Tin Dredging Staff Club in Tanjong Tualang, Perak*

4. *Farewell Dinner for* ***CJ Forristal*** *(centre) in 1983 with Rahim Aki (left) and Tan Sri Dato' Mohd Desa Pachi (right).*

He says, "Following the acquisition of the London Tin Corporation, the group was leaderless. Moreover, we found ourselves owning two large dredge management companies – London Tin's Anglo-Oriental and Charter Consolidated's Associated Mines. Both were successful operations, but had their own management style and business culture.

"My immediate task was to oversee mining operations and ensure the sustainability of the Group. To achieve this, we had to restructure and consolidate the assets of the London Tin Corporation and Charter Consolidated. Many of them still had companies listed on the London Stock Exchange and this rendered the exercise more complex, difficult and protracted. There was also the difficult task of bringing staff of the two groups together.

"In January 1978, New Tradewinds Sdn Bhd was renamed Malaysia Mining Corporation Berhad, and subsequently listed on the Kuala Lumpur Stock Exchange. LTCL went into voluntary liquidation and transferred its investments, other than those in Australia, to Malaysia Mining Corporation Berhad. This represented a clean break from the United Kingdom.

"We also formed Pernas Charter Managment Sdn Bhd to manage mines previously operated by Anglo-Oriental (Malaya) Ltd and Associated Mines. This helped bridge differences between the two strong players and staff found themselves united under a common owner."

"When we first sought to buy back Malaysian companies, we were met with open hostility. But the way we went about making our bid revealed a sophistication no one suspected Malaysia had."

A Doctor in the House, The Memoirs of Tun Dr Mahathir Mohamad (2011)

4th and Final Act: The formation of Malaysia Mining Corporation Berhad

In 1981, a new actor entered the stage: Permodalan Nasional Berhad, better known as PNB. Incorporated on 17 March 1978, PNB is a government linked company entrusted to increase bumiputera equity in the corporate sector as well as create opportunities for qualified bumiputera professionals to participate in national wealth creation and management.

On 3 April 1981, PNB acquired New Tradewinds (M) Sdn Bhd's 71.35 per cent stake in Malaysia Mining Corporation Berhad. Next, Malayan Tin Dredging (M) Berhad and parent Malaysia Mining Corporation Berhad, transacted a share swap. PNB's Sime Darby for Malaysia Mining Corporation Berhad's Malayan Tin Dredging. Prior to the deal, PNB did not have a direct stake in Malayan Tin Dredging; its shareholding was through Malaysia Mining Corporation Berhad. Now, PNB was the direct owner of Malayan Tin Dredging (34.9 per cent) as well as Malaysia Mining Corporation Berhad (71.35 per cent). The other owner of MTD was Charter Consolidated Ltd.

The stage was now set for the merger between the two public listed companies Malaysia Mining Corporation Berhad and Malayan Tin Dredging (M) Berhad that occurred in two stages. *The Star* Business Editor PY Chin wrote on 26 August 1981:

"One cannot really call the whole deal a merger in the true sense of the word. It is more an outright purchase of Malaysia Mining Corporation by MTD, from its two shareholders, PNB and Charter Consolidated; payment for which is through the issue of new shares.

"Basically, the deal calls for MTD to issue 205 million new shares of 10 cents each as the first stage for the 11.208 million shares in Malaysia Mining Corporation Berhad (8.343 million held by PNB and 2.865 million by Charter Consolidated).

THE MMC BUILDING *in Jalan Tangsi, Kuala Lumpur was built by Anglo Oriental (Malaya) Ltd in 1937. It served as the management office for Malaysian mines belonging to the London Tin Corporation Ltd. During World War II, it was the headquarters of the Japanese Military Police until Anglo Oriental regained possession of it in 1948. The company remained there until the formation of Pernas Charter Management Sdn Bhd in 1978. That June, the building became the corporate head office of Malaysia Mining Corporation Berhad until it moved to the PNB building (next page) in 1984.*

MMC Head Office, Kuala Lumpur

Menara PNB (1984 – 2001)

HP Tower (2001 – 2007)

Kompleks Antarabangsa (2007 – to date)

Visitors to the World's Largest Tin Mining Company

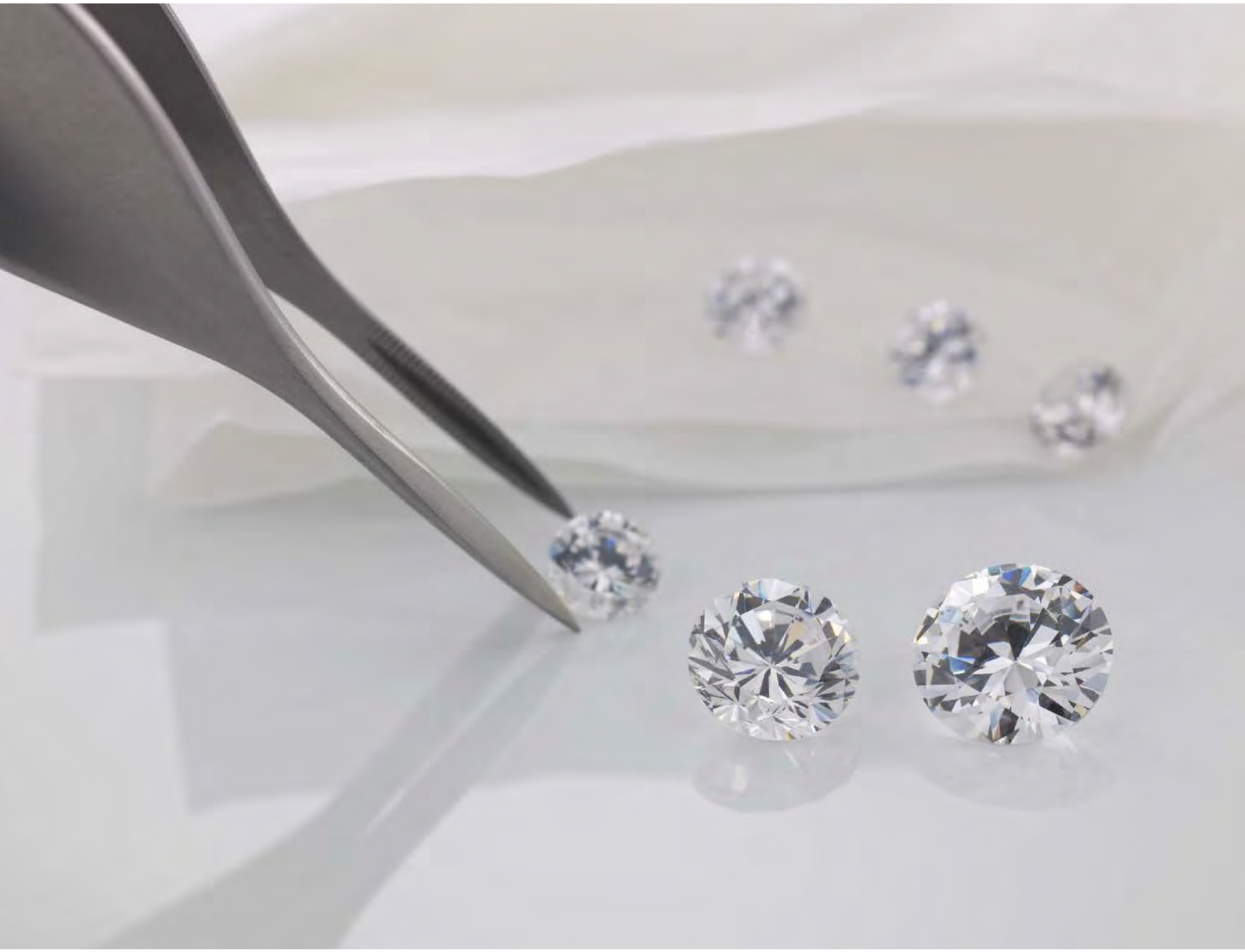
The 1980s and 1990s saw streams of visitors to Malaysia Mining Corporation, many of them high ranking delegations that wanted to learn from the success of the mining giant. They came from near and far, for briefings at the head office before touring tin mines in the Group's stable of companies.

1. *The Yemeni delegation led by Petroleum and Mineral Resources Minister HE Mohd Khadim A-Waqih (centre).*
2. *The Zambian delegation led by Francis Kaunda (second left back row), Chairman and Chief Executive of Zambia Consolidated Copper Mines Ltd (CCML), at Bidor Tin Dredging. CCML was then the second largest producer of copper in the world.*
3. *President of the National Assembly of Yugoslavia HE Vojo Srezestic and his 6-man party at Berjuntai Tin Dredging.*
4. *Namibia's Deputy Minister of Trade and Industry Anton van Wietersham (centre) with the Permanent Secretary to the Prime Minister's Office Petrus Danaseb (right) and Wisma Putra official Jamal Hassan, at a briefing session.*
5. *Officials from Papua New Guinea's Ministry of Environment at Bidor Tin Dredging.*

On 10 October 1981, Malaysia Mining Corporation Berhad became the world's largest tin mining group with some 6,000 employees. It was sweet victory for Malaysia.

"Stage Two is necessary only in the context of the joint venture deal MMC has with Straits Trading to set up Malaysia Smelting Corporation (MSC) that was still to be completed, mainly the legal paper work. Hence, the additional 33.3 million MTD shares to be issued (23.76 million to PNB and 9.54 million to Charter Consolidated) could be basically valuing the 42 per cent stake MMC will be having in the MSC venture."

By 10 October 1981, the merger exercise was completed, with MTD as the parent company, and MMC, the subsidiary. MTD adopted the name Malaysia Mining Corporation Berhad, while the older namesake is renamed MMC (1976) Berhad. The merger created a formidable force, with Malaysia Mining Corporation Berhad becoming the world's largest tin mining group with some 6,000 employees. It was a sweet victory for Malaysia. ■



With tin mining regarded as a sunset industry, Malaysia Mining Corporation began to prospect for other types of metals such as diamonds, gold and base metals, both in Malaysia and overseas.

Chapter 9

The Search for a New Identity

After decades of being a tin miner, Malaysia Mining Corporation Berhad began to widen its business base. Diversification became the catch-cry of the Group as it ventured into mining other metals as well as into engineering, manufacturing and marketing.

The collapse of the London Tin Market in October 1985 sent the industry into a tailspin. Prices fell sharply, and producers around the world fell like dominoes. It was a long and painful recovery over many years. For Malaysia Mining Corporation Berhad (MMC), the lustre of tin had dimmed forever. Tin, a pillar of the Malaysian economy for much of the 20th century, slipped under the shadow of the oil & gas and manufacturing sectors that began to shine as the new engines of national growth.

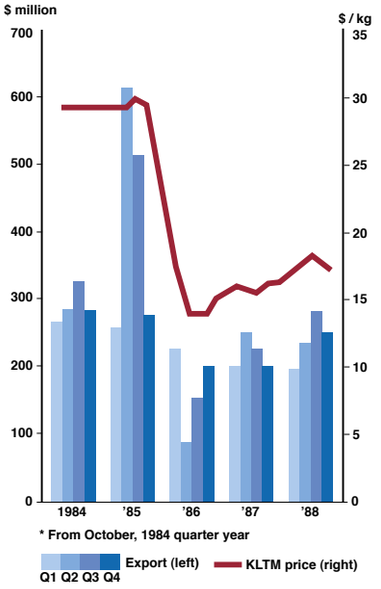
The decline of Malaysia's tin industry was on the wall since the 1970s. Abdul Rahim Aki, the first group chief executive appointed in 1976 following the triumphant homecoming of London-based tin companies, says: "From the start, I was confronted with the task of diversifying activities to counter the group's declining tin reserves that had begun to impact on income. On hindsight, bringing the tin industry home was a victory politically, but it was not a wise move commercially."

The 1980s and 1990s were tough times for MMC. It was a period of transition for the mining giant that had to reinvent itself from a single product company into multiple sustainable businesses. "Diversification" became its clarion call, and the integrated mining giant began to grow in different directions.

The road ahead was bumpy, and there were several hits and misses in the Group's quest for sustainable businesses. In 1987, partner Charter Consolidated Ltd called it a day. It divested its interest in MMC that was referred to as a "passive investment" since there was "no active participation in technical management of operations".

In 1992, MMC exited tin mining altogether. The Group's mining operations had for some time been crippled by depleting tin reserves, high production costs, stringent export controls imposed by the London Metal Exchange and massive overhang of tin stocks in world markets. Dredges

Tin – Export and Price



Source: Economic Report 1988/89 Ministry of Finance, Malaysia reproduced by Berita MMC, May 1989

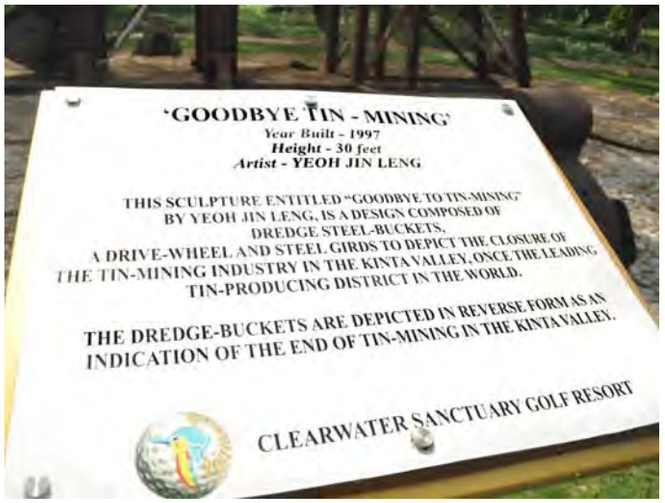
Total employment

July 1980	June 1982	June 1983
40,000	33,070	26,992

Total number of mines

June 1980	June 1982	June 1983
895	733	568

Source: Berita MMC May 1989



Bucket belt of a tin dredge at the Sanctuary Golf Resort, Batu Gajah, a rehabilitated tin mine. This is the legacy of the glorious tin heritage of Perak's Kinta Valley.

lay idle, highly specialised staff became underemployed, and tin revenues were modest. It was the end of an illustrious journey in tin mining, not only for the Group but also the staff. Many had to be re-trained and redeployed. For those who could not be retained, MMC drew up attractive retrenchment packages while it worked on how best to survive hard times.

Transforming into an international mining house

Given its experience and expertise, the Group continued to concentrate on mining, albeit other minerals, until 2000. The net was cast wider to include precious and base metals, both in Malaysia and overseas.

In Malaysia, the Group's Exploration Department was involved in copper prospecting in Mengapur in Pahang, following the discovery of mineral-rich deposits by the Canadian International Development Agency and the Geological Survey Department of Malaysia in 1980. It was a high-cost venture with a long gestation period, and was eventually abandoned.

In Kelantan, the discovery of gold in Pulai, near Gua Musang, resulted in a joint venture between MMC Berhad and a state government agency to operate a gold mine. Barite prospecting was also undertaken here, and tungsten deposits were found at the Ketengah prospect in Terengganu.

The Group also shed its image as a provincial miner and stepped out under the Group Chief Executive Tan Sri Ibrahim Menudin's 1990s rallying call. "The world is our hunting ground." MMC hoped to locate lodes of various types of minerals in different countries with the vision of becoming a diversified international mining group.

The lure of gold and diamond saw exploration crews heading overseas, prospecting in USA, Canada, China, Indonesia, Thailand, Laos and Vietnam. Regional offices were set up to oversee international operations. The regional office in Vancouver, Canada, for example, became the base for gold prospecting in California and Oregon in USA and Yukon in Canada. In Indonesia, MMC was beckoned by gold in West Java and Kalimantan's gold and diamond deposits. In Papua New Guinea,

The Menteri Besar (Chief Minister) of Pahang Dato' Sri Mohd Najib Tun Hj Abdul Razak at the Mengapur exploration site, where MMC began prospecting for minerals in a joint venture arrangement with state agency Syarikat Permodalan dan Perusahaan Pahang Berhad. A regional geochemical survey conducted between 1976 and 1980 showed deposits of silver, lead, copper, arsenic, zinc and molybdenum in the area.

Bulk sampling in a gold prospect in British Columbia, Canada.

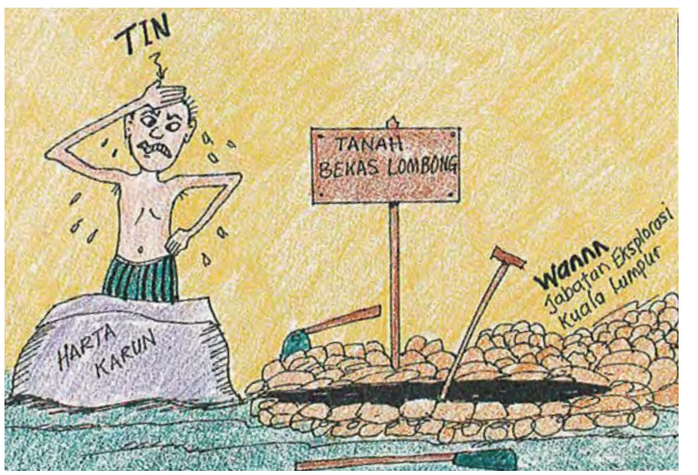
MMC was invited to participate in a gold mining project in Lihir Island, deemed the largest undeveloped gold mine in the world.

In China, the Group entered into joint exploration and development activities with the China National Non-Ferrous Metals Industry Corporation to explore for placer tin and ilmenite. At the same time, it signed a letter of intent with the Yunan Bureau of Geology and Minerals to develop ilmenite deposits.

Unfortunately, exploration was costly, and returns on investment were slow to realise. In an interview with *Berita MMC* (October, 1983), Faisal Siraj, Executive Director (Finance), said:

"To successfully implement our exploration and diversification programmes, we need substantial funds. We view this as a challenge because the present economic climate is not the best time to secure funding on favourable terms."

All was not in vain. Diamonds became MMC's best friend when its investment in Melbourne-based Ashton Mining Limited paid off. Ashton had a substantial stake in the Argyle Diamond Mine in Australia, then the largest diamond mine in the world.



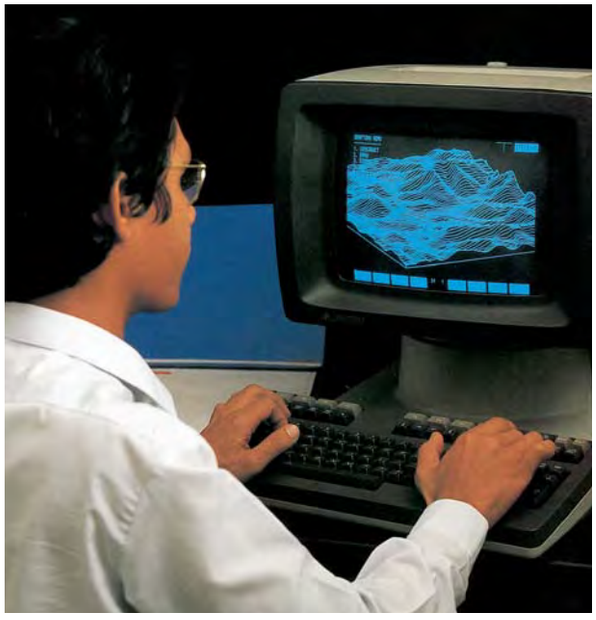
"Our mood this year is one of despondency. The tin industry worldwide is experiencing its worst ever period. The situation is highlighted by the Malaysian mining industry that operates in a contrasting condition of a booming economy."

Malaysia Mining Corporation Group Chief Executive
Tan Sri Ibrahim Menudin
in his address as President of the Malaysia Chamber of Mines at the Annual General Meeting on 30 May 1991

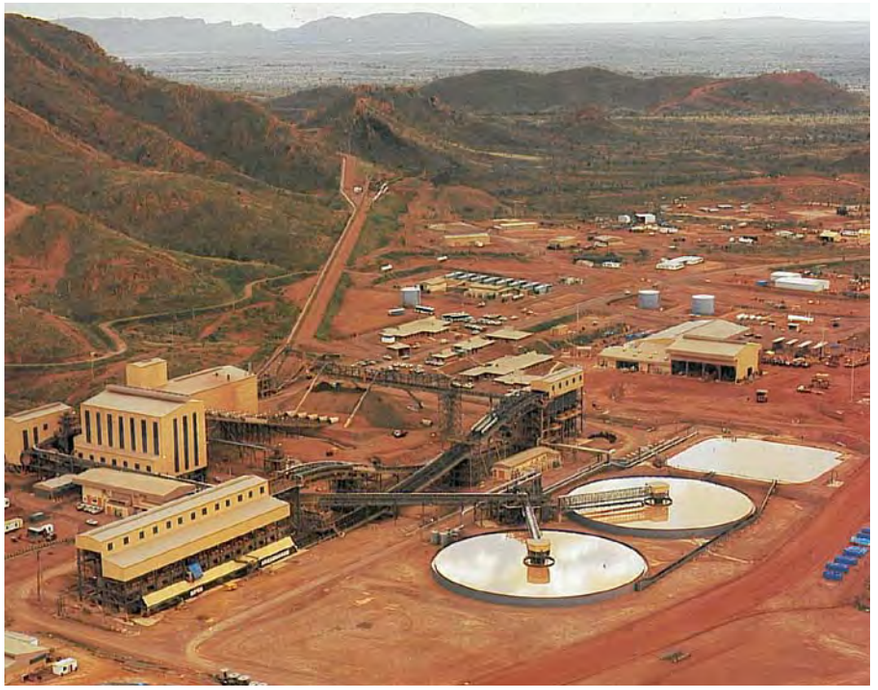
MMC established Diamond Cutting (M) Sdn Bhd in Kota Bharu that specialised in diamond cutting. The Group had interests in Ashton Mining that was a major shareholder of the world's largest diamond producer.

Happy Returns

In 2002, MMC began to enjoy returns on an investment made in PT Galuh Cempaka, a joint venture company established in 1995 with Ashton Mining (bought over by Rio Tinto in 2000) to undertake diamond exploration and mining in Kalimantan, Indonesia. Deposits discovered were deemed below expectation, and the project was abandoned. In 2001, PT Galuh Cempaka was sold to Canada's BDI Mining Corporation, which embarked on commercial production. The sale was subject to BDI paying a royalty to MMC upon successful discovery. It came as a nice surprise to MMC, when despite the disposal, royalty pay-out began in 2002, and thereafter as and when production was successful.



MMC Laboratory Services offered a range of analytical and mineral processing services to the exploration, mining, marketing and other departments in the Group. Samples analysed include soils, stream sediments, rocks, drill cores, minerals, ore concentrates, metals and water.



The treatment plant at Ashton Mining Ltd's Argyle's AK-1 diamond mine; Ashton was an associate company of Malaysia Mining Corporation. Note the mine pit in the background. AK-1 began commercial production on 1 December 1995, and made substantial revenue contributions to the Group.

Commercial production from Argyle's AK-1 project commenced in 1985, and made substantial contributions to MMC's coffers over the years.

Ashton also had interests in several gold mines, and they started to gleam on MMC's balance sheets. However, it was through Plutonic Resources, another Australian investment, that the Group struck gold. Plutonic had production mines while new discoveries were still being made.

A year after turning its back on tin mining, MMC began basking in the glitter of its investments in Ashton Mining and Plutonic Resources, which accounted for more than 70 per cent of its profits in 1994. It prompted a reporter to hail MMC a 'gilt edged company' (*Business Times, 11 August 1995*).

Benches ready for blasting at the Argyle mine pit. The processing plant is in the background.

Mining prospectors in Australia.

OLD HAND, NEW GAME *The Group's wholly owned subsidiary Pernas Charter Management redesigned the idling Kamunting No. 5 Tin Dredge for gold mining operations in Sumatra. Field engineers supervised the dismantling of the dredge at Taiping and the subsequent reconstruction in Meulaboh, Acheh for Indo Pacific Resources NL of Indonesia.*

Diamonds became MMC's best friend when its investment in Melbourne-based Ashton Mining Limited paid off. Ashton owned Argyle Diamond Mine in Western Australia, then the largest diamond mine in the world.

Harnessing engineering strengths

Closer to home, MMC rode on the back of iconic projects that had taken off during the boom of the 1980s and 1990s – highways, oil & gas and heavy industries. The Group has one competitive advantage: engineering expertise honed over the years by the mining industry. It had a large in-house pool of engineers, technicians and artisans who had designed, constructed and maintained dredges, planned earth-moving operations, and supervised major river and road deviations. Malaysia faced an acute shortage of these skill sets, and MMC stepped in to fill the vacuum.

The Engineering Division was restructured to provide total engineering solutions, and staff reskilled and redeployed in the new business landscape. When it did not have the relevant skills, MMC forged collaborations, especially with technical and technology partners. It partnered with GTM International, a French civil works and expressway construction group, to build a section of the North-South Highway, from Gurun to Ladang Petani in Kedah. Another highway project in its portfolio was the Butterworth-Kulim Expressway, a toll concession built and operated by subsidiary Konsortium Lebuhraya Butterworth-Kulim Sdn Bhd (KLBK). KLBK staff attended a toll system training course at the joint venture partner CS-Route's head office in Palaiseau, France.

Endurance

"Work on the PGUP II project is hard. The workers had to endure many discomforts – they were stung by bees, attacked by cobras or frightened by tigers, just to name a few hazards."

Norida Hamida, Personnel Executive, MMC Engineering Services reporting in Berita MMC

The Group also became one of the leading local defence contractors in Malaysia. Its workshop in Nilai, Negeri Sembilan overhauled, upgraded and refurbished armoured vehicles for Malaysia's Ministry of Defence. MMC also secured railway engineering contracts for the local assembly and fabrication of rolling stock for national railway company Keretapi Tanah Melayu Berhad.

In 1984, MMC ventured into the oil and gas industry through a joint-venture with McDermott International Inc. MMC-McDermott's first project was the Petronas Carigali Dulang Oilfield project that commenced in 1985 and was completed in 1987. With the completion of this project, the company extended its offshore consultancy and detailed engineering design work to other oil companies such as Esso and Shell. The partnership ended in 1990, and MMC Oil & Gas Engineering Sdn Bhd, as it was renamed, continued to grow from strength to strength.

Another oil & gas venture was pipeline construction. MMC formed a consortium

Peninsular Gas Utilisation Project II: welded pipeline stretching across miles of cleared forest.

NATURAL GAS DISTRIBUTION PROJECT *The exchange of documents following the signing of the joint venture agreement between MMC-Shapadu, Mitsui, Tokyo Gas and Petronas in 1988. Left to right: MMC Group Chief Executive Tan Sri Ibrahim Menudin, Petronas Chairman Tan Sri Azizan Zainul Abidin and Tokyo Gas-Mitsui representatives.*

land search, pipeline route selection and budget preparation study, among other things. "Wherever possible, sophisticated methods were employed."

The Group's experience in gas pipeline engineering was an influential factor in securing the government concession to supply natural gas to industrial, commercial and residential markets. This led to the formation of Gas Malaysia Sdn Bhd, a joint venture between MMC-Shapadu Holdings, Tokyo Gas-Mitsui Holdings and Petronas. Like MMC Oil & Gas, Gas Malaysia is a success story conceived during these soul-searching times.

"The year 1993 witnessed the first full year of performance for the MMC Group without its traditional business of tin mining. MMC's core activity today is mining for gold and diamonds, engineering and construction, marketing and trading, manufacturing and investment holding."

Tan Sri Dato' Nasruddin Mohamed,
MMC Chairman (1984-1996)

MMC subsidiary Pernas Charter Management conducted the site investigation for the KL International Airport development project.

named MMC Gas Sdn Bhd with Jurutera Konsultant (SEA) Sdn Bhd, a local engineering consultant, and NV Nederlande Gasunie, a specialist that had 20 years of experience in gas pipeline technology. The consortium was awarded the Peninsular Gas Utilisation Project II (PGUP II) by project owner Petronas. According to MMC PGUP II Project Manager, Abdul Rashid Sidek, the project involved surveying, soil investigation,

Galeria Sri Perdana

This building, once called Sri Timah, was built by Anglo-Oriental (Malaya) in the 1940s and served as the official residence of the chairman of Malaysia Mining Corporation Berhad. It later became the official residence of the Prime Minister of Malaysia, and was renamed Sri Perdana. Tun Mahathir Mohamed resided here from 1983 until 1999, when the Malaysian Federal Government migrated to the Administrative Capital of Putrajaya. In August 2000, the building was handed over to the National Archives as a conservation and resource centre. It has since been renamed Galeria Sri Perdana and opened its door to the public in December 2003.

Venturing into Oil & Gas Engineering

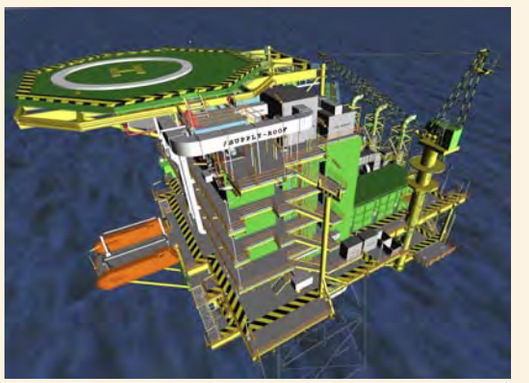
Just when the sun was beginning to set over the tin mining industry, Malaysia saw the dawn of another wealth-generating natural resource: oil and gas.

MMC began to explore this new ground with confidence. It had a large talent pool of engineers, including in mining, with the technical competency and endurance to perform well in hardy conditions. They were the backbone of MMC for decades, and had the potential to be retrained and mobilised as engineers in the oil and gas industry.

In August 1984, the Group ventured into oil and gas engineering in partnership with the US-based McDermott International Inc, a leading engineering, procurement, construction and installation company focused on the offshore oil and gas market. The result was a joint venture company MMC-McDermott. Six years later, in 1990, McDermott divested its share, and the company became a wholly owned subsidiary of MMC and was renamed MMC Oil & Gas Engineering Sdn Bhd.

MMC Oil & Gas Engineering offers a comprehensive range of engineering design services to the oil and gas, and petrochemical industries.

Over the years, MMC Oil & Gas Engineering has built a strong portfolio of clients that include well-established names such as ExxonMobil, Shell Sarawak, Petronas Carigali, Talisman, Murphy Oil, Nippon Oil, Qatar Petroleum and the National Iranian Oil Corporation. To serve them better, the company often forges strategic collaborations with technology partners such as Granherne, Environmental Resources Management (ERM), Trident Consultants, DNV Technica, JP Kenny, INTEC Engineering, and Amec.



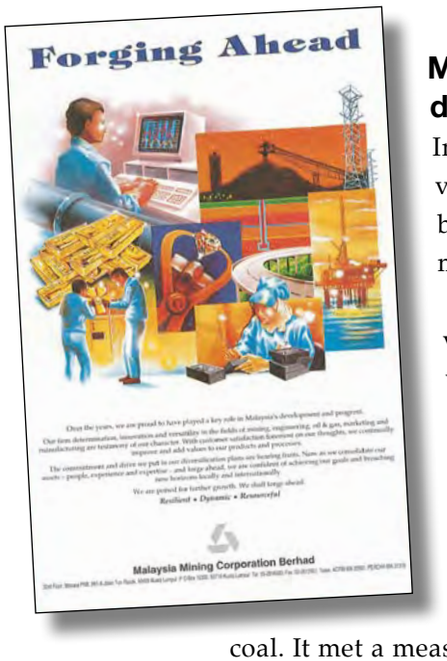
Group Chief Executive Abdul Rahim Aki (1976-1985) sees a silver lining amidst the dark clouds that hovered over the Group then. He notes that joint ventures forged with foreign technology partners have benefitted Malaysians. It resulted in Malaysians, particularly bumiputeras, acquiring new skills, technologies and an international outlook. Some of them later left MMC to join Petronas and other international companies. A few rose to the ranks of CEOs, and a few ventured into business and became millionaires!

MANUFACTURING

Manufacturing alloy steel castings and precision tools for local industries and export markets.

Video tape manufacturer Dana Vision bagged two major awards for its Video Programming System (VPS). The first was a special award in the Innovative Products category, and the second for 'export excellence' for achieving an increase in export value from RM5.7 million to RM22 million in a span of one year.

Weather strip manufacturing at Seginiaga Sdn Bhd, a joint venture between MMC and a group of Korean industrialists. The plant in Batang Berjuntai, Selangor produced weather strips for the newly launched Proton car.



Moving into midstream and downstream industries

In a bid to complete the value chain, the Group ventured into midstream and downstream businesses such as manufacturing and marketing.

MMC Manufacturing's Dana Vision Sdn Bhd video plant specialised in high grade tapes. This venture did not last long, and neither did MMC's tinplate manufacturing operations Perstima or the automotive weather strip manufacturing outfit Seginiaga Rubber Industries (M) Sdn Bhd.

Meanwhile, MMC Marketing Sdn Bhd, established as early as 1978, traded in tin and coal. It met a measure of success with tin, selling not only what was produced by its own fields but also from other sources to meet contractual demands. Offices were set up in London to handle Europe, Tokyo to service the Japanese market, and in New York, reputedly the single largest tin market in the world. This business came undone with the collapse of the global tin industry in 1985.

Inroads made in coal trading bore some fruit, when MMC Marketing was appointed the agent to procure and import coal for cement manufacturers such as the Cement Industries of Malaysia Berhad. China was another market MMC explored, when it was appointed an agent for shipping ilmenite from the mines of Hainan to Japanese consumers.

MMC's timber trade resulted in the manufacture of finished and semi-finished timber products.

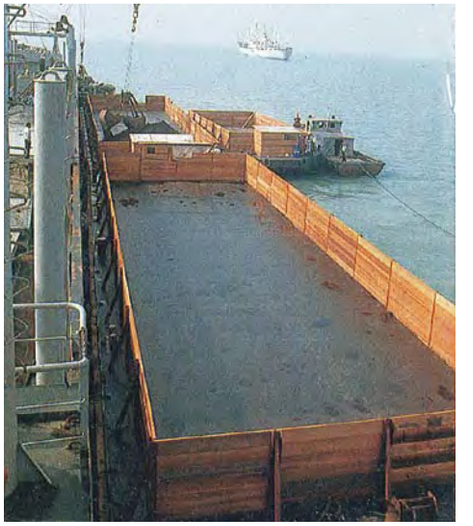
MMC signed an agreement with North Korea to supply rubber.

MARKETING

MMC Marketing established offices in London, Tokyo and New York.

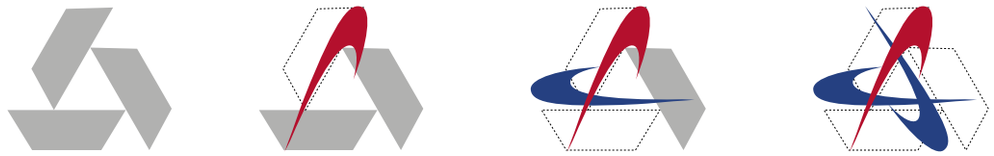
The Group also dabbled in a number of other businesses before finding itself on firmer footing. They were part of the inevitable process of growing up while searching for a new identity.

The Group's financial performance in the last lap of the century was feeble. Chairman Tan Sri Raja Muhammad Alias's statement in the 1999 Annual Report says: "The year has been challenging for the MMC. The regional economic and financial crisis saw rapid erosion of the Malaysian economy after several years of strong and steady growth. The adverse effects of the economic downturn have affected the MMC Group's business operations in Malaysia." ■



A shipment of coal from Australia, procured and imported by MMC Marketing for the Cement Industries of Malaysia Berhad.

MMC Marketing ventured into the trading of agricultural products such as rubber, cocoa, pepper, coconut and pineapple.



UNVEILING THE NEW LOOK

In 2004, Malaysia Mining Corporation Berhad officially became known as MMC Corporation Berhad to reflect its transformation from a mining company to an engineering and infrastructure conglomerate.

In June 2005, it launched a new logo that is inspired by MMC's original logo of tin ingots, a reminder of MMC's mining legacy. Predicated upon this rich heritage, the new logo has been stylised to capture MMC's new energy as it chooses a new future direction.

Each icon represents a core business. They are inter-connected to express the synergies between them – Energy & Utilities, Transport & Logistics and Engineering & Construction – working together to achieve greater growth. Each icon is broad and tapers to a sharp tip. The wide, rounded curve reflects the Group's maturity and adaptability to change. The sharp tip signifies its competitive edge.

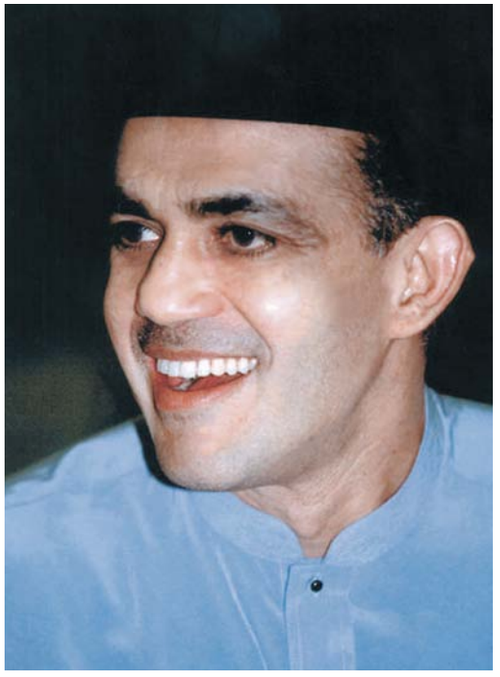
Chapter 10

A New Business Cycle

"At MMC, there is a strong emphasis on people. We have forged a culture of inclusiveness to bring out the best in our staff. Only then we can perform our best for our stakeholders."

Dato' Wira Syed Abdul Jabbar Syed Hassan
Chairman, MMC Group (2000-to date)

The new millennium began with a bang! In September 2000, Malaysia Mining Corporation Berhad (MMC) welcomed private shareholder Impian Teladan Sdn Bhd after almost 20 years of ownership by government asset manager Permodalan Nasional Berhad. It marked the beginning of the transformation of the Group from a government linked company to a private entity. By 2001, Impian Teladan had increased its stake in MMC to become the majority shareholder. Then in 2003, Seaport Terminal (Johore) Sdn Bhd emerged as the major shareholder of MMC. The stage was now set for MMC to begin a new business life cycle.



Tan Sri Syed Mokhtar Albukhary's Seaport Worldwide (Johore) Sdn Bhd became the majority shareholder of MMC Corporation Berhad in 2003. MMC is one his three flagship companies; the other two are DRB-HICOM Berhad and the Tradewinds Group.

The man behind Seaport Terminal (Johore) Sdn Bhd is Tan Sri Syed Mokhtar Albukhary, a self-made entrepreneur whose business foresight was beginning to make waves in corporate Malaysia. He had bounced back from the 1997 Asian Economic Crisis that had felled mightier bumiputera businessmen. His acquisition of the global miner stunned the business community, but he had his own plans.

It led to the appointment of Dato' Wira Syed Abdul Jabbar Syed Hassan as the chairman of the board. He was entrusted to build a leaner, more focused and sustainable organisation that will do the Group and country proud. Hard decisions had to be made, including breaking some past ties to forge a new future.

The economics and marketing man was no newcomer in spearheading change. Says Syed Abdul Jabbar, "I was in the pioneering team that established the Kuala Lumpur Commodity Exchange, and I was involved in the privatisation of Lembaga Padi dan Beras Negara (the rice board) that moved from being a government agency to a private entity named Padiberas Nasional Berhad (Bernas). During this period, there was a lot of fire-fighting to be done, and we had to come up with amicable solutions."

This experience became invaluable at MMC, especially since he was also the de facto Group Chief Executive for two years until the appointment of Dato' Seri Ismail Shahudin to the position.

Divestments were complemented by acquisitions to lay the foundation of the revitalised MMC.

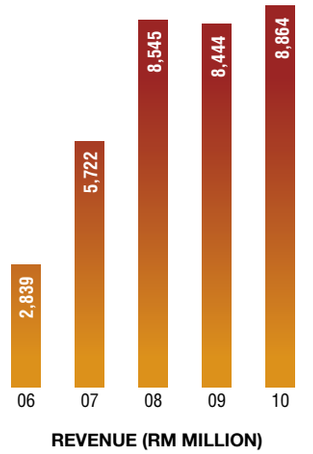
Unlocking the value of MMC

MMC was a group with strong assets waiting to be unlocked. It was also a group that was struggling with lacklustre performances since the decline of the tin industry in the 1980s.

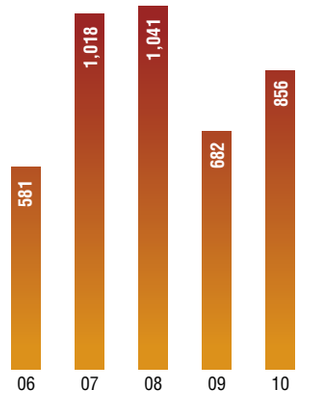
To turnaround the Group, volatile, high-risk and ailing businesses were divested. "There was a lot of restructuring during the first couple of years, closing down of businesses and rightsizing operations," says Syed Abdul Jabbar. Among the businesses divested were mining interests. MMC sold its stake in Australian companies Ashton that held substantial equity in diamond mines, and Plutonic that had stakes in gold mines. Part of the proceeds were used to acquire new businesses, namely Malakoff and the Port of Tanjung Pelepas to reflect the shift away from mining.

The company also progressively shut down prospecting operations, both in Malaysia and overseas. Of the three remaining tin dredges, two were dismantled and one was donated to the Perak State Government to be used as a mining museum. Smelting operations were sold, bringing closure to MMC's mining interests.

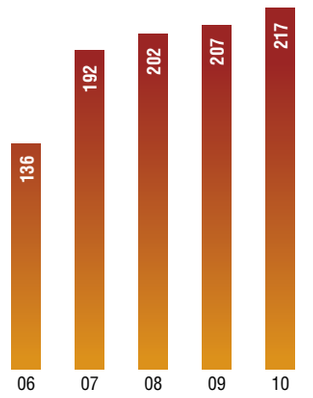
MMC Group 5-Year Performance Highlights (2006-2010)



REVENUE (RM MILLION)



PROFIT BEFORE TAX (RM MILLION)



NET ASSET PER SHARE (SEN)

MMC acquired the high-performing Port of Tanjung Pelepas that gave it a headstart in the transport & logistics business.

Non-core businesses were the next target: marketing and manufacturing. Coal trading, and the video tape and automobile weather strip factories were sold or closed down.

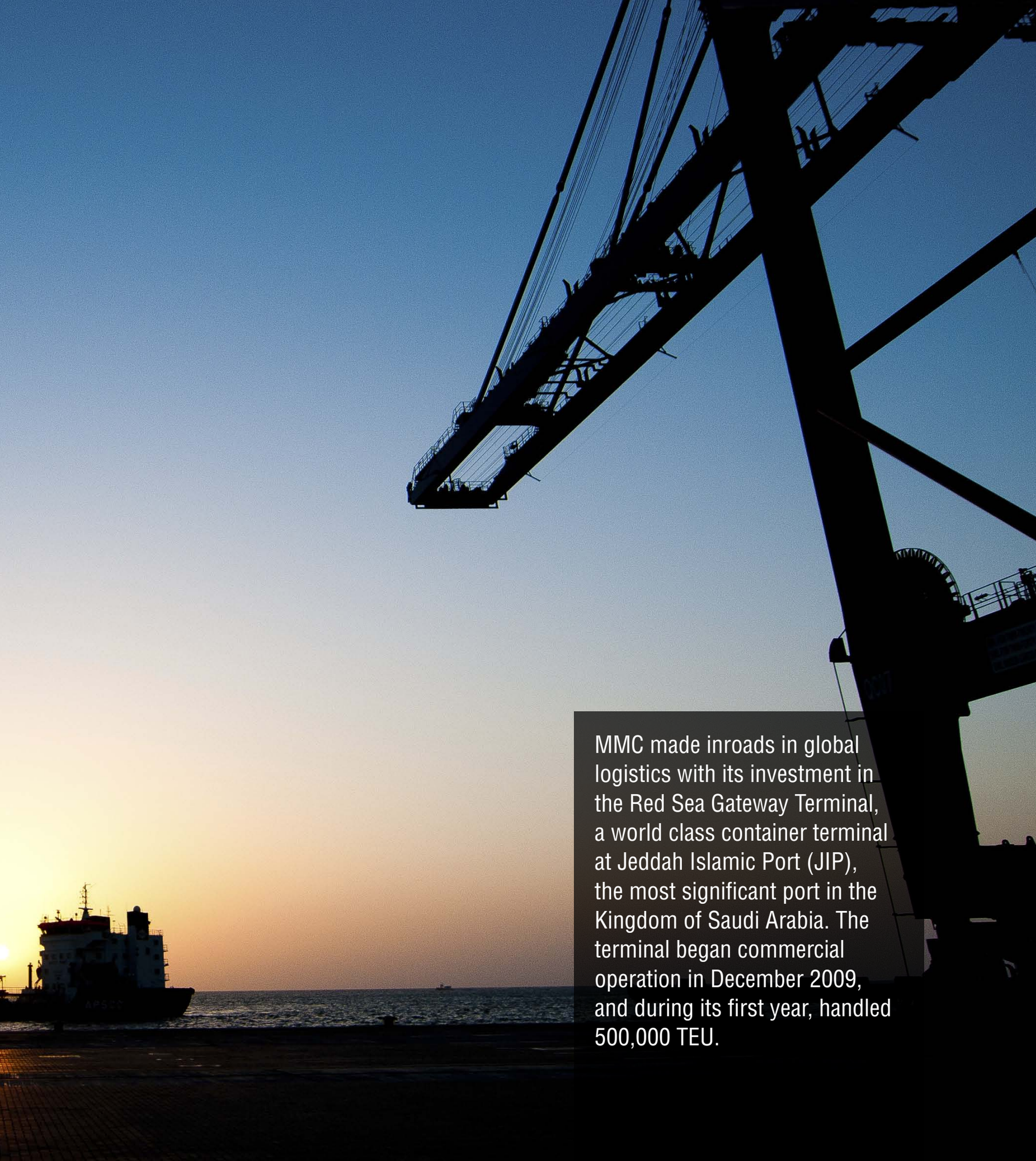
Divestments were complemented by acquisitions to lay the foundation of the revitalised MMC. "We wanted to acquire businesses with growth potential and could provide a steady income," says Syed Abdul Jabbar. "We also made sure our acquisitions had people who knew the business well and could run them well."

The strategy was to buy well-established businesses with good track records. First to enter the fold in 2000 was independent power producer Malakoff, which was bought from Malaysian Resources Corporation Berhad (MRCB). It was followed by the Port of Tanjung Pelepas, which was amongst the fastest growing container ports in the world.

The SMART Tunnel is an innovative flood and road traffic solution that has won international recognition.

Meanwhile, the engineering core of MMC was strengthened. The bedrock of the organisation since Day 1 in 1911, the Group's engineers continued to be in the forefront of the reinvented MMC, which evolved into a premier infrastructure developer. Backed by a sound engineering track record, an innovative proposal and creative solution, MMC partnered Gamuda to bid for the SMART – Stormwater Management and Road Tunnel – project in 2002. It won, and the MMC-Gamuda Joint Venture became a respected name in the corridors of power as a large scale turnkey infrastructure specialist.


ZPMC



MMC made inroads in global logistics with its investment in the Red Sea Gateway Terminal, a world class container terminal at Jeddah Islamic Port (JIP), the most significant port in the Kingdom of Saudi Arabia. The terminal began commercial operation in December 2009, and during its first year, handled 500,000 TEU.

MALAKOFF IN THE KINGDOM OF SAUDI ARABIA *Shuaibah Phase III independent water and power plant will supply 900MW of power and 880,000 m³/day of desalinated water to the cities of Makkah, Jeddah, Taif and Baha.*

TAKING SHAPE: *The entrance to Jazan Economic City marks the beginning of the development in Saudi Arabia.*

By 2004, MMC's future course was clear. The year turned in record revenue and there was strong earnings growth from all businesses. In four hectic years, MMC did what detractors considered impossible. It made a 180-degree shift and broke new ground to establish pre-eminence in its three chosen new businesses: energy & utilities, transport & logistics and engineering & construction *(refer to Part 4: 21st Century MMC).*

Global expansion followed, and by 2006 MMC had made big strides in the Middle East and North Africa (MENA). Malakoff was a member of the Malaysian consortium that was awarded the RM9 billion Shuaibah III project in the Kingdom of Saudi Arabia, then the world's largest water and power privatisation project. Similar projects followed in Algeria and Jordan.

Best known was the award to develop and manage the 117-square mile Jazan Economic City with the Saudi BinLadin Group in Saudi Arabia. It is one of the largest projects ever secured by a Malaysian company anywhere in the world. This landmark project accentuated MMC's position as an emerging global utilities and infrastructure group.

Instilling a culture of change

Within a few years, the MMC Group was back in business as a force to be reckoned with, not only in Malaysia but also abroad. The Port of Tanjung Pelepas and Senai Airport (acquired in 2009) were monitored by regional rivals, while Malakoff had to fend off competition from international giants.

The new leadership began working on instilling the entrepreneurial spirit of continuous change across the Group. Collaboration and accountability became buzzwords from top down. Group Managing Director Datuk Hj Hasni Harun makes it clear: "When you are at the top, the buck stops with you."

Nowadays, there is less formality and closed doors along the MMC corridors. The affable Syed Abdul Jabbar says: "My door is always open to those who wish to share an idea or point out a mistake. I encourage directors to speak up at board meetings. It is a matter of good governance.

"Fortunately, I have a disciplined board, and we have lively discussions. They come prepared, and the quality of board papers is good. This is something we inherited from the British. We are also consultative, and after the announcement of results, the board has post-mortems. At the subsidiary level, there are town hall meetings. We try to engage as many people as possible so that they understand where we are coming from, and where we are heading."

"We have to be vigilant at all times while remaining focused on our goal to be relevant, and be on the ball to ensure immediate, mid-term and long term sustainability. I would like to see MMC continuously reinventing itself to survive another 100, 200 and more years like DuPont or Colgate."

Datuk Hj Hasni Harun
Group Managing Director
2010 – to date

Hasni talks about the need to be nimble and resilient, seizing opportunities and staving off threats. "A Group as diverse as ours is always evolving, and faces different challenges at different times. We have to be vigilant at all times while remaining focused on our goal to be relevant, and be on the ball to ensure immediate, mid-term and long term sustainability. I would like to see MMC continuously reinventing itself to survive another 100, 200 and more years like DuPont or Colgate."

The 2008 global melt-down has slowed MMC's international businesses, but the domestic environment is promising. Overseas projects tend to have longer gestation periods, and MMC plans to refocus on them when the time is right. For now, there are plenty of opportunities at home. The 10th Malaysia Plan (2011-2015) has 52 high-impact public-private projects valued at about RM63 billion. Among them are infrastructure and utilities projects that MMC can confidently deliver.

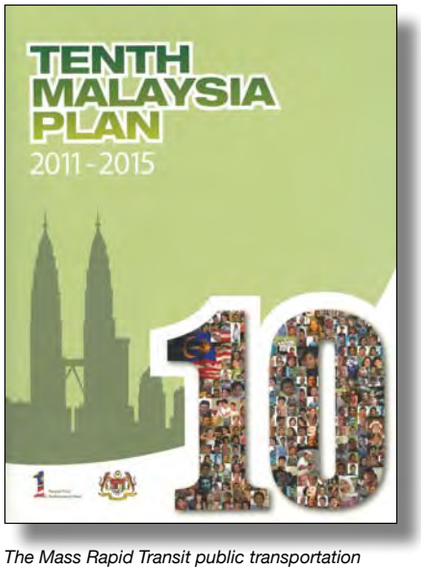
Risk management is a priority at MMC. An accountant by profession, with experience in managing pension funds in excess of RM200 billion at his previous job at the Employees Provident Fund, Hasni says: "Risks and

THE ELECTRIFIED DOUBLE TRACK PROJECT *established MMC's pre-eminence as a turnkey contractor for large-scale infrastructure projects.*

challenges are part of business. We have to learn lessons from the past and mitigate risks. At times we must evaluate the cost of failure, cut losses and move on."

Risks exist in the domestic and external environments. The introduction of the windfall tax had a negative impact on Malakoff's earnings. The port business, meanwhile, suffered a setback during the global economic crisis of 2008. Moreover, as a concessionaire, the Group has to strive harder to ensure that its concessions are renewed to sustain the growth momentum.

"The Electrified Double Track Railway Project will be completed in two years and we need to replenish our order book," points out Hasni. "We hope to secure a few 10th Malaysia Plan projects. Many of our businesses have high barriers of entry, which will become crowded when the WTO opens the door to foreign players. We have to be prepared for this. As Louis Pasteur said: 'Chance favours only the prepared mind.'"



The Mass Rapid Transit public transportation is one of the projects highlighted in the 10th Malaysia Plan.

Mass Rapid Transit Project: A Timely Award

No one could have asked for a better centennial recognition: a project that will transform the way Malaysians live and work. Something MMC has done since Day 1.

On 28 January 2011, the MMC-Gamuda Joint Venture was appointed the Project Delivery Partner (PDP) for the country's public infrastructure project: the 51-km Sungai Buloh-Kajang Mass Rapid Transit railway project (Blue Line). Construction is estimated at RM36.6 billion and scheduled to begin in July 2011, and completed in 2020.

The Edge Malaysia (7 February 2011) reported that Chief Executive Officer of the Government Performance Management and Delivery Unit (PEMANDU) Datuk Seri Idris Jala pointed out that the MMC-Gamuda Joint Venture was appointed as the PDP because it had conducted its own studies and drawn up an unsolicited proposal for the MRT project ahead of the government's push to implement it. The decision to appoint a PDP, he explained, will enable the MRT to be rolled out in phases quickly.

The MRT is owned by the public transportation agency Prasarana, with the Land Public Transport Commission acting as the supervising and coordinating agency for the multi-billion ringgit project.

PEMANDU estimates that the MRT will have a multiplier effect of 2.5 to 3.5 times. This translates to RM3.0 billion to RM4.0 billion in gross national income, beginning from 2011 to 2020. In addition, the entire MRT project is expected to have spillover effects of some RM8.0 billion to RM12.0 billion per annum for sectors such as services, banking, consultancies, raw materials, equipment and retail.

"The MRT Project will have a huge impact. When you build an MRT, property prices will rise in places beyond the city, then productivity will increase… and you'll see retail space and retail sales grow," said Idris Jala.

	Total	Elevated	Underground
Length (km)	**51**	41.5	9.5
Station (Nos)	**31**	24	7
Provisional Station (Nos)	**3**	3	0
Park & Ride (Nos)	**13**		

Interchange Stations with Existing Rail Line at:

1. Sungai Buloh
2. KL Sentral
3. Pasar Seni
4. Merdeka
5. Bukit Bintang Central
6. Maluri
7. Kajang

Legend: KTM, KJ LRT, AG LRT, Monorel, ERL, Park n Ride

PROPOSED MRT ROUTE – THE BLUE LINE *The 51-km route will have 34 stations, with seven of them as inter-changes. The route will serve a population of 1.22 million, and have an estimated daily ridership of 442,000.*

COMMUNITY FEEDBACK *The Environmental Impact Study was made available to the public on 14 February 2011 so they could register their comments on the project prior to its implementation.*

Investing in people

People management is another priority as MMC grapples with attracting the right talent for the right job. It is a nation-wide problem, and the immediate solution lies in hiring professionals from outside the organisation. Most of the management team at MMC today are 'outsiders', lured by attractive salary packages and benefits. "Otherwise, they will be snapped up by the competition," says Hasni. "We reward performance, not length of service."

Recruitment is one thing, retention is another. "Today's Gen X and Gen Y professionals have different expectations. They live in a wireless world, where geographies and time are blurred. We have to deal with these realities. What matters is the result, and we have to create a conducive environment that generates new ideas. This will help us move forward."

"At MMC, we strive to be an employer of choice, one that attracts and nurtures diverse talents and competencies. This is critical for growth - not only of the company but also of the person. We also stress on succession planning for corporate stability and sustainability. And I am happy to report that in the past ten years, we have had a smooth transition when there was a vacancy at the top."

***Dato' Wira Syed Abdul Jabbar Syed Hassan**, Chairman (2000-to date)*

MMC Core Values

Integrity
i**N**novation
Teamwork
Excellence
Commitment

I N T E C

Next on the MMC 'change agenda' is to create synergies between different units in the Group. "Right now, subsidiaries are operating as stand-alone units. They are separate businesses, each with its unique operating landscape and challenges. While a measure of autonomy is needed for them to be sustainable entities, it tends to create the silo mentality. It is something a Group as diverse as MMC can ill afford. We need to break this mindset. We need to embrace diversity while appreciating individual uniqueness.

"MMC has a multidisciplinary, multi-ethnic staff with different personalities and different interests. To bring them together into a

cohesive and happy whole, I introduced One MMC in 2007, so that staff can understand the concept of being bound together by MMC's core values: Integrity, Innovation, Teamwork, Excellence and Commitment (INTEC)," says Hasni.

The long term viability of the organisation depends on succession planning. Chairman Syed Abdul Jabbar says: "When Feizal Ali left as Chief Executive Officer, International, Hasni filled his shoes. When the CEO of Gas Malaysia resigned, he was replaced by another senior man from the Group. Likewise, when the top job at PTP fell vacant, it was filled by someone from within. We have had smooth transition of leaders in MMC."

As far as Hasni is concerned: "It would be my failure if I do not find a successor within the Group before I leave." Chairman Syed Abdul Jabbar smiles: "Yes, that is his Key Performance Indicator as Group Managing Director." ■

Corporate Social Responsibility

21st Century MMC upholds the philosophy that charity is the cornerstone of business. There is increasing emphasis on corporate social responsibility, with MMC increasing its focus on education, welfare and environment projects to build a better and more equitable world.

ENVIRONMENT


ALAKOFF
MEDIA

EDUCATION


GRADUAN
Universiti Utara Malaysia (UUM)
Ten Thousand Only
RM 10,000.00

WELFARE

MMC
Corporate Social Responsibility

Creating a better place for future generations

Energy & Utilities

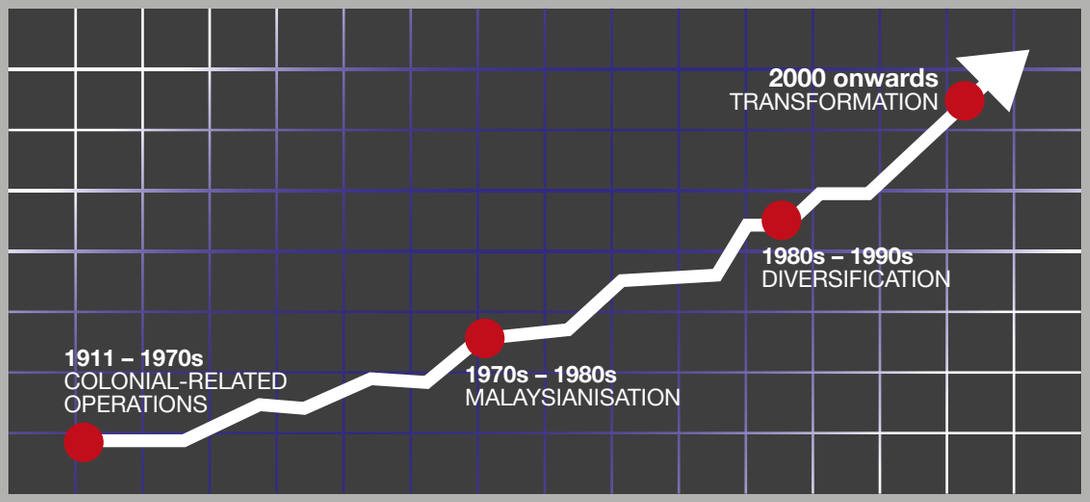
Transport & Logistics

PART 4

21st Century MMC

MMC continues to play a pivotal role in realising national aspirations. The re-invented MMC exited mining altogether and decided to focus on the key growth sectors of 21st century Malaysia and other emerging economies: energy & utilities, transport & logistics, and engineering & construction. In 2010, MMC adopted the slogan "Moving, Managing, Creating" to reflect that its companies are MOVING to drive progress; MANAGING valuable assets responsibly, and CREATING catalysts for growth. Here we introduce MMC's subsidiary companies that strive to live up to this slogan.

Engineering & Construction



100 YEARS 1911-2011
A CENTURY OF PROGRESS

MMC
ANNUAL REPORT 2010

"After regrouping into the three core businesses, we can now concentrate on drawing value from this structure."

Dato' Seri Ismail Shahudin
MMC Group Chief Executive
Star BizWeek, 23 October 2004





MMC Corporate Structure 2011 As at 9 May 2011

Energy & Utilities

Malakoff 51%
- Power & water generation

Gas Malaysia 41.8%
- Natural gas distribution

Aliran Ihsan Resources 69.7%
- Water treatment

Transport & Logistics

Port of Tanjung Pelepas 70%
- Container port & logistics hub

Johor Port 100%
- Multi-purpose port and logistics operations

Senai Airport Terminal Services 100%
- Airport operations & freezone development

SMART 50%
- Toll road operations of the SMART tunnel motorway

Engineering & Construction

MMC-Gamuda Joint Venture 50%
- Electrified Double Track Project (EDTP)
- Klang Valley Mass Rapid Transit (MRT)

Zelan 39.2%
- Investment holding

  Zelan Construction 100%
  - Power plant construction

  IJM 4.9%
  - Major infrastructure works

International Operations

Transport & Logistics

Red Sea Gateway Terminal 20%
- Operation of container terminal at Jeddah Islamic Port, Saudi Arabia

Energy & Utilities

MMC Utilities Ltd 100%
- Power and water projects in Middle East and North Africa

Jazan Economic City Ltd 50%
- Joint developer of Jazan Economic City, Saudi Arabia

% figure denotes percentage of Group's interest, except in the case of Zelan Construction and IJM

Market capitalisation: Approximately RM8.5 bn

Employees: Approximately 4,700




Chapter 11: Gas Malaysia Sdn Bhd

A Brand New Start

Carpe Diem! This is the history of Gas Malaysia, a company formed when mining giant Malaysia Mining Corporation Berhad (MMC) seized the day to diversify its business. The collapse of the tin industry in 1985 sent MMC into a tailspin, and a period of uncertainty followed. A potentially lucrative business presented itself with the completion of the natural gas grid in key urban centres in 1992. Built primarily to transport natural gas from Malaysia's offshore fields to power plants, the grid created a window of opportunity for a supplier to deliver natural gas directly to mid-to-small volume consumers, namely industrial, commercial and residential market segments.

"Gas Malaysia is a well run business that has significantly contributed to the development of the gas markets in West Malaysia".

Datuk Wan Zulkiflee Wan Ariffin
Executive Vice President, Petronas

MMC stepped in to fill this vacuum, reinventing its engineering base to chart a new course. The result was the formation of a joint venture company Gas Malaysia Sdn Bhd on 16 May 1992, between MMC-Shapadu Holdings (55 per cent), technology partner Tokyo Gas-Mitsui

Green Alternative

Natural gas is as close as you can get to an ideal fuel. Not only does it require minimal processing before use, it also has high calorific value. Because of its gaseous state, it blends with oxygen easily to yield more efficient combustion.

Holdings (25 per cent) and Petroliam Nasional Berhad or Petronas (20 per cent), the custodian of Malaysia's oil & gas reserves. In 2006 Petronas transferred its stake to its subsidiary Petronas Gas Berhad, but retains one "Special Share".

The government licensed Gas Malaysia as the sole supplier of reticulated natural gas in Peninsular Malaysia. The company bought natural gas from Petronas, delivered via the Peninsular Gas Utilisation pipeline. Gas Malaysia then built a feeder distribution network to facilitate sales to its customers. Tariffs for the purchase and sale of natural gas are fixed by the government.

Over the next few years, Gas Malaysia invested heavily in gas distribution infrastructure and marketing. Penetrating the market was not easy as it had to contend with other fuel suppliers. Gas Malaysia persisted, promoting natural gas as a convenient, reliable and clean fuel alternative. Progress was slow and steady.

Malaysia's gas reserves

Malaysia is ranked 14th in the world in terms of its gas reserves. As at 1 January 2008, the natural gas reserves in Malaysia stood at 88.0 trillion standard cubic feet (tscf) or 14.67 billion barrels of oil equivalent, approximately three times the size of crude oil reserves of 5.46 billion barrels.

Of this, 33.5 trillion standard cubic feet (tscf) or 38 per cent is found off the East Coast of Peninsular Malaysia, 41.8 tscf (48 per cent) offshore Sarawak and the remaining 12.7 tscf (14 per cent) in offshore Sabah. At the current rate of production, Malaysia's gas reserves are expected to last another 36 years.

Source: Gas Malaysia website (2011)

Industries appreciated the reliability and cost-efficiency of natural gas, which offered energy savings of up to 56 per cent. Natural gas also has multiple industrial applications.

Opening the last valve to release gas supply to a new customer.

Robust results

When Managing Director Datuk Muhamad Noor Hamid joined Gas Malaysia in 2003, one of the first things he did was to engage staff to draw up a 5-year plan for the company. His goal was to escalate growth, increasing turnover from RM400 million to RM1.0 billion by 2008.

"Many thought the target was unrealistic," says Muhamad Noor. "But we did it, and achieved our RM1.0 billion revenue target in 2006, about 26 months ahead of schedule.

"The lowering of gas tariffs helped tremendously. Initiated by the government to enable Malaysian manufactured products to be more competitive in global markets, lower tariffs became our unique selling proposition to penetrate new areas and boost sales."

Industries, in particular, appreciated the reliability and cost-efficiency of natural gas, which offered energy savings of up to 56 per cent. Natural gas has multiple industrial applications. It is the preferred

energy choice in glass making, food processing and steel fabrication. It is also an important raw material in the production of hydrogen, fertilisers and plastics.

Internally, there was a transformation in business philosophy and operational processes. "Before, we were more demand-driven, but with the tariff revision, we became supply-driven," says Muhamad Noor. "We invested heavily in the construction of natural gas supply infrastructure in industrial areas, even without firm customer offtake commitments. We reasoned that when there is natural gas available at their doorstep, it would be a matter of time before industries sign up for gas supply. Within three and half years, our industrial customers increased three-fold, from 200 in 2003 to more than 600 in 2010."

"Our goal was to escalate growth, increasing turnover from RM400 million to RM1 billion by 2008. Many thought the target was unrealistic. But we did it, and achieved our RM1 billion revenue target in 2006, 26 months ahead of schedule."

Datuk Muhamad Noor Hamid
Managing Director, Gas Malaysia Sdn Bhd

Today, this home-grown subsidiary of the MMC Group provides uninterrupted energy supply to 33,254 residential and commercial customers as well as 691 industrial customers.

It sold 107.5 million mmBtu in Peninsular Malaysia in 2009, and total sales volume increased by eight per cent in 2010. As at February 2011, Gas Malaysia had a network that spanned almost 1,850 km, with an estimated 49 km to be completed by the end of 2011. This is part of ongoing infrastructure development to reach more customers.

Keeping up the momentum

"Ours is a regulated industry where both the buying price and selling price of natural gas is determined by the government," says Muhamad Noor. "This means that we are a margin player, and the challenge lies in increasing efficiency and productivity to improve profit."

The management's focus on operational efficiency and staff productivity has borne results. "Revenue increased from RM410 million in 2003 to RM1.8 billion in 2009, while staff strength decreased from 392 to 360. Our revenue per employee increased from RM1 million in 2003 to RM5 million in 2009.

Peninsular Gas Utilisation Pipeline

The Peninsular Gas Utilisation (PGU) pipeline spans over 2,500 km, and connects gas processing plants to power plants. Owned and operated by Petronas, it consists of main gas transmission pipelines, supply pipelines and laterals. The system also consists of six gas processing plants with a combined capacity of 2,000 million standard cubic feet per day (mmscfd) producing methane, ethane, propane, butane and condensate.

Gas Malaysia receives its supply from the PGU network, from which its feeder pipelines transport gas to customers.

"Another measure of efficiency in the industry is the limit of non-revenue gas. The acceptable limit is two per cent and in 2009, Gas Malaysia achieved 0.8 per cent. Our downtime per number of customers also exceeds the norm," he adds.

"The challenge now is to keep up these performances."

More good news followed, when in 2010 the government reallocated 100 mmscfd of natural gas from the power sector to the industrial sector. This had enabled Gas Malaysia to expand its industrial market segment, and as a result increase sales volume and revenue. "Most approved industrial customers benefitting from the allocation have received their supply, and distribution to the rest will be completed in 2011," says Muhamad Noor.

Customer by Industry	%
Food, Beverages & Tobacco	27.0
Rubber Products	24.0
Non-Metallic Mineral Products	10.0
Basic Metal Industries	9.0
Chemical Products	8.0
Glass Products	7.0
Fabricated Metal Products	3.0
Electronic and Electrical Products	2.0
Machinery & Equipment	0.2
Others	9.8
Total	**100.0**

Equally reassuring is the Petronas announcement on the development of a Liquefied Natural Gas (LNG) facility to import three million tons of LNG per year to supplement declining domestic supply. ■

"Natural gas is the fastest growing energy source in the world. Worldwide consumption is forecast to double by 2030. The developing economies of Asia, Latin America and Africa, which have relatively recently discovered the magic of natural gas, will show the highest growth rates. The greatest total volume increases will be in the developed economies of Europe, North Asia, and Asia, which have used natural gas for decades."

Fundamentals of Natural Gas: An International Perspective by Vivek Chandra (Pennwell, publishers of Oil and Gas Journal; 2006)

Guess what...

- Natural gas is usually measured in cubic feet (volume) or Btu (heat content, British Thermal Units). One Btu is approximately equal to the energy released in the burning of a kitchen match. One cubic foot of natural gas has about 1031 Btu. A candy bar has about 1000 Btu.
- In liquid form, natural gas takes up an incredible 1/600th of space that it would in gaseous state.
- The rotten egg odour we've come to associate with natural gas comes from the additive called mercaptan, a chemical that has a sulphur-like smell.
- Although natural gas pipelines and storage facilities have high standards of safety, companies add a smelly substance to it, so that the leakage of this colourless, odourless gas can be identified.
- When natural gas is burned, it produces mostly carbon dioxide and water vapour. These are the same substances emitted when we breathe.
- A home that uses natural gas for heating, water heating, clothes drying and cooking contributes less carbon dioxide to the atmosphere than an all-electric home whose power is often generated at a coal-fired power plant.
- The existence of natural gas was known to people of ancient Greece, India, and Persia in the form of burning springs. These springs were created when fountains of natural gas, seeping out from cracks in the ground, were ignited due to lightning.

Source: Gas Malaysia Sdn Bhd website 2010

Almost 100 per cent of Peninsular Malaysia enjoys electricity, a remarkable achievement for a developing nation.

Source: Lighting Up Lives, 60th anniversary publication of Tenaga Nasional Berhad

Chapter 12: Malakoff Corporation Berhad

Powered by People

MALAKOFF

On 17 May 2006, MMC Corporation Berhad announced its decision to acquire all the assets and liabilities of public-listed independent power producer Malakoff Berhad for a cash consideration of RM9.3 billion. Dubbed then as Malaysia's biggest corporate takeover then, the acquisition was completed the following year. The company was taken private, and renamed Malakoff Corporation Berhad (Malakoff), with MMC as the controlling stakeholder with a 51 per cent interest. With this, MMC entered the power generation business, a growth industry in the rapidly industrialising Malaysia.

Malakoff owns six power plants in strategic locations across Peninsular Malaysia *(refer to box story: Malakoff's Asset Portfolio)*. Together they have a net generation capacity of 5,020 MW, an equivalent of 23 per cent of Peninsular Malaysia's total installed generation capacity of 21,817 MW. This has catapulted Malakoff to

Green Power

IPPs possess about 47 per cent of the electricity generation capacity in Peninsular Malaysia and natural gas was the dominant fuel source — accounting for 55 per cent of electricity generation capacity.

OSK Research, May 2010

Tanjung Bin is the first private coal-fired plant in Malaysia as well as one of the biggest coal-fired IPPs in South-East Asia.

the top spot as Malaysia's largest independent power producer.

Having established its pre-eminence in Malaysia, Malakoff ventured overseas, making inroads not only in power generation but also in water desalination. Malakoff was a member of the Malaysian consortium appointed to Build-Own-Operate Shuaibah III, the first Independent Water and Power Producer (IWPP) in Saudi Arabia, and one of the largest IWPPs in the world then. Malakoff also participated in one of the largest privatisation projects in Jordan when it acquired an indirect stake in the Central Electricity Generating Company (CEGCO). Malakoff has since expanded its global reach, particularly in OIC countries, and is growing its presence in North Africa, especially in Algeria.

Corrective maintenance in progress at the FAC Air Receiver Tank in the Tanjung Bin Power Plant.

"The success of the project, the first of its kind in the Kingdom, leads the way for similar investments to better meet the needs of the Saudi people. SWEC is an excellent example of a successful public/private partnership in Saudi Arabia."

Dr Yahya Abdullah Al Yahya
Chairman of Shuaibah Water and Electricity Company (SWEC)
The Malaysian consortium consisting of Malakoff, Tenaga Nasional and Khazanah Nasional is one of the private partners of SWEC.

The company has come a long way. It began as a plantation-based company in 1975 and was listed on the Kuala Lumpur Stock Exchange (now known as Bursa Malaysia) the following year. When electricity generation was privatised in 1993, it made a radical move to join the race to become an independent power producer.

The competitive edge

One of the primary factors behind Malakoff's accomplishments is its competent workforce, from technical specialists at power plants and support staff to top management.

The power generation industry is infamously exacting. Besides being a tightly regulated industry where capital expenditure amounts to billions of ringgit, there is a high barrier of entry into the market that has seen only two new entrants in the past 15 years. Operational challenges are manifold. An oversight, even a seemingly minor one, could lead to severe penalties. Misjudgment by technical staff in operations and maintenance could cost the company millions of ringgit in lost revenue. Not surprisingly, Malakoff stresses on manpower training and experience, both critical success factors in the industry.

Another challenge – as is the case in many other highly specialised fields – is staff retention, especially of key personnel. Since the company grows in spurts based on the number of projects secured, there is a tendency for job-hopping among good staff who are often enticed by competitors. To retain staff, Malakoff strives to provide opportunities for both corporate and personal growth.

The Privatisation of Malaysia's Power Industry

The privatisation of the power industry came in the wake of the 1992 blackout that had Peninsular Malaysia in darkness for a few days. The power failure brought the economy to a standstill, and millions of ringgit were lost. The primary cause was traced back to the lack of generation capacity by Tenaga Nasional Berhad (TNB), the government linked public utility company.

In TNB's 60th anniversary publication *Lighting Up Lives*, its chairman Tan Sri Leo Moggie says: "TNB had expected increasing demand for power that would require major investment. Unfortunately, it was not easy to raise the necessary allocation for funding. There was an urgent need to build power plants. So the Government turned to the private sector."

There was strong interest from Malaysian investors, and IPP proposals were directly evaluated and selected by the federal government. Successful companies entered Power Purchase Agreements (PPA) with TNB, and the agreements typically covered about 20 years. In 1993, TNB inked its first PPA with YTL Power. With this, TNB's monopoly of the generation business ended.

Today, IPPs account for about 60 per cent of generation capacity, and Malakoff Corporation Berhad ranks as the largest IPP with six power plants producing about 23 per cent of the Peninsular Malaysia's total installed generation capacity. All IPPs sell power to one buyer: TNB. However, TNB continues to monopolise the transmission and distribution of power to end users.

Source: Lighting Up Lives, 60th anniversary publication of Tenaga Nasional Berhad

"The country could face a power shortage by 2015 if new power plants are not built. In the light of the imminent shortfall, Malakoff is pursuing the extension of a 1,000 MW power plant at its existing site at Tanjung Bin."

Tan Sri Abdul Halim Ali
Chairman, Malakoff Corporation Berhad

energy constitutes only about one per cent – the Ministry's target is to raise it to nine per cent by 2020.

Abdul Halim believes that green policies are more than just "feel good" concepts; they are issues that the company must resolve. In view of the rising costs of fossil fuels and the rapid depletion of the Earth's natural resources, Malakoff is exploring non-polluting renewable energy sources such as solar, wind, hydro-electricity, wave and geothermal heat. Renewable energy production is part of Malakoff's strategic plan for long-term sustainability while addressing corporate social responsibility.

Harnessing the forces of nature without losing reverence for it, Malakoff is set for yet another transformation of its business as it enters the era of green energy solutions. ■

Malakoff won the prestigious Prime Minister's CSR Awards 2010 (Environment Category) for its Corporate Social Responsibility activities that focused on a greener environment.

Low staff turnover at Malakoff affirms the company's status as a preferred employer. Management, however, is not taking anything for granted. It recognises the need for an infusion of new talent to work alongside long-serving staff. To achieve this goal, the company prefers to hire new graduates who account for eight to 10 per cent of the workforce. This hiring policy facilitates smooth succession planning, ensuring that vacancies arising from staff resignations or retirement are filled by those raised in the Malakoff culture.

"Malakoff has footprints in terms of international best practice. The company is guided by the right business matrix and programmes that drive performance. This is something that I would like to push further."

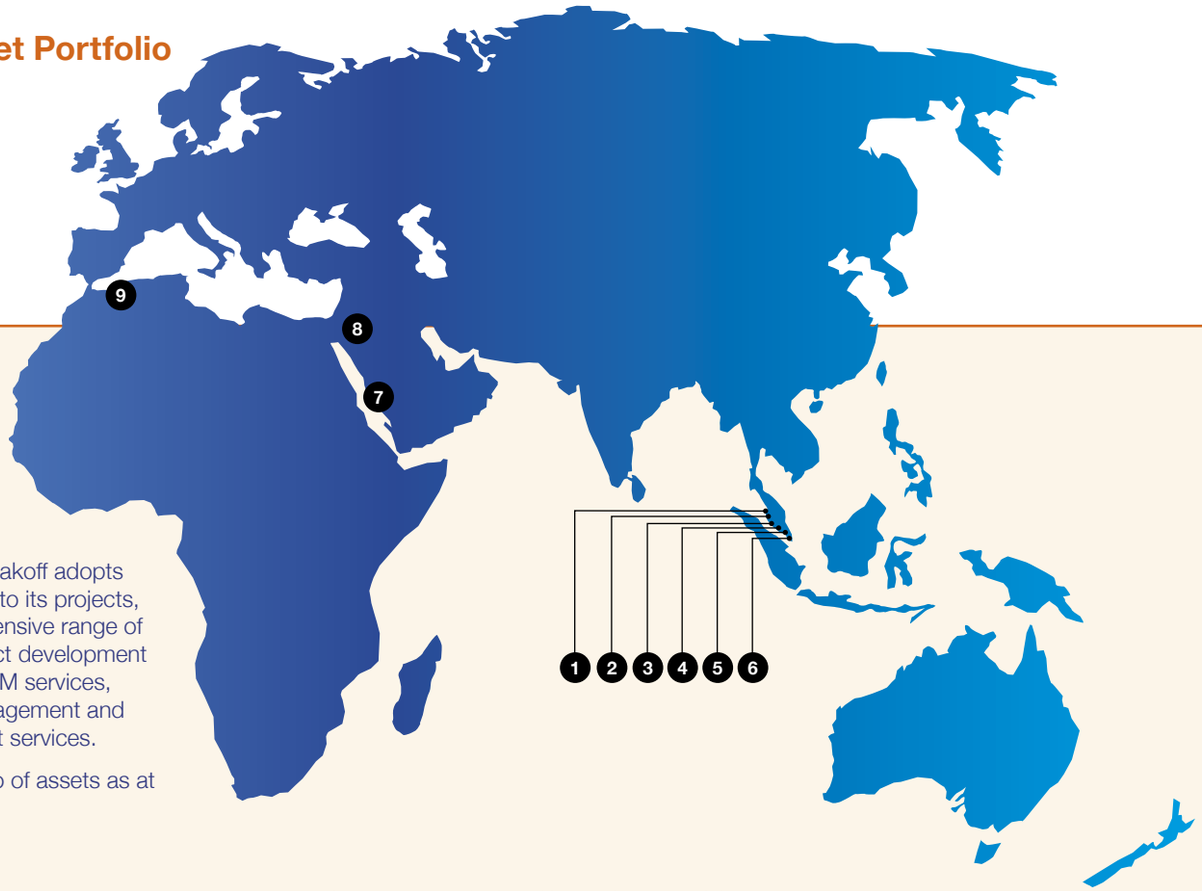
Zainal Abidin Jalil
Chief Executive Officer, Malakoff Corporation Berhad

The road ahead

The company has adopted a new road map following the 2009 launch of the National Green Technology Policy by Malaysia's Ministry of Energy, Green Technology and Water. The Policy urges companies to incorporate climate protection strategies into their business plans.

"Promoting green energy is not only socially responsible, but it is also commercially and economically viable," says Malakoff Chairman, Tan Sri Abdul Halim Ali. At present, electricity generation in Malaysia is largely dependent on fossil fuels such as coal, oil and natural gas, which generate about 85 per cent of the total power supply in the country. Renewable

Malakoff's Asset Portfolio



As a developer, Malakoff adopts a holistic approach to its projects, offering a comprehensive range of services from project development to construction, O&M services, asset and risk management and engineering support services.

Below is its portfolio of assets as at the end of 2010:

DOMESTIC

1. **Prai Power Plant**
   350MW X 1, CCGT
   Prai is a single-shaft plant and the first of its kind in South-East Asia. This plant also has the highest thermal efficiency rate in Malaysia.

2. **Lumut Power Plant**
   651.5MW X 2, CCGT
   Lumut is also one of the largest Combined Cycle Gas Thermal (CCGT) plants in Asia. The plant's Blocks 1 and 2 achieved Commercial Operation Date ahead of schedule.

3. **GB3 Power Plant**
   65MW X 1, CCGT
   GB3's project financing of RM1.5 billion Islamic bonds was voted the best project finance loan in the 2002 "Asset Asian Awards".

4. **Kapar Power Plant**
   2,420MW Coal, Oil and Gas
   In 2004, Kapar's RM3.4 billion Islamic bond project financing was the largest bond issue in the Malaysian market as well as the largest non-recourse IPP debt financing in Asia. In the same year, the bond issue also earned the prestigious "PFI Bond of the Year".

5. **Port Dickson Power Station**
   440MW, Open Cycle Gas Turbine
   This power station is a joint venture between Sime Darby (75 per cent) and Malakoff (25 per cent). Commencing commercial operation in 1995, the plant utilises natural gas as its primary fuel and diesel light distillate fuel, which is directly piped from an oil refinery at Port Dickson as a secondary or back-up fuel.

6. **Tanjung Bin Power Plant**
   700MW X 3, Coal
   Tanjung Bin is the first private coal-fired plant in Malaysia and one of the biggest coal-fired IPPs in South-East Asia. It incorporates clean technologies, such as Electrostatic Precipitators (ESP) and Flue Gas Desulphurisation (FGD). The construction of the Tanjung Bin power plant was completed 37 months and 16 days ahead of schedule. The project was also completed below budget.

INTERNATIONAL

7. **Saudi Arabia**
   900MW, oil and 880,000 m^3/day plus 150,000 m^3/day expansion desalination plant
   Saudi Arabia's Shuaibah III is the first Independant Water and Power Producer (IWPP) in the Kingdom, and the largest one in the world to date. Shuaibah's financing deals won the 2005 PFI "Power Deal of the Year" as well as the "Desalination Deal of the Year" at the 2006 Global Water Awards.

8. **Jordan**
   1,680MW Oil and CCGT
   The privatisation of Central Electricity Generating Company marked one of the largest privatisation deals in Jordan's history.

9. **Algeria**
   200,000 m^3/day water desalination
   A water desalination project in Sidna Ouchaa located in the Tlemcen region of Western Algeria.

MMC subsidiary Malakoff is the largest independent power producer in Malaysia. It has a portfolio of six power plants in Malaysia and three overseas.

Chapter 13: Aliran Ihsan Resources Berhad

A Strategic Fit

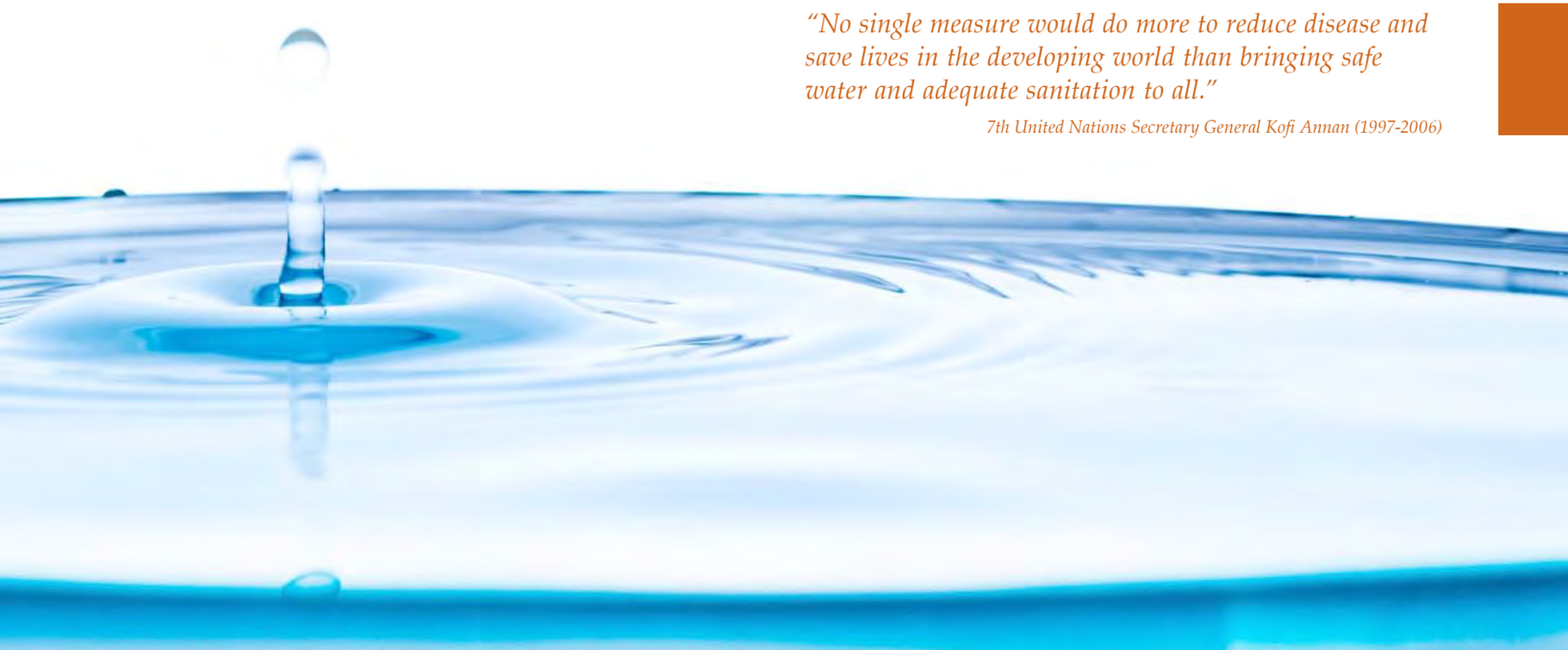
In August 2008, MMC acquired Aliran Ihsan Resources Berhad (AIRB), a public listed company with water concessions to operate and manage 16 water treatment plants in Johor that supply approximately 70 per cent of the state's needs. AIRB is currently the third largest provider of treated water in Malaysia.

The acquisition gave MMC a foothold in Malaysia's robust water and sewerage industry, and at the same time strengthened its presence in Malaysia's new economic growth frontier of Johor. On the international front, AIRB increases the Group's competitive advantage in global power generation bids, especially in the Middle East and North Africa (MENA) where contracts are invariably tied to water solution proposals.

MMC Group Managing Director, Datuk Hj Hasni Harun, describes the acquisition as a 'strategic fit' given the Group's goal to be an integrated global utilities player. The MMC Group has established itself as a power and water player in MENA through Malakoff Corporation Berhad; AIRB will further strengthen the Group's credentials given its expertise in the construction and operation of water infrastructure assets.

"No single measure would do more to reduce disease and save lives in the developing world than bringing safe water and adequate sanitation to all."

7th United Nations Secretary General Kofi Annan (1997-2006)



"In one drop of water are found all the secrets of all the oceans; in one aspect of You are found all the aspects of existence."

Kahlil Gibran

Hasni says, "AIRB has the necessary capacity, expertise and experience for the Group to expand its water and sewerage business not only domestically but also complement MMC's international power and water businesses."

Focus on high performance

AIRB, the holding company of a group of companies, was listed on Bursa Malaysia on 15 March 2005. Its wholly-owned subsidiary Southern Water Corporation Sdn Bhd was awarded the concession for water treatment in the southern state of Johor when water supply was privatised. Today, it operates treatment plants in northern, central and southern Johor. They operate at 80 per cent capacity and process over 480 million litres of water a day.

The Group's five companies provide the full spectrum of the water and sewerage treatment services – from construction, operations, maintenance and rehabilitation of facilities and equipment to the treatment of water and sewerage *(refer to box story: Fast Facts)*.

A cascade water aerator at the Parit Raja AIRB treatment plant allows air to come into contact with water and begins the process of turning raw water into treated, clean water for consumers.

Fast Facts

At the end of 2010, MMC has a 69.7 per cent stake in the AIRB Group that consists of the following companies:

1. **Southern Water Corporation Sdn Bhd (SWC)**

   Water treatment, rehabilitation of water treatment plants and construction of water works
2. **Southern Water Engineering Sdn Bhd (wholly owned subsidiary of SWC)**

   Water treatment specialist, operation, maintenance and provision of services to water treatment plants, and equipment
3. **Southern Water Technology Sdn Bhd (wholly owned subsidiary of SWC)**

   Construction of water works and water treatment plants
4. **Equiventures Sdn Bhd**

   Operation and maintenance of existing water treatment and supply facilities as well as construction, operation and maintenance of new water treatment plants
5. **Strategi Tegas (M) Sdn Bhd**

   Operation, maintenance and management of water treatment plants

As with any industry, there are challenges. Resource management, climate change, urbanisation and pollution are among the myriad of challenges faced by utility providers in their quest to provide dependable water supply to customers. In response, AIRB leverages on its expertise, knowledge, and years of experience to deliver innovative approaches to deliver comprehensive water and sewerage solutions.

Chief Executive Officer Anuar Kasim says: "We focus on high performance in order to deliver total solutions to our clients. We have the expertise and technological capabilities, and we have also formed alliances with international strategic partners who are at the forefront of water and sewerage services.

"A visible result of our business improvement initiatives is the 22 per cent decrease in operating cost of Southern Water Corporation Sdn Bhd that produced nearly 130 million cubic metres of treated water for 2010, compared to the previous year. It is a result we are particularly proud of and will continue to pursue.

"Our focus is clear and we are committed to enhancing the quality of life by ensuring safer and cleaner water for brighter tomorrow."

Anuar Kasim
Chief Executive Officer
Aliran Ihsan Resources Berhad

Round-the-clock monitoring of water quality by in-house laboratory chemists who observe an internationally-accredited laboratory management system.

"We are also proud of the way we handled the 4-month long drought in Johor that occurred from February to June 2010 as well as the fall in raw water quality at several sources at the end of 2009. Customers experienced minimal supply interruptions because we redirected treated water from less affected areas to those that needed more supply."

Innovation and quality customer service are the rallying calls that are being continuously internalised at the AIRB Group, as it moves towards expanding its footprint in other parts of Malaysia and overseas. ■

Wash It Right

According to the United Nation's Food and Agricultural Authority, water used for processing food, washing fruits, vegetables, fish and meat, or making ice is supposed to meet drinking water standards for it to be considered safe. Reason: contaminated water is the main cause for pathogen-loading on food, posing a serious health hazard to its consumer.

Maintenance is part of the company's quality assurance process, where 99% compliance with standards for clean water is observed at all times.

"Water governance in Malaysia can be considered successful in the sense that water is served to more than 95 per cent of the population, water tariffs are among the cheapest in the world, and the poor are not denied access to water supply, which is available 24 hours a day."

NW Chan
Issues and Challenges in Water Governance in Malaysia
School of Humanities, Universiti Sains Malaysia,
Penang, Malaysia (20 July 2009)

Please Don't Pollute...

Water covers 71 per cent of the Earth's surface, of which 97.2 per cent is found as saline water in the oceans, and only about three per cent as fresh water. Out of this relatively small proportion of fresh water, 68.7 per cent is found in icecaps and glaciers, 30.1 per cent is found as ground water and the remaining 0.9 per cent as surface water. Surface water comes mainly from lakes (87 per cent) and swamps (11 per cent). The estimated total water supply on Earth is 1,360,000,000 km^3 (326,000,000 ml^3).

In Malaysia, close to 100 per cent of of water comes from surface water (for example, rivers and dams), whereas in many other countries, the main source is ground water. As a tropical country, Malaysia enjoys rainfall of about 2000 mm per year. However, as AIR would attest, it has become challenging to get high quality surface water from rivers and lakes because of man-made pollution.

Source: Water Resources Management in Malaysia by Professor Chan Ngai Weng, Universiti Sains Malaysia

Control panels that employ the Programmable Logic Control system for hardware along the entire production process at AIRB water treatment plants. All production assets are further backed by Computerized Maintenance Management Systems that help monitor the integrity of the entire production process.

"Beyond meeting basic human needs, water supply and sanitation services, water is a resource that is critical to sustainable development. It is a major source of energy in some parts of the world, while in others its potential as an energy source remains largely untapped. Water is also necessary for agriculture and for many industrial processes. And in more than a few countries, it makes up an integral part of transport systems. With improved scientific understanding, the international community has also come to appreciate more fully the valuable services provided by water-related ecosystems, from flood control to storm protection and water purification."

United Nations Water for Life Decade 2005-2015

Chapter 14: Pelabuhan Tanjung Pelepas Sdn Bhd

Charting a New Future

MMC made a quantum leap when it entered the port industry. It had no port history, no knowledge and no resources to manage the business but it had the vision to be involved in an industry that was shaping the economic future of nations in the globalised landscape. World trade is the way of the future, and almost 90 per cent is conducted by sea. Located at the crossroads of the East-West shipping lanes between the economic powerhouses of China, India and ASEAN, Malaysia sought to leverage on this strategic location that has been successfully capitalised by Singapore, an entrepôt centre for more than a century. As a result, the government drew up a maritime policy that aimed to transform Malaysia into a trans-shipment hub.

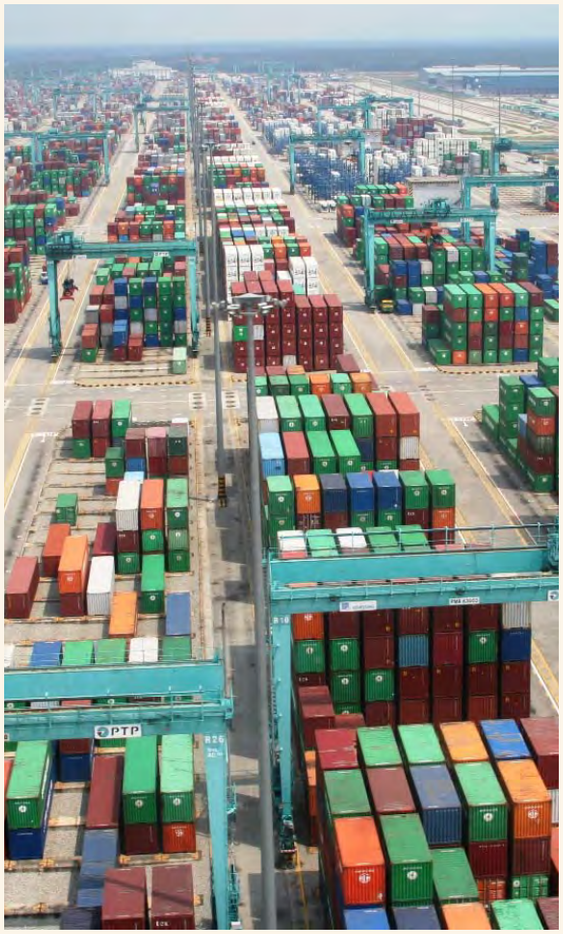
In 2002, MMC acquired a 50.1 per cent stake (raising it to 70 per cent in 2005) in Pelabuhan Tanjung Pelepas (Port of Tanjung Pelepas or PTP), a rising star among container ports. The acquisition of PTP heralded MMC's new course: to become a key player in the nation's transport & logistics sector.

In its first year of operations, PTP had wooed APM Terminals as a partner to take up a 30 per cent stake in the port, and Maersk, the world's largest shipping line, migrated from its base at the Port of Singapore to PTP.

CONTAINER TRAFFIC 2010

World Ranking	Port Name	Trade Region	Total TEU (millions)
1 (2)	Shanghai	East Asia	29.1
2 (1)	Singapore	South East Asia	28.4
3 (3)	Hong Kong	East Asia	23.5
4 (4)	Shenzhen	East Asia	22.5
5 (5)	Busan	North East Asia	14.2
6 (8)	Ningbo	East Asia	13.1
7 (6)	Guangzhou	East Asia	12.6
8 (9)	Qingdao	East Asia	12.0
9 (7)	Dubai	Mid-East	11.6
10 (10)	Rotterdam	Northern Europe	11.1
11 (11)	Tianjin	East Asia	10.1
12 (12)	Kaohsiung	East Asia	9.2
13 (13)	Port Klang	South East Asia	8.9
14 (14)	Antwerp	Northern Europe	8.5
15 (15)	Hamburg	Northern Europe	7.9
16 (16)	Los Angeles	North America West Coast	7.8
17 (17)	**Tanjung Pelepas**	**South East Asia**	**6.5**
18 (18)	Long Beach	North America West Coast	6.3
19 (19)	Xiamen	East Asia	5.8
20 (20)	New York / New Jersey	North America East Coast	5.3

Source: Containerisation International Online, 28 March 2011



"The fundamentals of the port business in Asia are very strong. Asia is the biggest and fastest growing of all markets and would continue to support the big consumer markets in Asia, the US and in Europe. The rapid growth of trade within Asia and between Asian economies and other emerging regions would also drive business for container terminal operators."

***Kim Feijfer**, global CEO of AP Moller Terminals, a 30 per cent shareholder of PTP (Cargo News Asia, 10 January 2011)*

In 2002, the port caught another big 'fish' – Evergreen Marine Corporation shifted its base from Singapore to PTP. The news stunned the industry and for two consecutive years – 2001 and 2002 – the port won the "Best Emerging Container Terminal" Award at the annual Lloyd's List Maritime Asia Awards in Hong Kong.

Today, PTP is a world class trans-shipment hub with a growing list of container operators, big and small.

From swamp to world-class port

In 1993, a group of visionaries, who were bidding for the privatisation of Johor Port, offered a unique proposal: to build a second port about 90 kilometres away at Tanjung Pelepas (Bay of Departure) at their own cost, while managing Johor Port. Not surprisingly, they won the bid.

It was an ambitious green-field development on swamp on the southwest coast of Johor, facing

Singapore's Jurong Port. It was ambition grounded on one overwhelming advantage: location.

The new port was to be sited astride the confluence of the world's busiest shipping lanes: Trans-Pacific, Intra Asia, Europe-Far East and Southeast Asia-Australia. Located in a sheltered bay with a natural depth of 15 to 19 metres of water, the draft alongside the wharf was to be designed at approximately 15 metres.

It was to have a berth 2.16 kilometres in length and a turning basin 600 metres wide to allow ships to manoeuvre easily. The approach channel of 12.6 kilometres would provide easy two-way passage for large vessels such as the new Super Panamax or Post-Panamax ships. There were no tide restrictions, so the port could operate 24/7, 365 days a year.

On 24 March 1995, the Federal Government and the Johor Port Authority signed an agreement with Seaport Terminal (Johor) Sdn Bhd to develop the new container Port of Tanjung Pelepas, better known as PTP.

"Detractors expressed doubts over the completion of the USD1 billion project, especially

Fast Facts: Facilities at PTP

As at the end of 2010, PTP offers:

- 12 berths totalling 4.32 km of linear wharf length
- 1.2 million square metres of container yard
- 200,000 TEU (Twenty-foot Equivalent Unit) in storage space, 38,000 ground slots and 4,200 reefer points
- 44 Super Post-Panamax quay cranes
- Total port capacity of over 8.4 million TEU per year
- 138 rubber tyred gantry (RTG) cranes
- 274 prime movers
- 361 trailers
- Direct connection to the main Malaysian highways
- Railway link to Southern Thailand
- 2,000 acres for port terminal and 1,500 acres for free trade zone
- Deep harbour with a draft of 15 to 19 metres, and turning basin of 600 metres that allows ships of any size to turn easily

"Within five years of operations, PTP joined the ranks of the world's top 20 ports. Daily operations at PTP consistently record 34 gross moves per hour per crane, rendering it one of the most efficient ports in the world."

Datuk Mohd Sidik Shaik Osman
Chairman of PTP

Captain Jyrn Holger Pedersen

"Everything's fine and on time," said Jym Holger Pedersen, vessel master of Axel Maersk, when the world's largest container vessel called on PTP during its maiden voyage on 28 March 2003.

since construction began at the height of the 1997 Asian Financial Crisis. However, there is opportunity in every crisis. Contractors were hungry for work, and we were able to make substantial savings. We remained totally committed to the project," says Datuk Mohd Sidik Shaik Osman, Chairman of PTP. In 1997, he was the Chief Operating Officer entrusted to manage the development of PTP.

"The project faced physical challenges as well. Sludge in the swamp had to be painstakingly dug out and sand brought in to fill up the land," explains Sidik. Despite the challenges, the port was completed ahead of schedule in 1999, and construction was completed below budget. The swamp land had been successfully transformed into a world-class port.

Loading and unloading of cargo at PTP averages at 35 crane moves per hour, rendering it one of the world's most efficient ports.

"Our concession agreement required us to build two berths and 600 metres of wharves by 2000. When big line operators heard of our plan, they were taken aback. They said: 'You plan to be a trans-shipment hub and compete with Singapore with this?' So, we changed our strategy. We thought big and became supply-driven. We built six berths, each 360 metres instead. It succeeded in attracting in Maersk and Evergreen. The supply-driven strategy is risky as it involved heavy capital expenditure. But it is a risk we had to take to succeed!"

***Dato' Mohd Taufik Abdullah**, Executive Chairman (September 1995 - March 2011), Johor Port Berhad. Taufik was involved in planning PTP.*

Connected to the national railway grid, cargo can be sent by rail to PTP.

"Many people doubted whether we could get the port ready on time. Once it was completed, it looked like a boutique port, and many people began to take notice of us. We had visited about 10 other international ports to identify the best and design one to suit our needs," recalls Sidik.

On 10 October 1999, PTP received its maiden vessel from a major shipping operator during a three-month trial period. Five months later, on 13 March 2000, PTP was officially opened. Sidik says, "Our marketing pitch in the early days went something like this: "If you can still get a Singtel (Singapore Telecom) signal when standing at the PTP wharf, it means that you are as good as being in Singapore!"

Just 571 days after commencing operations, PTP registered its first million TEU, and was hailed as the fastest growing port in the world. Within five years,

it was listed as one of the world's top 20 ports. The accolades kept coming. Among them was the Highest Berth Productivity 2005 Award at the APM Terminals Awards in Shanghai. Daily operations at PTP consistently record 35 gross moves per hour per crane, rendering it one of the most efficient ports in the world.

Since its first full year of operations in 2000, PTP has experienced a rapid pace of expansion in its port activities and facilities. Within a short space of 10 years, PTP handled 6.54 million TEU with 12 berths and ranked the 17th busiest port in year 2010 *(refer to box story: Container Traffic 2010)*. Apart from its world class service quality and ample facilities where its 12 berths provide a handling capacity of 8.4 million TEU, PTP has sufficient reserve to continue its long term expansion well into the future to accommodate a total capacity of 150 million TEU.

PTP complies with international safety and security standards.

To enhance its transport & logistics services in Iskandar Malaysia, MMC has designated a vast land bank of 2,255 acres to be developed as a Petroleum Maritime Centre, located directly opposite of PTP.

Focus on integrated services and efficiency

To incentivise its role as an international trans-shipment hub, PTP was accorded free zone status and appointed Free Zone Authority to administer the 1,500-acre Pelepas Free Zone (PFZ). The administration of the PFZ and port operations under one roof enables PTP to provide seamless logistics & transport services to tenants.

Warehousing in the PTP Free Zone.

Located next to the container port, PFZ is divided into two areas: Free Commercial Zone (FCZ) reserved for distribution, logistics, and warehousing activities ideal for consolidation, international procurement centres, regional distribution centres, and distribution services. Meanwhile, the Free Industrial Zone (FIZ) is reserved for light, medium and heavy manufacturing.

Thanks to technology, operations are almost paperless and seamless. The reduction in bureaucracy and processing time has helped PTP become more efficient and competitive. Other port users such as the Customs and the Free Zone Authority are also linked to the system to grant clearance or to hold containers for import, export and trans-shipment.

"As the shipping business is cyclical and dependent on the global economy, ships go to the port that offers them the best services at the lowest cost. That's why we need to achieve throughput at the right price to get the revenue and profit we want. We must manage this efficiently, at minimal costs and with economies of scale to enhance the bottom line," explains Sidik.

"To do this, we must have an efficient IT system, good equipment that is well maintained, and last but not least, the right people with the right training. We multi-task our staff and our throughput has grown without incurring any additional staff cost," he adds.

On the horizon

According to the port's master plan, future development will see the number of berths growing from 12 to 95, and terminal handling capacity, increasing from 8.4 million to 150 million TEU. This would make PTP the only port in Southeast Asia with long term potential to handle growing container traffic.

To strengthen its trans-shipment role, PTP is also growing its regional feeder networks to key intra-Asia routes.

"To sustain our momentum, we need foresight and entrepreneurship, and the right kind of mindset to run a large port. Excellent marketing and execution is critical. We also have to constantly keep our price down to direct the flow of clients from high cost ports towards PTP.

If we do our job well, we should be able to make this happen," says Sidik.

Then and Now

MMC's mining companies were catalysts in the development of towns and infrastructure in the 1900s. Today, this tradition continues with the Port of Tanjung Pelepas, Johor Port and Senai Airport becoming focal points of urban corridors.

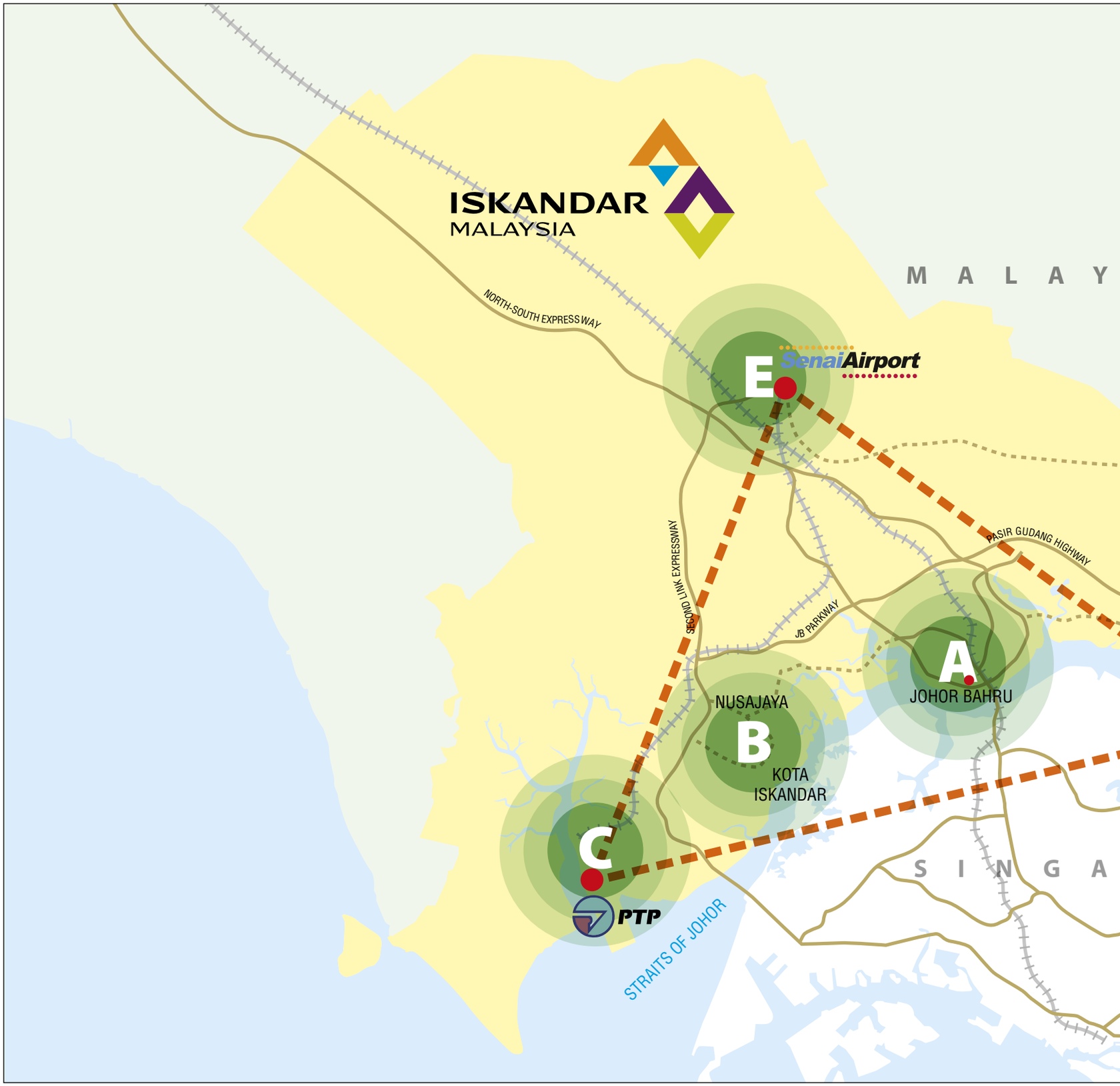
Meanwhile, the area surrounding PTP has been identified by the Federal Government as one of five signature developments of Iskandar Malaysia, a special economic zone modeled after China's Shenzen. Located in Southern Johor, Iskandar Malaysia is the nation's new growth frontier, and promoted as a haven for investors, and special incentives have been formulated for them.

PTP will serve as the transport and logistics cluster of Iskandar Malaysia, providing port and marine services, warehousing, logistics, engineering, hi-tech manufacturing, food production, petrochemical industry and entrepôt trade. To enhance this role, MMC has designated a vast land bank of 2,255 acres to be developed as a Petroleum Maritime Centre.

The other four signature developments of Iskandar Malaysia are: Johor Bahru (financial, commercial and residential), Nusajaya (administrative, residential, commercial, industrial & logistics and tourism), Johor Port (logistics) and Senai International Airport (logistics) *(refer to Iskandar Malaysia map on pages 170 and 171).*

One thing is clear: PTP is well positioned as the international sea gateway of Iskandar Malaysia. ■

Apart from its world class service quality and ample facilities where its 12 berths provide a handling capacity of 8.4 million TEU, PTP has sufficient reserve to continue its long term expansion well into the future to accommodate a total capacity of 150 million TEU.


ISKANDAR
MALAYSIA
M A L A Y
NORTH-SOUTH EXPRESSWAY
E
SenaiAirport
SECOND LINK EXPRESSWAY
PASIR GUDANG HIGHWAY
JB PARKWAY
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JOHOR BAHRU
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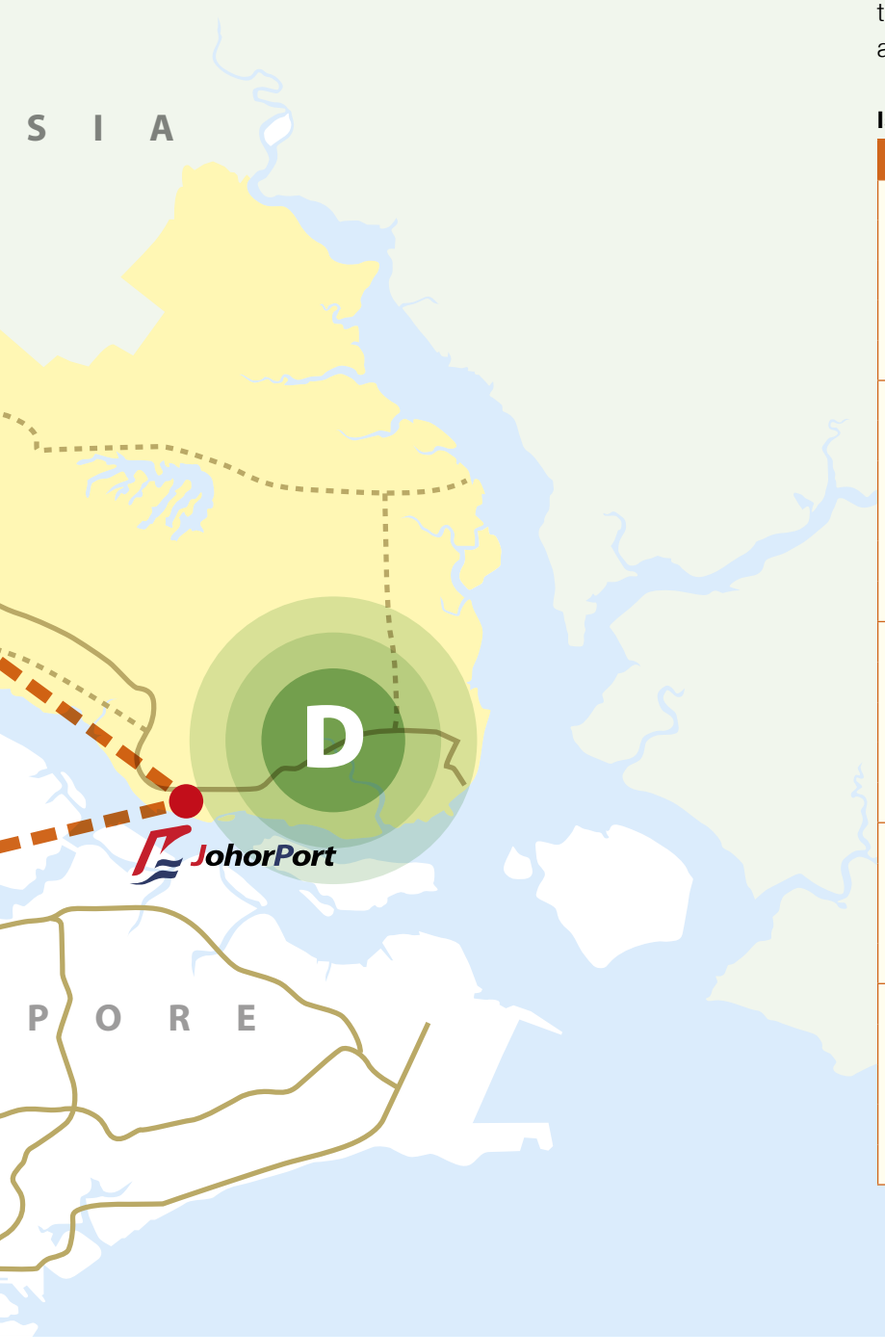


MMC has a presence in three out of the five flagship zones of Iskandar Malaysia: the Port of Tanjung Pelepas, Johor Port and Senai International Airport. Together, they provide multi-modal connectivity within Malaysia and with the region.

Iskandar Malaysia

Flagship Zones	Key Functions and Activities
A. Johor Bahru City Centre	New Financial District
	Central Business District
	Danga Bay Integrated Waterfront City
	Tebrau Plentong Mixed Development
	Causeway (Malaysia/Singapore)
B. Nusajaya	Kota Iskandar
	Medical Hub
	Educity
	International Destination Resort
	Southern Industrial Logistics Cluster
	Medini
C. Western Gate Development	***Port of Tanjung Pelepas***
	Second Link (Malaysia/Singapore)
	Free Trade Zone
	RAMSAR World Heritage Park
	Tanjung Piai
D. Eastern Gate Development	***Johor Port and Industrial Zone***
	Tanjung Langsat Port
	Tanjung Langsat Technology Park
	Kim-Kim Regional Distribution Centre
E. Senai-Skudai	***Senai International Airport***
	Senai Cargo Hub
	Skudai Knowledge Hub
	Senai Multimodal Centre
	MSC Cyberport City

Chapter 15: Johor Port Berhad

Twin Advantages

With the Port of Tanjung Pelepas (PTP) in the Group, MMC enlarged its transport & logistics portfolio by acquiring Johor Port in 2006. With two ports in its fold, the Group became more entrenched in the port industry.

Both ports complemented one another. Johor Port is sited on the south-eastern coast while PTP occupied the south western tip. Both overlook the Strait of Johor, and across the water is Singapore, whose meteoric rise as a city state is in no small measure attributed to its bustling ports – the Port of Singapore and Jurong Port. All are located at the confluence of the world's busiest East-West shipping lanes.

The Malaysian pair form the country's Southern Sea Gateway. PTP serves as a world-class trans-shipment hub, while Johor Port is an international multi-purpose port specialising in bulk and break bulk cargo.

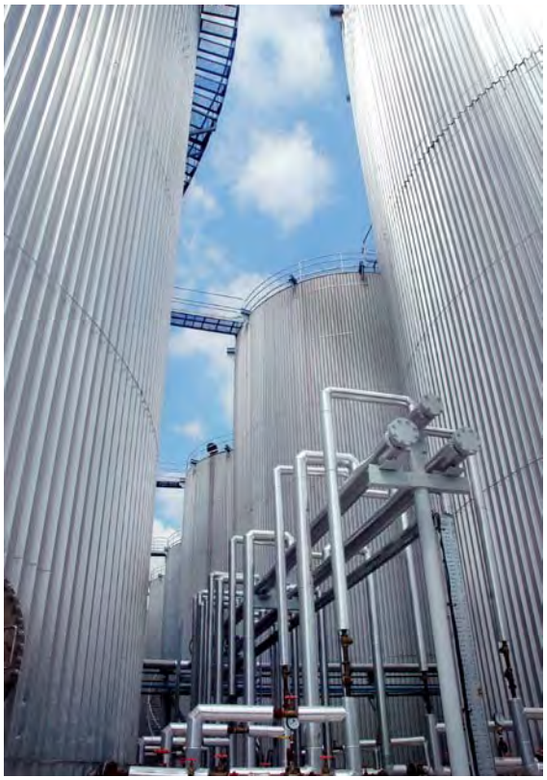
It is the first port in Malaysia's southernmost state of Johor and began operations in 1977. Originally a public enterprise, it was privatised in

Non-edible liquid terminal jetties.

1993 with the issuance of a licence by the Johor Port Authority under the Ports Privatisation Act 1990 to accelerate the realisation of Malaysia's aspiration to become a world class transport & logistics hub. Located on the sprawling 8,000-acre Pasir Gudang Industrial Estate, Johor Port is the first Malaysian port to be designated a free trade zone.

"Johor Port is fortunate to have a vast hinterland in the shape of Pasir Gudang," says Dato' Mohd Taufik Abdullah, the Executive Chairman (September 1995 - March 2011) to Johor Port. "This is the largest industrial area in the south, and the point of origin of most of our cargo. The port also lies within Iskandar Malaysia, a dedicated economic zone for investors."

Today Johor Port manages the largest vegetable oil tanking installation in the world.



Johor Port is one of six ports in Asia to be accredited by the London Metal Exchange for the storage and handling of non-ferrous metals using the inter-modal cargo conversion facility.

Fast Facts

Cargo

As a multi-purpose port, Johor Port caters for all types of cargo – liquid bulk, dry bulk and general cargo (breakbulk) and container.

Facilities & Amenities

- 6,500 ground slots and an annual capacity of 1 million TEU (20ft x 8ft x 8ft)
- 6 gantry cranes, all Post-Panamax size *(Post-Panamax refers to ships that are too large to travel through the Panama Canal)*
- 19 rubber-tyred transfer cranes
- 4 reach stackers
- 50 prime movers
- Dedicated rail depot connected to the rail network of Malaysia, Singapore and Thailand
- 11,000 sqm of warehouse space for containerised cargo
- 12 million litres of fresh water supply
- Berths have an overall length of about 4 km and almost 2.5 million sq ft warehousing space. Berths range from 6.0 to 13.5 metres indepth to accommodate vessels up to 120,000 tonnes deadweight
- 460,000mt of supporting tank farms for edible cargo and 500,000mt storage capacity for non-edible products at the port
- Conveyor systems are supported by rail-mounted quay cranes that enable berthed ships to be connected directly to their user warehouses
- One of six Asian ports listed on the London Metal Exchange
- Fully compliant with International Ship and Port Facilities Security (ISPS) Code

A league of its own

With decades of experience in handling liquid bulk cargo, especially edible oils such as palm oil, soybean oil, sunflower oil, it comes as no surprise that today Johor Port manages the largest vegetable oil tanking installation in the world.

The port's network of pipes allows liquid bulk cargo to be conveyed directly to tank farms, significantly increasing the efficiency of loading and unloading operations. It has a storage capacity of more than 460,000 metric tons for edible liquids and more than 500,000 metric tons for non-edible liquids. At present, liquid bulk and container cargo collectively account for approximately 80 per cent of the port's activities

Taufik says, "Johor Port is one of six ports in Asia to be accredited by the London Metal Exchange (LME) for the storage and handling of non-ferrous metals using the inter-modal cargo conversion facility. The rare endorsement by

"Johor Port is a worthy counterpart of the Port of Tanjung Pelepas. They are like a pair of un-identical twins, each with its own competitive advantages. Together, they have thrust Malaysia forward in international logistics by leveraging on their location at the confluence of the world's busiest shipping lanes."

Dato' Mohd Taufik Abdullah
Executive Chairman (September 1995 - March 2011), Johor Port Berhad

LME has enabled Johor Port to become one of the world's largest hubs for non-ferrous metals, handling billions of dollars worth of metal cargo."

The port also handles hazardous cargo, mainly petroleum products. As a port-of-call to a number of major shipping lines, the terminals are well-designed to handle all types of cargo, from break bulk, dry bulk and liquid bulk to container cargo. Having ventured into the container business since 1979, Johor Port currently services major shipping lines with a dedicated container terminal capable of handling one million twenty-foot equivalent units (TEU) at any one time.

The port also offers a myriad of logistical services through its subsidiary JP Logistics Sdn Bhd. Customers have a choice of comprehensive integrated transportation packages that fulfill their need across Malaysia, Singapore and other regional ports. The services include shipping, road and rail transportation, warehousing and distribution networks, and daily intra-port logistics.

Non-edible liquid cargo storage area that can accommodate more that 500 metric tonnes at any one time.

Port Talk

TEU or Twenty-foot Equivalent Unit is the standard unit for describing a ship's cargo carrying capacity, or a shipping terminal's cargo handling capacity. A standard forty-foot (40x8x8 feet) container equals two TEU (each 20x8x8 feet).

Panamax is the maximum beam that allows vessels to pass through the locks of the Panama Canal (specifically used for dry bulk and container vessels). The term has been in effect since the opening of the Panama Canal in 1914. In 2009 the canal management published the "New Panamax", which will become effective when the third lane of locks, larger than the current two, become operational in 2014.

Malacca-max is the maximum size of container and bulk vessels (in terms of draught) that can cross the Malacca Straits. The Malacca-max reference is believed to be today the absolute maximum possible size for future container vessels (approximately 18,000 TEU).

Lloyds' Registry is an organisation engaged in the surveying and classing of ships so that insurance underwriters and others may know the quality and condition of the vessels involved.

Trans-shipment port is one where cargo is transferred from one carrier to another, or from one vessel of a carrier to another vessel of the same carrier without the cargo leaving the port.

Sources: Brodie, Peter. Dictionary of Shipping Terms, Third Edition, 1997, and Sullivan, Eric, The Main Encyclopedic Dictionary, Fifth Edition, 1996

Aspirations and challenges

To sustain its competitive edge in the port industry, technology and speed are critical success factors. As such, Johor Port relies on its state-of-the-art web-based Johor Port Container Terminal System (JCTS), Multipurpose Terminal System (MPTS), Vessel Clearance System (VCS) and Marine Service System (MSS) with real-time, integrated, paperless transactions to ensure optimal commercial operational efficiency. These systems also optimise the efficiency of Johor Port's dedicated rail depots within the terminals, which connect to the nationwide rail network for seamless logistics.

"With many countries including Thailand and Indonesia aspiring to promote their own ports as preferred ports in the region, competition is becoming intense. Moreover, Johor Port's most formidable competitor is just about 30 kilometres away across the causeway!" Taufik points out.

"Moving forward, we have to be mindful of the business life cycle of Johor Port, and adopt a strategy that is appropriate. For a seasoned player such as Johor Port, the emphasis is not on securing new customers as the port has almost attained full capacity of its facilities. Instead, our focus now is on the retention of existing customers by improving the quality of customer service. Greater customer satisfaction will ensure long-term loyalty," says Taufik.

Bulk and break terminal: unloading of timber cargo.

Marine services: value-add for ship-to-ship transfer operations.

The Day Lightning Struck…

One fateful evening in April 2006, during a thunderstorm, a bolt of lightning struck a fuel depot in Johor Port, sparking an intense fire. It was subdued after much effort, and fortunately there were no casualties.

The incident highlighted the effectiveness of the port's crisis management process and addressed shortcomings that arose.

Safety is a top priority at Johor Port that handles liquefied petrochemicals and resins. Every day there is extensive coordination between the port, petrochemical companies, fire brigade and other relevant local authorities. Safety drills are frequent occurrences at Johor Port.

Johor Port is a worthy counterpart of Port of Tanjung Pelepas. As subsidiaries of MMC, both ports can harness synergies between them to deliver good results to the Group, while strengthening Malaysia's role as a premier international shipping destination. ■

Chapter 16: Senai Airport Terminal Services Sdn Bhd

Seamless Solutions

With two seaports in its fold, MMC ventured into the airport business. In 2009, it acquired Senai Airport Terminal Services Sdn Bhd (SATSSB) that holds a 50-year concession for Malaysia's privately owned airport – Sultan Ismail International Airport in Senai, Johor, commonly known as Senai Airport. With this, MMC not only expanded its transport & logistics footprint, it also became the only company in Malaysia owning and operating international air and sea gateways.

SATSSB is engaged in the development, management, maintenance and operation of Senai Airport, and also providing services such as cargo and ground handling services.

SATSSB Chairman, Datuk Mohd Sidik Shaik Osman says: "The acquisition gave MMC a foothold in the airport business and strengthened the Group's competitive advantage in the transport & logistics sector, one of MMC's three core businesses. From the marketing standpoint, the Group can now offer customers an integrated logistics solution with seamless multi-modal connectivity.

"Senai Airport also positions MMC as an important player in regional logistics. It opens windows of opportunity for MMC to move up the value chain in airport and port-related services. It paves the way for linkages with PTP and Johor Port, and we can draw Senai Airport into the orbit of existing and future regional logistics. This way, MMC can play a more effective role as a transportation & logistics provider in regional

"The integrated development at Senai Airport, which involves the private sector in aerospace, logistics and the cargo industry, as well as the Senai High Technology Park, is in line with the government's aspirations as outlined in the New Economic Model. The role and function of airports have changed from being only a public facility and infrastructure to a form of service investment, which has an impact on the country's socio-economy."

Prime Minister ***Dato' Sri Mohd Najib Tun Hj Abdul Razak***
at the launch of the Aero Mall and Senai Airport City on 22 May 2010

supply chains – offering services that facilitate the movement of products and services from points of production to points of delivery."

The move also entrenched MMC deeper into the dynamic special economic zone of Iskandar Malaysia. It now has a presence in three out of its five flagship zones – the Port of Tanjung Pelepas (in the southwest), Johor Port (in the southeast) and now Senai Airport (in the north). The other two are the commercial centres of Johor Bahru and Nusajaya *(refer to Iskandar Malaysia map on pages 170 and 171)*. One of the primary objectives of Iskandar Malaysia is to transform Johor into an international gateway by leveraging on its location astride East-West air and sea lanes to serve traffic generated by the phenomenal growth of the economic powerhouses of India, China and ASEAN.

Currently underway is SATSSB's comprehensive masterplan to upgrade the 30-year old Senai Airport and its surroundings into a world-class Airport City comprising transportation, logistics, commercial, retail and tourism components.

Fast Facts

- Location: Senai, Johor, Malaysia
- Code: ICAO – WMKJ, IATA – JHB
- Latitude: 01°38'26"N
- Longitude: 103°40'13"E
- Total area: 1,271 acres
- Number of aircraft stands:
  - Passenger (aerobridges): 4
  - Passenger (remote): 4
  - Cargo: 4
- Operating hours: 24/7
- Security: 24 hour surveillance and CCTV
- Floor space: 3,600 sqm (existing)

Passenger

- Airport's distance from Singapore: 30 minute-drive
- Terminal floor area: 35,769 sqm
- Handling capacity per annum: 4.5 million passengers
- Number of check-in counters: 16
- *Other facilities:* flight display system, security screening, weighing system, information & customer service, baggage services, passenger meeting services, baby care room, prayer room, smoking areas, special needs, Wi-Fi services, business centres, clinic, jewellery shop, cosmetics store, pharmacies, health & beauty and convenience stores, bank, bureau de change, reflexology spa, passenger premium lounge, bookstore, food & beverage, sports apparel & equipment, and postal & telecommunications services.

To and From Airport

- Taxi, buses, car rentals and express shuttle services.

Cargo Facilities

- Break & build, storage, perishables centre
- Livestock & animal facilities
- Express mail & courier
- One stop government agencies
- Scheduled road feeder service
- Agent offices, warehouses & truck parking area
- Warehouses
- *Other facilities:* ground handling, aviation security


WTW 4151

Senai Airport was adjudged the "Best Emerging Airport – Asia (less than 500,000 tonnes per year)" at the Asian Freight & Supply Chain Awards 2011 that was held in Singapore.

For MMC, the masterplan holds much promise. Building the Airport City means harnessing synergies of its other core businesses – engineering & construction, and energy & utilities. And it also has the potential to open several new doors for the Group to explore.

Growing in tandem

Situated about 30 km north of Johor's capital city of Johor Bahru, Senai Airport is the air traffic gateway to Iskandar Malaysia. It boasts several locational advantages: it is four to five flight hours away from burgeoning growth centres such as Bangalore, Guangdong, Hong Kong, Macau, Seoul, Shanghai, Taipei and Tokyo as well as parts of Indonesia, Indochina, Northern Australia and the Philippines. It is also the northern anchor of the Johor-Singapore-Indonesia Growth Triangle.

The airport started operations in 1974, serving mainly domestic needs. The rise of Johor as the next industrial belt of Malaysia (after the Klang Valley) in the 1990s required the airport to grow in tandem. It was upgraded to an international airport offering a comprehensive range of aviation, passenger, logistics and cargo facilities, including a bonded warehouse and other warehousing facilities. The runway of 3,800 metres can handle fully loaded long haul cargo flights, while the terminal and cargo centre can serve up to 4.5 million passengers and 80,000 tonnes of freight per annum respectively. Among the passenger and cargo airlines operating at Senai Airport are Malaysia Airlines, AirAsia, Firefly and Neptune Air.

Shaping the future

Senai Airport is on the threshold of a new era. The upcoming Senai Airport City at the southern fringe of Senai Airport has a hinterland of residential and industrial estates. Located on a 1,133-hectare site, it has a designated modern cargo logistics centre and a hi-tech park, complete with amenities such as residential, hospital and commercial facilities. The site also includes the 200-acre Senai Free Zone (SFZ), which has industrial and commercial activities.

Construction of the Airport City commenced in 2010 and is being developed in phases. It is scheduled for completion by 2020. One of the key selling points of Senai Airport City is its direct connectivity – not only with Senai Airport but also with the Port of Tanjung Pelepas and Johor Port, and excellent accessibility via the North-South Expressway, Senai-Desaru Expressway and the Second Link between Johor and Singapore. The 77-kilometre Senai-Desaru Expressway that runs across the Airport City site will improve accessibility to Pasir Gudang

"The government's commitment to the development of the second high technology park at Senai Airport (the first being Kulim Hi-Tech Park) will help expedite the transformation of Malaysia towards a high income economy that will encourage innovation for higher productivity."

Shahrull Allam Shah Abdul Halim
Deputy Chief Executive Officer, SATSSB

One of the key selling points of Senai Airport City is its direct connectivity – not only with Senai Airport but also with the Port of Tanjung Pelepas, Johor Port, North-South Expressway, Senai-Desaru Expressway and the Second Link between Johor and Singapore.

and the eastern part of Johor, and reduce travel time by up to 40 per cent.

Adjacent to the airport and the SFZ are 50 acres of prime land designated for the Senai Aviation Park earmarked for fixed based operations, an aviation academy, an aircraft maintenance centre, a manufacturing and assembly centre, and a logistics and distribution centre.

A start has already been made. "We have attracted international companies to relocate at the Aviation Park," says Sidik. "We want to leverage on our linkages between Senai Airport, PTP and Johor Port to promote seamless movements of passengers and goods. Ultimately, SATSSB aspires to increase its capacity to 15 million passengers and 2 million tonnes of cargo per annum."

Airport services will be further boosted by a hi-tech park. This is Malaysia's second such planned environment (after Kulim Hi-Tech Park) and is designed to serve as a third generation science and technology centre for high-value manufacturing activities. The park offers incentives for high-end industries to move up the value chain. They can also benefit from its IT zone, bio-medical cluster, solar valley and high-tech manufacturing zone.

Besides offering investors and tenants logistical access to ASEAN's 800 million consumers, Senai Hi-Tech Park is also touted as a desirable address for research and development, professional services and human capital development. The future of Senai Airport lies in its success as an Airport City. Given MMC's track record in the transport & logistics sector, it is a goal that will be met. ■

Chapter 17: Stormwater Management And Road Tunnel Project

Two Issues, One SMART Solution

In 2002, MMC partnered construction company Gamuda Berhad to present a bold and ambitious proposal to the Government of Malaysia: to build a tunnel beneath a challenging geological environment in a crowded part of Kuala Lumpur. The tunnel was to serve two purposes – manage storm water during heavy downpour and ease traffic congestion in a busy section of the city.

SMART *An innovative Malaysian engineering solution.*

Past Experience

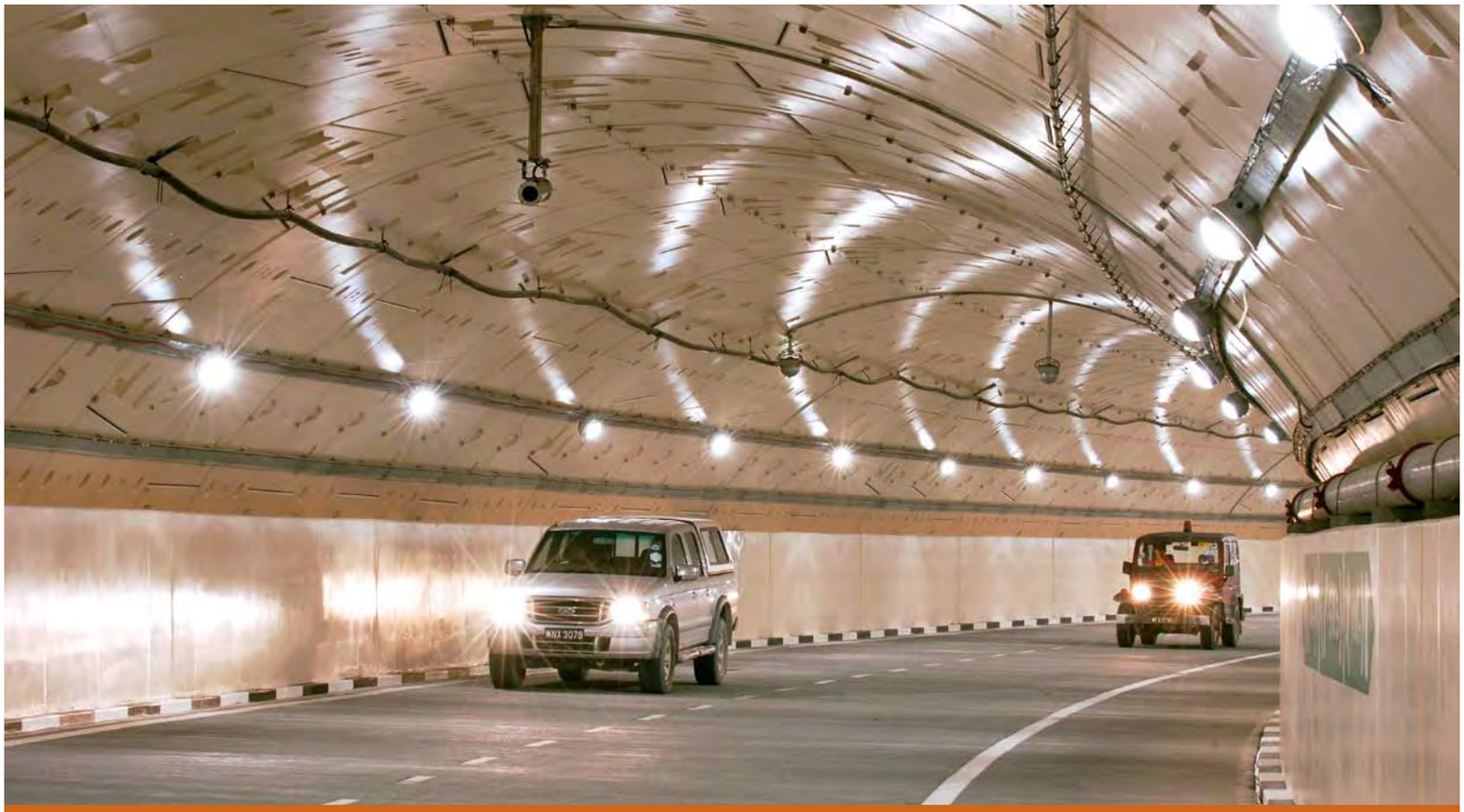
MMC is no newcomer to flood mitigation projects. Three of its tin mining companies – Malayan Tin Dredging Ltd, Southern Kinta Consolidated Ltd and Southern Malaya Tin Dredging – were involved in the Kinta River Deviation project implemented to prevent flooding in mining towns such as Ipoh and Batu Gajah. First proposed in 1927, the 38-mile river deviation was completed in the late 1950s.

The idea was sold, and the Department of Drainage and Irrigation and Malaysian Highway Authority appointed the joint-venture company MMC-Gamuda to build the SMART, the acronym for Stormwater Management and Road Tunnel.

Construction began in January 2003, and four years later a 13.2-metre diameter tunnel opened to traffic on 14 May 2007. It consisted of a 9.7km flood bypass section that incorporated a 4.0km motorway located 20m underground. SMART was hailed as the first dual purpose tunnel in the world.

Built at the cost of around RM1.9 billion, SMART has lived up to expectations. Since opening till 2010, it diverted floodwater 114 times from the confluence of the rivers Sungai Klang and Sungai Ampang that drain across Kuala Lumpur. More significantly, it averted at least seven flooding disasters.

According to a press report on 27 July 2010, the Minister of Natural Resources and Environment, Dato' Sri Douglas Uggah Embas, said the tunnel has saved the Federal Government at least RM112 million. This is a conservative estimate



SMART was hailed as the first dual purpose tunnel in the world. In August 2008, it received the "International Award" for excellence in innovation and engineering at the British Construction Industry Awards.

since it does not take into account private sector losses. The Chief Operating Officer of the tunnel's management company, Mohd Fuad Kamal Ariffin, estimates a saving of RM50 million with every major flood diversion. This figure takes into account property damage as well as loss of productivity.

Meanwhile, the tunnel motorway has reduced travel time significantly for more than 30,000 motorists daily.

Accolades came from far and wide. In August 2008, SMART was honoured at the British Construction Industry Awards with the "International Award" for excellence in innovation and engineering. Regarded as the "Oscar" of construction, SMART triumphed over participants from 183 countries nominated for the award.

RECOGNITION *A proud moment after winning the FIABCI-Malaysia Property Award 2010 (Special Award for National Contribution Category). SMART was nominated to represent Malaysia at the FIABCI International Awards in Cyprus in May 2011.*

Fast Facts

- Each of the two tunnel boring machines – Tuah and Gemilang – used for the SMART project weighed 2,500 tons.
- There are altogether 3,260 lights in the tunnel.
- The amount of water that can be stored inside the SMART system can fill about 1,000 Olympic-size swimming pools.
- There are 202 CCTV monitoring units.
- There are 15 emergency exits, including six escape shafts to the surface.
- There is radio and mobile telephone reception in the tunnel.
- There are two Smart Tag lanes and six cash / Touch 'n Go lanes in each direction of the motorway.

Source: Stormwater Management and Road Tunnel (SMART) website 2011

The international endorsement was followed by the "Kejuruteraan Cemerlang 2010" (Engineering Excellence) award from the Institution of Engineers Malaysia (IEM) on 21 April 2010. In November 2010, it received the "FIABCI Malaysia Property Awards 2010's Special Award for National Contribution."

In 2007, former Prime Minister Tun Dr Mahathir Mohamad (left) toured the construction site of SMART to check on the progress of this public infrastructure project. Dr Mahathir is often referred to as the architect of Modern Malaysia.

In 2009, the National Geographic Channel described SMART as 'Malaysia's ultimate engineering marvel' when it televised a documentary on the construction of SMART.

"We estimate a saving of RM50 million for every major flood diversion. Meanwhile, the tunnel motorway has reduced travel time significantly for more than 30,000 motorists everyday.

Mohd Fuad Kamal Ariffin
Chief Operating Officer
MMC-Gamuda JV SMART Tunnel

The SMART Solution

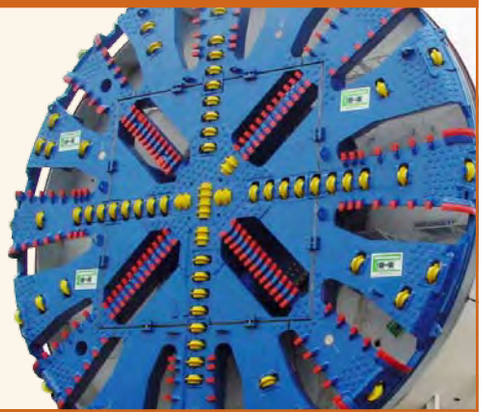
Kuala Lumpur is Malaysia's commercial capital, and the most populous city in the country. Built on the floodplains of the Klang River and its tributaries, the older parts that grew organically from the mining settlement established in the 1800s at the confluence of two rivers are vulnerable to flooding. The worst flood recorded occurred in 1970, and lasted for five days, inundating 445 hectares of the city. Damages were estimated at RM36 million.

Over the next few decades, incidences of flooding became more rampant and a study estimated the cost of damage to the whole country at approximately RM1 billion a year. Of this, RM100 million was borne by the Kuala Lumpur city centre.

Tunnel Boring Machines

Largest in South East Asia!
Second Largest in Asia!

- Shield length: 10.245m
- Shield weight: 1,500 tonnes
- Total length: 70m
- Total weight: 2,500 tonnes
- Cutterhead diameter: 13.260m
- Maximum advance speed: 30mm/30min
- Maximum steering radius: 200m
- Total installed power: 8,200kVA
- Cutterhead electrical power: 4,000kW



The SMART Tunnel was the cover story of Tunnels & Tunnelling International magazine's May 2005 supplement.

"Safety was a priority not only during construction but also after completion."

Maslan Othman
Director, Projects
MMC Corporation Berhad

Besides the risk of flooding, the city centre also experienced high traffic volumes due to burgeoning economic growth. Traffic jams became a common feature of the road link that connected the city to the high-growth southern economic corridor. An alternative route was sought to arrest this problem.

MMC-Gamuda's SMART Solution addressed both these issues.

When floods occur, large volumes of water from the Klang and Ampang river confluence are diverted away from the city's critical roads via a holding pond, a 9.7km bypass tunnel and storage reservoir, preventing floods in the city's commercial districts in Lebuh Ampang, Jalan Masjid India, Jambatan Tun Perak and Dataran Merdeka. The rest of the time, SMART functions as a dual carriage motorway.

Ultimate engineering marvel

In 2009, the National Geographic Channel described SMART as "Malaysia's ultimate engineering marvel" when it televised a documentary on the construction of SMART.

The stormwater tunnel begins at the Kampung Berembang Lake near Sungai Klang (Klang River) and stretches to the Taman Desa Lake near Sungai Kerayong (Kerayong River) at Salak South. The traffic tunnel stretches below Jalan Tun Razak, near Kampung Pandan, to the Sungei Besi Air Base.

The site was far from ideal for tunnelling. The water table was high and the soil soggy. This was exacerbated by the site's karst limestone characterised by sinkholes, underground streams and pinnacles. Moreover, alluvium from previous tin mining activities had softened the soil and necessitated special construction procedures. These challenge called for special precautions to ensure the tunnel's foundation did not crack.

The biggest stars during construction were two German-made Herrenknecht's slurry shield tunnel boring machines (TBM), each with a diameter of more than 13m. Named *Tuah* (Malay term for "fortune") and *Gemilang* (Malay term for "glorious"), they worked from opposite ends,

THE MOTORWAY CONTROL CENTRE *is manned 24 hours a day by trained traffic controllers. They monitor traffic via CCTVs, and information received from road users using SMART Helpline or emergency telephones. Motorists are also kept informed of traffic changes via Variable Message Signs (VMS) and Twitter.*

SMART RONDA *patrols the SMART highway 24 hours a day to assist motorists in need of help.*

penetrating varying geological conditions such as karst, marble and sand. *Gemilang* reached its target after tunnelling 3.968km in April 2006, and *Tuah* continued tunnelling until April 2007 to complete a stretch of 5.372km.

The project demanded the expertise of wide-ranging professionals and technical specialists. No effort was spared in planning and identifying the best method to construct SMART. The search for an efficient, effective and environmentally feasible solution resulted in the culmination and convergence of different available technologies," says MMC Director, Projects, Maslan Othman.

"Safety was a priority not only during construction but also after completion," says Maslan. "The tunnel comes equipped with fire fighting, telecommunications and surveillance equipment at 1-kilometre intervals. Working closely with the police, hospital and fire brigade, the SMART Emergency Response Team (ERT) is a 24-hour standby team that is trained to respond immediately to emergencies or accidents which may occur inside the tunnel. Every vehicle in the tunnel can be visually monitored

by SMART personnel at the state-of-the-art operations control room, equipped with the latest systems in operations management, surveillance and maintenance."

This ingenious engineering solution has attracted much attention. Regarded as a model project, it has been visited by town planners, municipal authorities, engineers, academics and television stations from Singapore, Korea, Japan, Vietnam, Iran, Turkey, Saudi Arabia, the Netherlands, Norway, Switzerland, Romania and Kenya. They have lauded the design and operation of this Kuala Lumpur marvel.

For Malaysia, SMART is more than an engineering marvel: it is the fruition of an innovative idea, conceptualised, implemented and delivered by a team of mainly Malaysians. ■

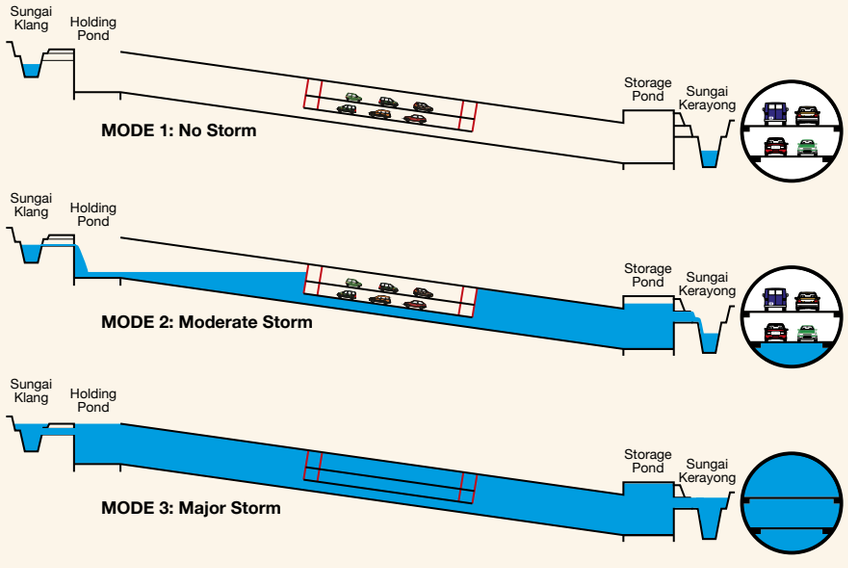
How SMART Works

SMART's primary function is storm-water management, and the operation is based on a triple mode protocol.

Mode 1 is when there is no storm or flood, and SMART functions as a traffic tunnel.

Mode 2 is when a moderate storm occurs and flood water is diverted into the bypass tunnel below. The motorway tunnel continues to remain open to traffic.

Mode 3 is in the event of a major storm, when the tunnel is closed to road traffic. The full tunnel, with a combined capacity of three million cubic metres, becomes available to divert dramatically increased flows of water. Monitoring stations ensure that sufficient time is allocated to allow the last vehicle to exit before the automated watertight gates are opened to permit the flow of flood waters inside the sealed tunnel. The motorway will reopen to traffic after clearing the tunnel within 48 hours of closure.




Dibuka 14 Mei, 3 pts
PLAZA TOL SMART

Located in a busy part of Kuala Lumpur, SMART has reduced travel time significantly for more than 30,000 motorists daily.

Chapter 18: Electrified Double Track Project

On the Right Track

MMC-Gamuda Joint Venture Sdn. Bhd.

Within months of the completion of SMART, the MMC-Gamuda Joint Venture won another iconic and ambitious infrastructure project. It was the much-coveted Electrified Double Track Project (EDTP), a RM12.485 billion contract to construct railway infrastructure in northern Peninsular Malaysia.

Part of a master plan to improve public transportation in Malaysia, the EDTP marks the modernisation of Malaysia's ageing railway network. It will replace the single track laid in the early 20th century with an electrified double track system in the 21st century.

"Getting the job done is not as difficult as winning it," says MMC Director, Projects, Maslan Othman, who had overseen the construction of the well-received SMART. "Projects of this scale require the Federal Government's approval. To prepare for a major proposal such as the EDTP – in contrast to a tender request – both MMC and Gamuda recognised the need to invest in the best of brains and expertise, both local and

Laying of the double track railway line.

History Repeats

Malaysia's first railway line between Taiping and Port Weld that was launched in 1885 was reported as the most expensive public infrastructure project then. The 8-mile track was used by steam trains. More than 100 years later, the electrified double track railway network from Padang Besar to Johor Bahru, about 650km long, is regarded as the most expensive public infrastructure project in the first decade of the new millennium.

Temporary track diversion and temporary Nibong Tebal Station.

foreign, to strengthen our bid." The investment paid off.

On 25 July 2008, a signing ceremony was held in Putrajaya to formalise the award with project owner, Keretapi Tanah Melayu Berhad (KTMB), the national rail operator. It was a 5-year design-and-build contract for a 329-km double track electrified railway line that will span across four states – Perak, Penang, Kedah and Perlis. The track was to be laid near the existing single rail track, beginning at Ipoh in Perak and terminating at Malaysia's northernmost town of Padang Besar in Perlis. The project also includes new stations, bridges, the electrification of tracks, signaling systems and related infrastructure.

A total of 23 stations are to be built. Seven will be major stations, while 14 are minor stations, together with 10 halts and three depots, as well as 11.4km of culverts. The deadline for completion is November 2014. As at November 2010, the project was progressing as scheduled.

Eventually, the northern network will connect to the southern electrified double track network, linking a string of cities and towns on the west coast of Peninsular Malaysia, the most populous and industrialised corridor of Malaysia.

Engineering achievements

Bridges and tunnels are the engineering highlights of the project. The EDTP involves the construction of a swing bridge, 66 roads over bridges, 75 river bridges, eight roads under bridges (RUB), and 45 bridges for motorcyclists and pedestrians.

It boasts of the longest rail tunnel in South East Asia: the Berapit Twin Tunnels in Perak. It consists of a 3.3km tunnel, with a pair of horseshoe-shaped tunnels 2m high and 9m wide that will replace the existing four tunnels, and two bridges. It is scheduled for completion by the end of 2011.

Fast Facts

Approximately 95 per cent of raw materials used in the EDTP were sourced locally; rail beams and track materials formed the bulk of imports. As at 2010, it was estimated that the project will require:

- 1,500,000 tonnes of cement
- 400,000 tonnes or steel bars
- 2,000,000 pieces of pre-cast
- 12 quarries upgraded to supply over 20 million tonnes of aggregates

Removal of blasted material in railway tunnel.

"As at the end November 2010, construction had crossed the midway point, with 57.3 per cent of the project completed. The project team is particularly proud of its health and safety record – we achieved a combined total of 19 million man-hours without a Lost Time Incident."

Dato' Mohd Nor Idrus
Director of Rail,
MMC Engineering Group Berhad

Meanwhile, the 300m Larut Tunnel is the first tunnel to be constructed for electrified trains in Malaysia. Another highlight is the 3.5km marine viaduct across the Bukit Merah Lake in Perak, the longest of its kind in Southeast Asia. It is the longest bridge over a body of water in Malaysia.

The MMC-Gamuda JV, which is no newcomer to flood diversion projects, will also build a 27km land viaduct from Alor Pongsu to Parit Buntar to beat rising waters in this flood-prone zone.

The resources required for the EDTP are vast, and construction works are undertaken simultaneously in all four states. The project is proving to be an excellent platform for the development of human capital, especially engineering professionals.

"We have employed about 3,000 local engineers, and foreign expertise accounts for about 10 per cent of our total workforce," says Dato' Mohd Nor Idrus, Director of Rail, MMC Engineering Group Berhad. Altogether, the EDTP has created more than 100,000 new jobs, including 5,000 professional and 12,000 para-professional positions.

"As at the end of November 2010, construction had crossed the midway point, with 57.3 per cent of the project completed. The project team is particularly proud of its health and safety record – we achieved a combined total of 19 million man-hours without a Lost Time Incident," says Mohd Nor.

Newly laid permanent double track.

BUKIT BERAPIT TWIN TUNNEL BREAKTHROUGH

A milestone in local railway engineering was achieved when the 3.3km tunnel blasted through the final rock segment of the 300m granite hill in Bukit Berapit, Perak on 1 November 2010. The breakthough was carried out by explosives experts from MMC-Gamuda. This is the longest twin railway tunnel in Southeast Asia.

The multiplier effect

The impact of the EDTP will be felt across the board once it becomes operational, with beneficiaries ranging from rail operator KTMB to the government, industries, the general public, and even the environment.

The modernised rail system is poised to overhaul national transportation by offering Malaysians an attractive interstate travel alternative. Currently, modern highways that span across the country are the preferred choice, resulting in an overburdened motorway system. Railways account for only three per cent of the country's transportation usage, compared to roads that dominate at 89 per cent. The current low speed of electric trains on single track makes rail journeys time-consuming, and is shunned by many. This is likely to change when the EDTP becomes a reality. Rail usage is expected to surge to 30 per cent, comparable to many developed countries.

"We want to leave behind a legacy. We want to be remembered as a builder that helped build a nation."

Maslan Othman
Director, Projects,
MMC Corporation Berhad

The primary attraction is the reduction in travel time, increased train frequencies and more reliable services. "With a design speed of 160km/h and a train speed of 140km/h, there will be a dramatic reduction in travel time. A rail journey from Kuala Lumpur to Butterworth that currently takes nine hours will drop dramatically to three hours," explains Maslan. "Freight tonne km is expected to increase by 70 per cent with an annual growth of around six per cent per annum while passenger km is expected to increase by 52 per cent, with an annual growth of 16 per cent per annum."

The EDTP will boost the bottom-line of loss-making national rail operator KTMB by increasing the turnaround

of its existing rolling stock and improving the effective use of its wagons. In 2006, KTMB earned RM113 million from freight services, and this is expected to multiply manifold.

"Cargo transportation will benefit immensely. It is six times more efficient to transport cargo by rail than road. The EDTP will thus improve freight movement within the country. Freight is currently KTMB's biggest revenue contributor in the north, accounting for about 70 per cent of turnover. We also expect the number of inter-city rail coaches to increase by 5.6 per cent each year," adds Maslan.

The environment gains as well. Replacing diesel trains with electric trains will reduce Malaysia's carbon footprint. The trains will tap electricity from the national energy grid, which is powered mainly by natural gas, a green fuel. In addition, kinetic energy released by the electric train's regenerative braking mechanism can be rechannelled to the power grid.

For the government, increased rail travel will translate to reduced fuel subsidies. Electric trains consume about 80 per cent less fuel than trucks that run on subsidised fuel (20 per cent). The rail alternative has the potential to save the government millions of ringgit in fuel subsidy.

The social costs are immeasurable. Besides easing traffic congestion on highways, rail travel is a safer option compared to road travel, especially since Malaysia is known for having one of the highest road fatalities per head of population in the world. The nation stands to save millions in road accident costs every year.

Concrete sleepers ready to be installed.

Laying of new track sleeper.

Concreting of cast in situ at land viaduct.

Jointing of spun pile for construction of road over bridge.

"The Electrified Double Track Project from Ipoh to Padang Besar would certainly stimulate development in Tasek Gelugor and benefit the people living in and around here. The new development will surely transform the place into a modern town, especially when new shopping malls and new business premises begin to take shape.

Shabudin Yahaya, Permatang Berangan State Assemblyman
(Bernama, 18 March 2010)

Strategically, MMC-Gamuda's EDTP is critical to the realisation of the government's Northern Corridor Economic Region as a world-class logistics hub. The economies in this corridor – the northern states of Perlis, Kedah, Penang and Perak – are forecasted to enjoy GDP growth from 5.9 per cent to 7.9 per cent per annum over the next five years as a result of the project.

When the EDTP becomes a viable commuter service,

The double track project is critical to the realisation of the Government's initiative to transform the Northern Corridor Economic Region into a world class logistics hub.

it will be a catalyst of economic activities in cities and towns along the network. It will facilitate easier movement between work and home, overcoming barriers posed by geographical distances.

In the longer term, Malaysia's electrified double track railway system is envisioned as part of the Trans-Asian Railway (TAR) stretching from the Far East to Western Europe. Promoted by the United Nations agency, Economic and Social Commission for Asia and the Pacific (ESCAP), TAR is envisioned as an epic 80,900km rail network. It is a collection of regional networks, with Malaysia belonging to the Singapore-Kunming Rail Link (SKRL). The SKRL begins in Singapore and connects Malaysia, Thailand, Myanmar, Vietnam, Cambodia and Laos before terminating in Kunming, the capital of Yunnan in Southern China. ■

The EDTP's 3.5km marine viaduct across the Bukit Merah Lake in Perak is the longest of its kind in Southeast Asia.

PART 5

The MMC Family

MMC reflects the good old fashioned values of venerable institutions that believe their staff are the life blood of the company. For many staff, MMC is their 'job for life', and 'the one and only employer'.

It must be something to do with its origins as a mining company, when staff were isolated from the mainstream of life, living in self-contained communities in the outskirts of towns that in all probability the company helped build. In these instances, when in distress, staff turned to neighbours, who were likely to be work mates. So, distinctions between home and work became blurred.

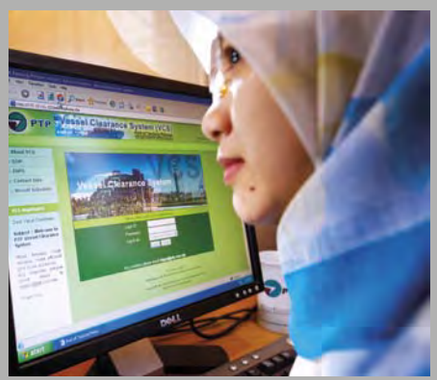
It must also be something about the values subscribed by the company itself, which knew that by taking good care of staff, it would get the best out of them. Its duty did not stop at the mine or office. It chose to look after them after hours. There were sports carnivals, family days, annual dinners, and family excursions to holiday destinations.

Times may have changed but this legacy continues, promoted and encouraged by the management, who have built on the past to forge what is now referred to as One MMC.

An Employer of Choice

"Malakoff is a company that invests in its people. It strives to enhance their competency and skill levels as well as their leadership qualities. Its most prized asset is the the focus on staff welfare. I also admire its commitment to Corporate Social Responsibility, which involves community engagement and the environment."

Bani Zainal
Senior Vice President, Corporate Services Division
Malakoff Corporation Berhad



"I have a personal attachment to MMC, and after my family, I will drop everything else for the company. During my moment of sadness, MMC showed that it really cared. This happened when my mother was in a diabetic coma for more than a month. MMC helped by providing a guarantee to cover the private hospital expenses. It also made allowances for me to visit her every morning.

The company has also helped me develop my potential. For most of my working life in MMC, I have been assigned to projects. This has given me the experience to work in different working environments with different partners, and nurture different skills sets. In 2006, at the age of 50, the company sent me on a 5-week management programme at Insead Management Business School in France."

Maslan Othman
Director, Projects,
MMC Corporation Berhad

"I've been with MMC for seven years, and during this period I have grown professionally as well as personally. I have worked at the head office, at subsidiaries – PTP and Air Berhad – and overseas at the Jazan Economic City. They are all different working environments, and this has kept me continuously challenged to perform well individually as well as a team player."

Syadli Saringat
Senior Manager, Business Development
Aliran Ihsan Resources Berhad

"I used to ask my husband why he is so loyal to the company. Was he not bored working at the same place for so many years? Why did he not accept other job offers?

When he fell ill, I understood why. Staff from all levels would call or drop by at our home to cheer him up. One thing about MMC is that it is a caring employer that emphasises on staff welfare. I have since learnt that there is more to life than just chasing money and power."

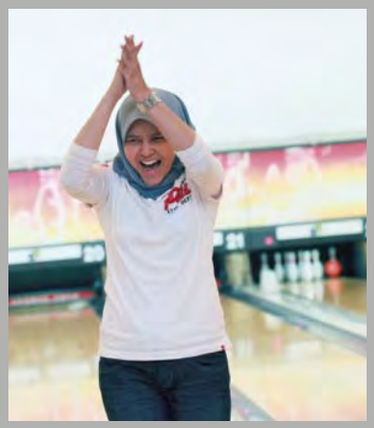
Radin Asmawati Asnawi,
widow of the late Ahmad Roslan, General Manager, Special Projects (who passed away from cancer in 2010)

An Employer of Choice

MMC After Hours

“Every year, my family and I look forward to the Kelab Rekreasi MMC (MMC Recreation Club) calendar, which plans sports and social activities for members. Since I joined the company in 1995, I have been on several fishing trips and taken part in bowling competitions. My best memories are the holidays to Sabah, Sarawak and Bandung, Indonesia. At these outings, we meet staff from other departments and subsidiaries. That’s what makes MMC special – it’s not all about work. The socialising helps to lift our spirits.”

Salim Saad, *Executive, Property & Commercial*
MMC Corporation Berhad



"The company encourages participation in sporting and recreational activities that are organised by the Kelab Rekreasi MMC. I enjoy bowling and have never missed any annual tournament. My best memory is the Mount Kinabalu Charity Climb in 2001. Led by the Group Chief Executive Tan Sri Ibrahim Menudin, we climbed Southeast Asia's highest peak. The company pledged to contribute RM1,000 to charity for every staff who reached the top. We raised RM80,000 that was donated to poor communities in Likas, Kudat and Kundasang in Sabah."

Muniyati Mohd Azam,
Accountant, Senai Airport Terminal Services Sdn Bhd

MMC After Hours

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Salim Saad, *Executive, Property & Commercial*

MMC 'Juniors'…

"I wish to thank MMC for taking good care of my father. Although he sometimes complains about his job, especially his frequent outstation trips, he always says that he is in love with what he is doing. He says his job brings him excitement. MMC has given us some quality time together during the Family Day and other outdoor events it regularly organises. It also organises educational workshops for staff children. My sister and I have attended them, and they helped us with our studies. Most of all, I wish to thank MMC for recognising me with the Anugerah Pelajar Cemerlang 2006 when I excelled in my examination."

19-year old ***Muhammad Arieff Arfan Muhamad Amran,***
son of Muhammad Amran Othman,
General Manager,
MMC Engineering Group

"I have attended many MMC events such as family trips, treasure hunts and dinners. There are always many familiar faces, lots of fun, lucky draws and good food. My favourite outing is the annual treasure hunt when I get to help my mum and dad solve puzzles and look for treasures. This is the time when I see my parents arguing while on the road, but thankfully they make up at the finishing line. Once when we won, my family received four electric irons as prizes! I wish they were four iPods… I like the fact that MMC cares for the staff's children. I have been lucky to receive the MMC Anugerah Pelajar Cemerlang twice – when I got 5As in the UPSR examination, and then again when I performed well for my PMR examination. I just received 8A in the SPM (Form 5) examination and hope to win the award again."

17-year old
Mohd Aris Nazman,
son of Norakmal Abdul Bari,
Senior Manager, Administration,
MMC Corporation Berhad

MMC ‘Juniors’…

Our Pillars of Support

"Maybank is confident that under the capable leadership of the board and management as well as the support of all its stakeholders, MMC will be able to achieve its vision of becoming a premier global utilities and infrastructure group and create an even better Malaysia for future generations. The Maybank Group is honoured to be associated with MMC and will continue to be a trusted partner in the next phase of its growth. We wish MMC many more milestones in the years ahead."

Dato' Sri Abdul Wahid Omar
President & CEO, Maybank

> *"The partnership between MMC and APM Terminals in Tanjung Pelepas has over the years been growing stronger and stronger. We are pleased to be partners with MMC and with our individual unique group capabilities we both mutually benefit and thrive to bring the business forward."*
>
> ***Martin Gaard Christiansen***
> *CEO, APM Terminals – Asia Pacific Region*

Our Pillars of Support

Our Pillars of Support

"As the largest IPP in the country, Malakoff has played its role in contributing towards the provision of adequate supply of stable, quality power to meet the demands of the fast growing economy. This has enabled Malaysia move up the value chain, particularly in the manufacturing sector, the engine of national economic growth."

Tan Sri Datuk Dr Ahmad Tajuddin Ali
Chairman, Energy Commission, Malaysia

Appendix

- Glossary
- MMC's Fleet of Dredges (1986)
- Historical Annual Average Tin Prices (1915-2009)
- Formation of Malaysia Mining Corporation Berhad
- References
- Credits

Glossary

Amang is a Malaysian term referring to heavy minerals left behind after the cassiterite (tin ore) has been separated out at the tin shed or ore treatment plant.

British Resident was appointed in the Malay States of Perak, Selangor, Negeri Sembilan and Pahang (Federated Malay States) to advise the Sultan on matters of state administration. They did not have authority over Malay customs and Islamic religious matters, which came under the jurisdiction of the Sultan.

British Advisor was appointed in the Malay States of Kedah, Perlis, Kelantan, Terengganu and Johor (Unfederated Malay States) to advise the Sultan on matters of state administration. Their powers were limited compared to the British Resident in the Federated Malay States.

Cassiterite Concentrate is material containing high content of tin ore after undergoing a mineral separation process.

Conversions

Weights

1 katie = 0.60479 kg
1 picul (pikul) =100 katies or 60.479 kg
1 long ton = 1.01605 tonnes (metric ton)

Lengths and Distances

1 foot = 0.3048 metres
1 mile = 1.6093 kilometres

Area

1 acre = 0.4047 hectares

Cornwall Tin Mines

The history of mining in Cornwall and West Devon stretches back into prehistory when this area was uniquely-placed to supply tin that was vital for the production of bronze in Britain. Tin from the region was also supplied to western Europe during the medieval period. By the first half of the 19th century, tin and copper became key to the progress of industrialisation, and production was of world significance. In 1870 Cornwall was the premier tin mining field in the world.

Foreign competition was to change all that. Competitors overseas were producing ores far more cheaply than Cornwall. In 1872, tin was discovered in Queensland, New South Wales and Tasmania. Tin fever swept across Australia. Renewed competition from Malaya and Bolivia was the final nail in the coffin and between 1871 and 1881 it is estimated that a third of Cornwall's mining population emigrated in the face of unbearable hardship at home. Within half a century of the tin boom of 1870-72, Cornwall's tin mining industry was almost dead. It spelt the end not only of a 4,000-year old regional industry that was responsible for most of the world's tin in the 19th century, but also the last tin mine in Europe.

In 2006, select mining landscapes across Cornwall and west Devon became World Heritage Sites World Heritage status gives recognition to the Cornish mining's excellence as a world class cultural heritage site and recognises the importance its historic landscapes, outstanding mine buildings and other features, in addition to its important role in technological innovation and scientific research.

DYMM Sultan Idris of Perak succeeded to the throne in 1887. He and Sir Hugh Low are known as the pioneers of modern Perak.

Economic Transformation Program or ETP is a comprehensive effort to transform Malaysia into a high-income nation by 2020.

Federated Malay States In 1896, Selangor, Perak, Negeri Sembilan and Pahang united to form the Federated Malay States (FMS). Although the full significance of this event only became apparent later, it marked the beginning of the centralised federal system of government and the rise of Kuala Lumpur, its capital.

The International Tin Council was established in 1956, following the work of the International Tin Study Group established in 1947 to survey the world supply and demand of tin. The ITC's aims were to promote the achievement of a long-term balance between world production and consumption of tin, and to prevent excessive fluctuations in price. This was achieved by the creation and operation of a buffer stock system involving mandatory contributions by producer and consumer countries, the fixing of floor and ceiling prices, and the regulation of exports. The activities of the Council were governed by a series of six 5-year International Tin Agreements, commencing in 1956. The sixth agreement was extended for a further two years in 1987. The Council was dissolved in 1990.

Kuala Lumpur Tin Market is a physical tin market where buyers and sellers transact business directly. It originally adopted the open outcry system where buyers and sellers meet to transact business on the floor by open competitive trading, similar to the "Gold Fixing" system.

London Metal Exchange is the world's premier non-ferrous metal market. It offers futures and options contracts for aluminium, copper, tin, nickel, zinc, lead, aluminium alloy and NASAAC, steel billet, cobalt and molybdenum.

Malaya The Malay peninsula was often referred to as Malaya during the British Colonial period, beginning with the colonisation of Penang in 1786. In 1948, following the union of the Federated Malay States and Unfederated Malay States, the Federation of Malaya came into being as a political entity, in preparation for self-rule.

Malayan Emergency (1948-1960) was declared on 18 June 1948, after three estate managers were murdered by communist terrorists in Perak, northern Malaya. Twelve years of guerrilla warfare followed, when communists in the jungle waged war against the democratically elected government of the Federation of Malaya. The communist insurgency was eventually quelled in 1960. The victory has been described as one of the most successful wars against communist terrorism in Southeast Asia.

Malaysia was formed on 16 September 1963, when the Federation of Malaya was expanded to include three new states: Singapore, Sarawak and British North Borneo (later renamed Sabah). Singapore seceded from the federation in 1965, and since then Malaysia consists of 13 states and three federal territories. They are:

> ***States:*** Perlis, Kedah, Pulau Pinang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Pahang, Kelantan, Terengganu, Sarawak and Sabah
> ***Federal Territories:*** Kuala Lumpur, Putrajaya and Labuan

Malaysia Mining Corporation Berhad is the name adopted by the enlarged entity created following the merger of two mining giants – Malayan Tin Dredging Berhad and Malaysia Mining Corporation Berhad – on 10 October 1981. The older Malaysia Mining Corporation Berhad was renamed MMC (1976) Berhad.

Malaysia Plans are 5-year socio-economic blueprints to propel the growth and development of the country. To date, there have been 10 Malaysia Plans. They are:

1. First Malaysia Plan (1966-1970)
2. Second Malaysia Plan (1971-1975)
3. Third Malaysia Plan (1976-1980)
4. Fourth Malaysia Plan (1981-1985)
5. Fifth Malaysia Plan (1986-1990)
6. Sixth Malaysia Plan (1991-1995)
7. Seventh Malaysia Plan (1996-2000)
8. Eighth Malaysia Plan (2001-2005)
9. Ninth Malaysia Plan (2006-2010)
10. Tenth Malaysia Plan (2011-2015)

Melaka Sultanate was founded in 1394 by Parameswara, a Palembang prince of Hindu descent from Srivijaya. He forged alliances with China, and this helped build Melaka into a major international trading centre. In its heyday, the sultanate stretched from southern Thailand in the north to Sumatra in the southwest. It flourished under eight Sultans, and had a well-defined hierarchy of government. The sultanate relied on Asian trade, and its primary indigenous product was tin. The Portuguese heard of Melaka's wealth, and, unable to negotiate a friendly trading alliance, invaded its capital in 1511, forcing the Sultan to flee to Johor. Here, Sultan Mahmud founded the Sultanate of Johor in 1528. Johor took over from Melaka as an international trading centre. The Portuguese invasion disrupted Asian trade patterns and resulted in the decline of Melaka as a port.

Melaka Sultans:

1. Parameswara (1394-1414)
2. Megat Iskandar Shah (1414-1424)
3. Muhammad Shah (1424-1445)
4. Abu Shahid (1445-1446)
5. Muzaffar Shah (1446-1456)
6. Mansur Shah (1456-1477)
7. Alauddin Riayat Shah (1477-1488)
8. Mahmud Shah (1488-1511)

Merdeka is the Malay word for Independence. The Federation of Malaya gained independence from Britain on 31 August 1957, and since then 31 August is celebrated as Merdeka Day.

MMC Corporation Berhad is the name adopted by Malaysia Mining Corporation Berhad beginning 4 June 2004 to better reflect its new direction. A new logo was launched to mark the change in 2005.

New Economic Model (NEM) is an economic plan unveiled by Malaysian Prime Minister Dato' Sri Mohd Najib Tun Hj Abdul Razak on 30 March 2010. The NEM aims to shift affirmative action from being ethnically-based to being needs-based, and forge a Malaysia that is more competitive, and market- and investor-friendly. The ultimate goal of the NEM is to propel Malaysia to become a high income nation by 2020.

New Economic Policy (NEP) was launched in 1971 by the government of Malaysia. It is an affirmative action programme that aims to restructure Malaysian society as a means of creating harmony and unity in a country with a variety of ethnic groups and religions. The NEP has two strategies:

- To reduce poverty regardless of race, by increasing income levels and employment opportunities for all Malaysians.
- To restructure society to correct economic imbalances and reduce and eventually eliminate the identification of race with economic function.

Permodalan Nasional Berhad (PNB) was incorporated on 17 March 1978 as a pivotal instrument of the Government's New Economic Policy to promote share ownership in the corporate sector by bumiputeras, and to develop opportunities for suitable bumiputera professionals to participate in the creation and management of wealth.

Prime Minister of Malaysia is the elected head of state. Since independence in 1957, Malaysia has had six prime ministers. They are:

1. Tunku Abdul Rahman Putra (1957-1970)
2. Tun Abdul Razak Hussein (1970-1976)
3. Tun Hussein Onn (1976-1981)
4. Tun Dr. Mahathir Mohamad (1981-2003)
5. Tun Abdullah Ahmad Badawi (2003-2009)
6. Dato' Sri Mohd Najib Tun Hj Abdul Razak (2009-to date)

Raja Abdullah of Perak was installed as DYMM Sultan Abdullah by the British following the Pangkor Engagement of 1874. However, he was implicated in the assassination of British Resident JWW Birch and exiled to Seychelles. He was succeeded by Sultan Yusof, who was in turn succeeded by Sultan Idris.

Resident General was appointed as the British Colonial Government representative heading the Federated Malay States. Sir Frank Swettenham was the first Resident General.

Sir Frank Swettenham was the first British Resident of Selangor. Later he became the Resident General of the Federated Malay States.

Sir Hugh Low became resident of Perak in 1877. He was a successful British administrator and his methods became models for subsequent British colonial administration in Malaya.

Straits Settlements In 1826, Melaka and Penang, the two British settlements in the Malay peninsula, together with Singapore, became the Straits Settlements under the control of British India. Singapore served as the centre of government for three Straits Settlements from 1832. Under the jurisdiction of the Colonial Office in London, the Straits Settlements became Crown Colonies on 1 April 1867.

Tin Concentrate is a material containing a high content of tin after undergoing a concentration process. Includes but not limited to cassiterite concentrate.

Tin Ingot is a tin shape such as a bar or block that is cast in a standard shape for convenient storage or shipment.

Tin Ore is material containing a high content of tin. It may or may not have undergone a concentration process.

Unfederated Malay States With the British Residential System firmly established in the Federated Malay States, the Colonial Government wanted to bring the rest of the Malay peninsula under its control and to fix a definite frontier between Siam and British Malaya. A treaty was signed with Siam in 1909, and Kelantan, Terengganu, Kedah and Perlis came under British protection. These states formed a separate group called the Unfederated Malay States and British Advisers were appointed in each state to assist the sultan in matters of state administration. In 1914, Johor signed a treaty with the British and accepted a British Adviser, and became the last Unfederated Malay State.

MMC's Fleet of Dredges (1986)

Prior to the collapse of the tin mining industry in October 1985, MMC had a fleet of 42 dredges, of which 21 were still in operation. Output of tin concentrates from its mines accounted for 20 per cent of Malaysia's tin production. Here we showcase the mighty steel ladies behind Malaysia and MMC's fame as a world leader in tin production.

PERAK

Locality	Dredge No.	First Built	Last Built	Mining Capacity (yard^3 per month)	Bucket Capacity (feet^3)	No. in Band	Operating Depth (feet)	Designer
Austral Amalgamated Tin Sdn Bhd								
Pasir Panjang Ulu (Kampung Gajah)	AA1	1929	1967	468,000	18	108	110	Simmons / FW Payton and F Morton
	AA2	1940	1973	468,000	18	110	110	Simmons / FW Payton and F Morton
Bidor Malaya Tin Dredging Sdn Bhd								
Bidor	BMT1	1939	1946	390,000	15	90	82	Alluvial Mining
	BMT2	1929	1968	450,000	15	99	93	FW Payne
	BMT3	1929	1969	450,000	15	100	93	FW Payne
	BMT4	1929	1969	450,000	15	112	112	FW Payne
Kamunting Tin Dredging Berhad								
Kamunting	KTD 5	1929	1963	170,000	8	84	57	Cammellaird
Trong, Taiping	Sri Matang	1939	1963	396,000	18	110	107	FW Payne
Kramat Tin Dredging Berhad								
Tapah Road	KTD	1929	1954	273,600	15	105	100	Conrad
Kampar Tin Fields Bhd								
Malim Nawar	KK2	1940	1949	414,000	18	124	130	FW Payne
Lower Perak Tin Dredging (M) Bhd								
Pasir Panjang Ulu (Kampung Gajah)	LP1	1939	–	396,000	18	126	130	FW Payne
Malaysia Mining Corporation Berhad*								
Pasir Panjang Ulu (Kampung Gajah)	KG2	1937	1950	468,000	18	126	110	FW Payne
	KG3	1950	–	432,000	18	127	130	FW Payne
	KG4	1958	–	432,000	18	127	130	FW Payne
	KG7	1967	–	540,000	20	148	150	FW Payne
	KG8	1940	–	430,000	18	126	130	FW Payne
Southern Kinta Consolidated Ltd								
Ulu Bernam	BM 1	1931	1957	330,000	15	115	85	Conrad
	BM 2	1928	1964	330,000	15	102	77	Conrad
Kampong Gajah	SK2	1940	–	336,000	18	123	130	FW Payne

** Malaysia Mining Corporation Berhad (MMC) was the name adopted by Malayan Tin Dredging Berhad following its merger with MMC in 1981.*

Locality	Dredge No.	First Built	Last Built	Mining Capacity (yard^3 per month)	Bucket Capacity (feet^3)	No. in Band	Operating Depth (feet)	Designer
Malaysia Mining Corporation Berhad*								
Southern Malayan Tin Dredging Berhad								
Kampong Teja	TT1	1927	1950	204,000	12	102	78	FW Payne
Tanjung Tualang	TT2	1927	–	288,000	12	103	87	FW Payne
	TT3	1928	1948	288,000	12	104	83	FW Payne
	TT5	1938	1963	468,600	18	112	111	FW Payne
Degong Road	DR4	1929	1968	346,000	10	105	84	FW Payne
	DR6	1938	1966	390,600	15	112	90	FW Payne
Timah Dermawan Sdn Bhd								
Air Kuning	TD1	1980	–	702,000	27	125	130	PCM
Tronoh Mines Malaysia Berhad								
Air Kuning	AK1	1934	1967	400,000	14	131	130	FW Payne
	AK2	1934	1969	410,000	18	106	120	FW Payne

SELANGOR

Air Hitam Tin Dredging Bhd								
Air Hitam	AHTD1	1929	1961	364,000	14	136	125	FW Payne
	AHTD2	1941	1958	440,000	28	136	167	FW Payne
Berjuntai Tin Dredging Bhd								
Batang Berjuntai	BTD 1	1927	1981	241,800	14	108	100	Anglo-Oriental/Conrad/ PCM
	BTD 2	1927	1967	315,000	15	116	98	Anglo-Oriental/Conrad
	BTD 3	1929	1968	322,500	16	106	88	Anglo-Oriental/Conrad
	BTD 4	1929	1961	322,500	16	121	100	Anglo-Oriental/Conrad
	BTD 5	1938	1964	400,000	16	83	67	Anglo-Oriental/United Engineering Company
	BTD 6	1966	–	620,000	20	133	140	Anglo-Oriental/MED
	BTD 7	1969	1971	844,660	22	126	120	Anglo-Oriental
	BTD 8	1976	–	760,000	22	132	130	Anglo-Oriental
	BTD 9	1979	1982	610,000	22	132	130	PCM

Historical Annual Average Tin Prices (1915-2009)

YEAR	RM / picul	RM / kg
1915	78.17	1.29
1916	87.53	1.45
1917	108.74	1.80
1918	150.62	2.49
1919	120.68	2.00
1920	150.67	2.49
1921	85.04	1.41
1922	80.64	1.33
1923	101.75	1.68
1924	124.19	2.05
1925	131.78	2.18
1926	144.59	2.39
1927	144.93	2.40
1928	114.18	1.89
1929	104.38	1.73
1930	72.89	1.21
1931	60.29	1.00
1932	69.76	1.15
1933	99.99	1.65
1934	114.41	1.89
1935	111.32	1.84
1936	100.39	1.66
1937	119.75	1.98
1938	95.43	1.58
1939	114.44	1.89
1940	129.92	2.15
1941	135.51	2.24
1942		
1943		
1944		
1945	153.83	2.54
1946	164.64	2.72

YEAR	RM / picul	RM / kg
1947	218.16	3.61
1948	281.38	4.65
1949	294.48	4.87
1950	366.92	6.07
1951	526.61	8.71
1952	479.58	7.93
1953	362.75	6.00
1954	353.60	5.85
1955	365.50	6.04
1956	387.03	6.40
1957	373.19	6.17
1958	369.35	6.11
1959	396.94	6.56
1960	393.68	6.51
1961	446.85	7.39
1962	447.79	7.40
1963	455.40	7.53
1964	619.42	10.24
1965	702.80	11.62
1966	645.22	10.67
1967	600.09	9.92
1968	564.54	9.33
1969	626.09	10.35
1970	665.01	11.00
1971	631.26	10.44
1972	625.59	10.34
1973	686.22	11.35
1974	1,136.63	18.79
1975	963.80	15.94
1976	1,146.56	18.96
1977	1,583.03	26.17
1978	1,735.11	28.67

YEAR	RM / picul	RM / kg
1979	1,958.95	32.39
1980	2,159.49	35.71
1981		32.34
1982		30.09
1983		30.19
1984		29.16
1985		29.67
1986		15.39
1987		16.80
1988		18.49
1989		23.05
1990		16.45
1991		15.05
1992		15.23
1993		13.09
1994		14.12
1995		15.54
1996		15.35
1997		15.31
1998		21.46
1999		20.20
2000		20.47

YEAR	US$/tonne	RM/kg
2001	4,338.00	16.49
2002	4,048.00	15.33
2003	4,954.00	18.83
2004	8,616.00	32.74
2005	7,410.00	27.94
2006	8,746.00	32.03
2007	14,477.00	49.74
2008	19,182.00	62.93
2009	13,556.00	47.55

NOTE:

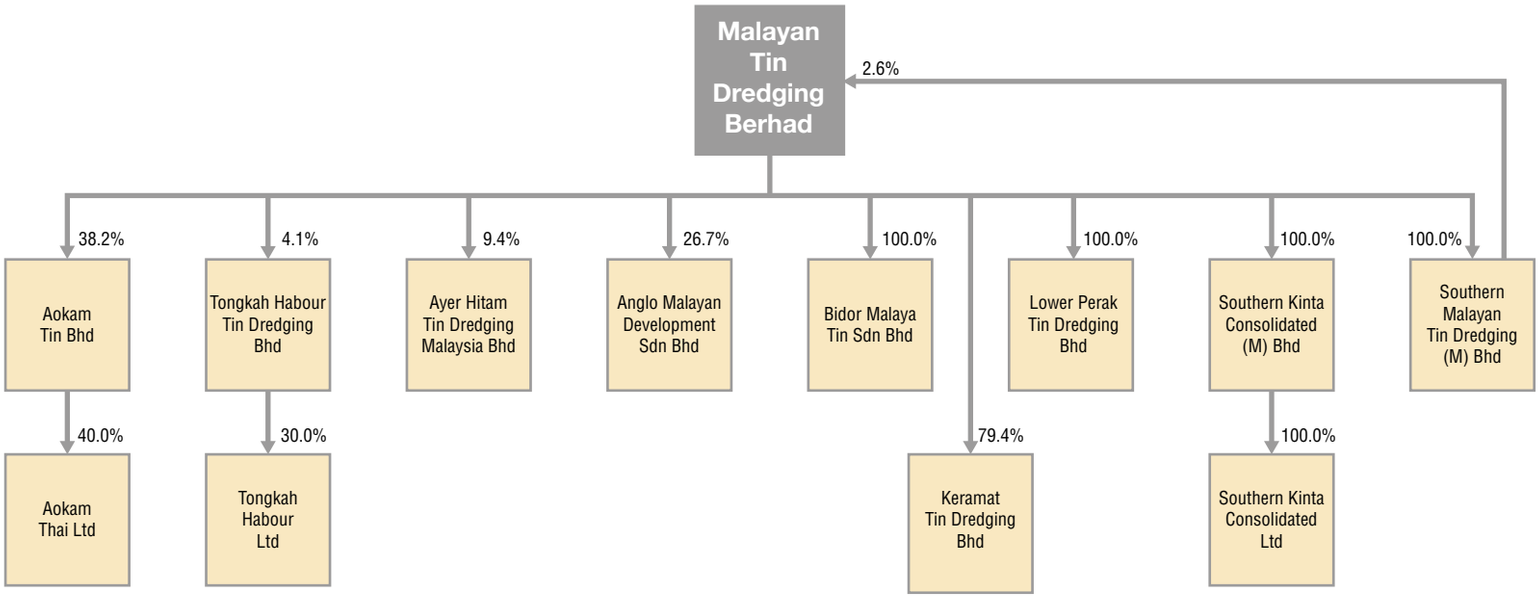
Price reference:
- *1915 - September 1986 : Straits Tin Price (Singapore/Penang Tin Market)*
  1915 - 1980 prices quoted in RM per picul
  1981 - September 1986 prices quoted in RM per kg
- *October 1986 - present: KLTM Tin Prices*
  October 1986 - 2000: prices quoted in RM per kg
  2001 - present: prices quoted in US$ per tonne

Calculated equivalent prices

Sources:
1915-1985 prices: Hew (2001)
1986-2009 prices: KLTM
Reproduced from The Tin Story by the KL Tin Market (2010).

Formation of Malaysia Mining Corporation Berhad

1980: Malayan Tin Dredging Group Corporate Structure



Notes:

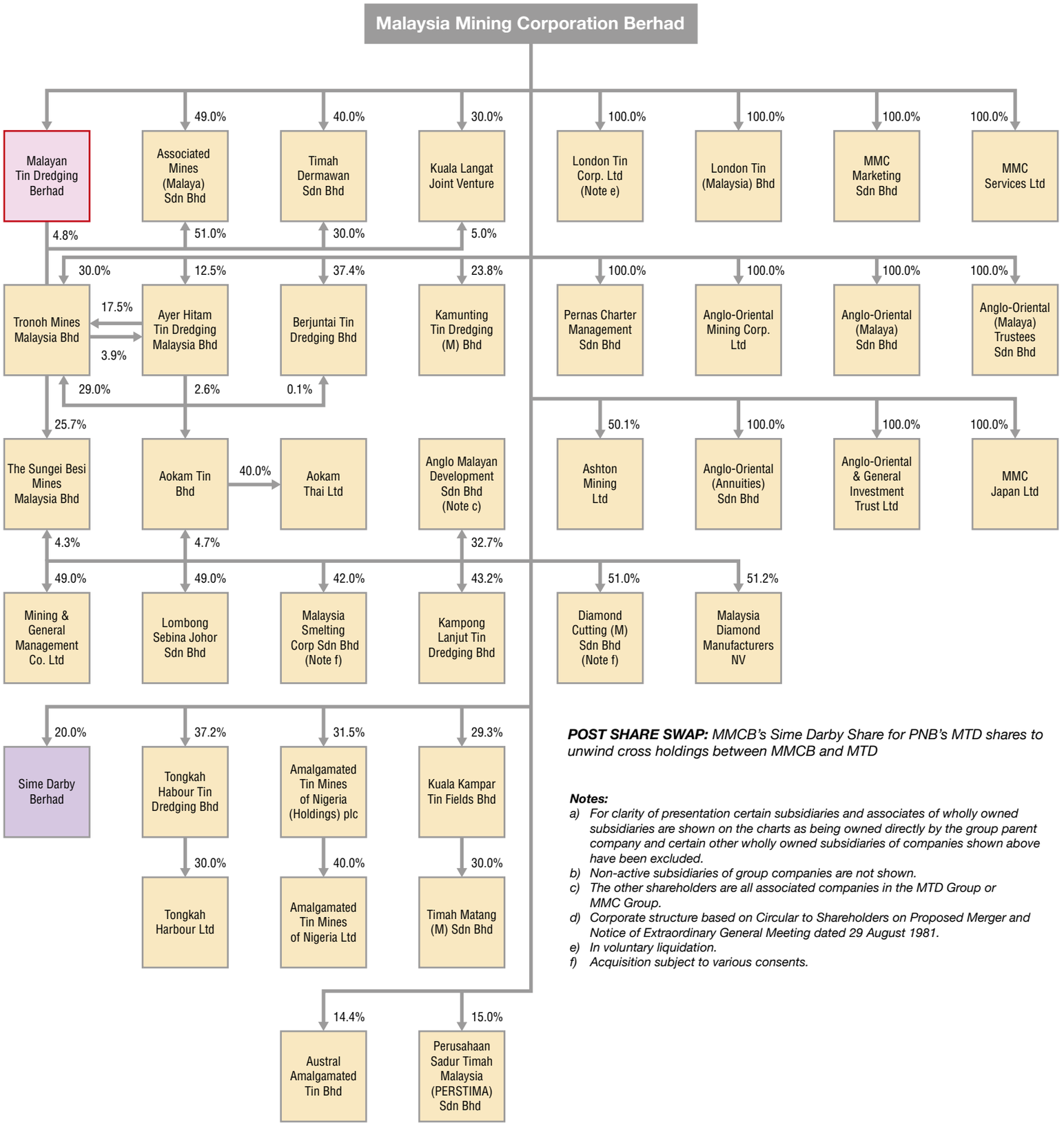
a) *For clarity of presentation certain subsidiaries and associates of wholly owned subsidiaries are shown on the charts as being owned directly by the group parent company and certain other wholly owned subsidiaries of companies shown above have been excluded.*

b) *Non-active subsidiaries of group companies are not shown.*

c) *The other shareholders are all associated companies in the MTD Group or MMC Group.*

d) *Corporate structure based on Circular to Shareholders on Proposed Merger and Notice of Extraordinary General Meeting dated 29 August 1981.*

1981: Malayan Tin Dredging Berhad – Malaysia Mining Corporation Berhad Merger (Stage 1)



POST SHARE SWAP: *MMCB's Sime Darby Share for PNB's MTD shares to unwind cross holdings between MMCB and MTD*

Notes:

a) For clarity of presentation certain subsidiaries and associates of wholly owned subsidiaries are shown on the charts as being owned directly by the group parent company and certain other wholly owned subsidiaries of companies shown above have been excluded.

b) Non-active subsidiaries of group companies are not shown.

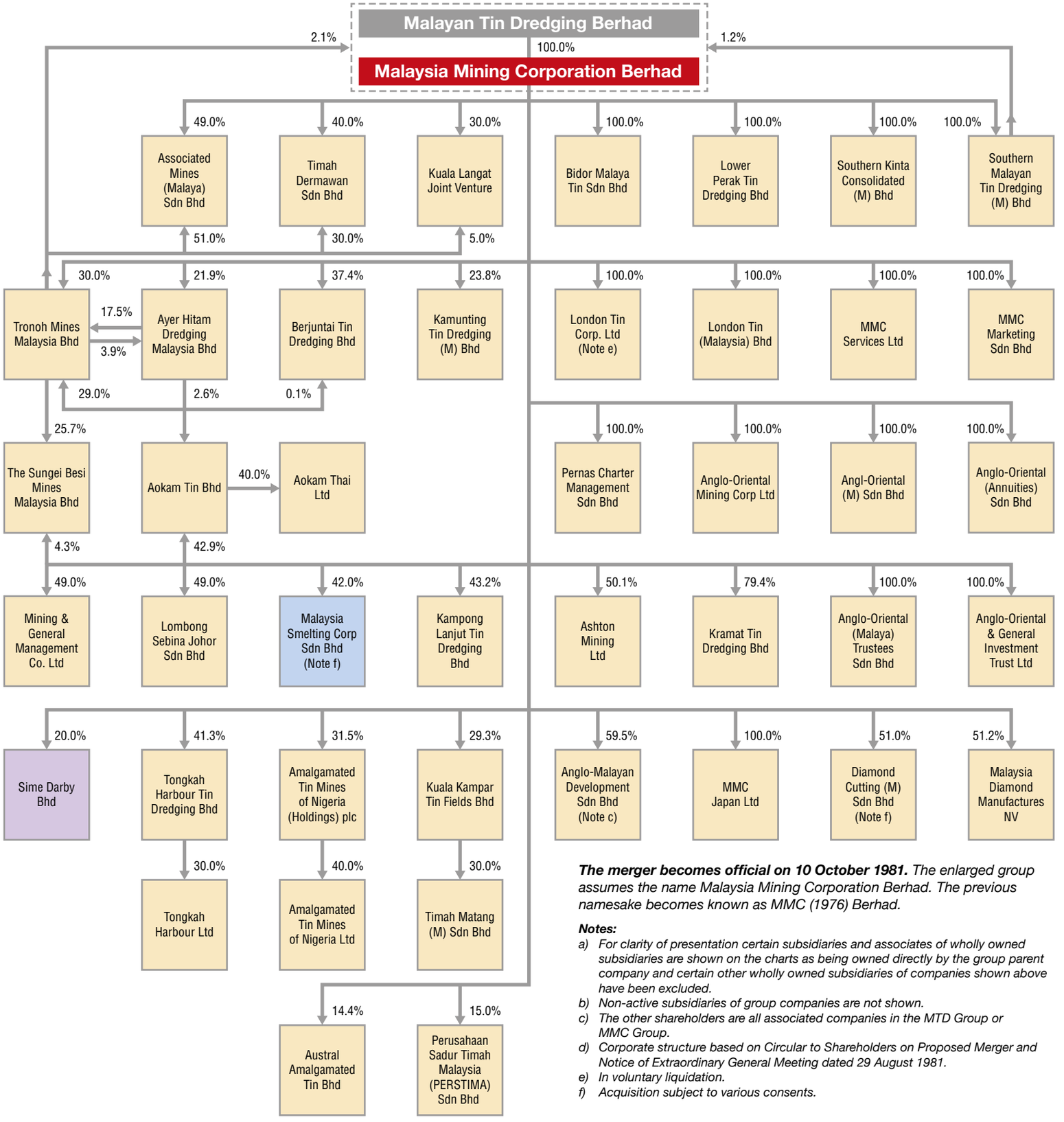
c) The other shareholders are all associated companies in the MTD Group or MMC Group.

d) Corporate structure based on Circular to Shareholders on Proposed Merger and Notice of Extraordinary General Meeting dated 29 August 1981.

e) In voluntary liquidation.

f) Acquisition subject to various consents.

1981: Malayan Tin Dredging Berhad – Malaysia Mining Corporation Berhad Merger (Stage 2)



The merger becomes official on 10 October 1981. *The enlarged group assumes the name Malaysia Mining Corporation Berhad. The previous namesake becomes known as MMC (1976) Berhad.*

Notes:

a) *For clarity of presentation certain subsidiaries and associates of wholly owned subsidiaries are shown on the charts as being owned directly by the group parent company and certain other wholly owned subsidiaries of companies shown above have been excluded.*

b) *Non-active subsidiaries of group companies are not shown.*

c) *The other shareholders are all associated companies in the MTD Group or MMC Group.*

d) *Corporate structure based on Circular to Shareholders on Proposed Merger and Notice of Extraordinary General Meeting dated 29 August 1981.*

e) *In voluntary liquidation.*

f) *Acquisition subject to various consents.*

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Acknowledgements

- Arkib Negara Malaysia
- Blackbox Sdn Bhd
- Datuk Ab. Sukor Shahar
- Datuk Mohd Nor Khalid
- Encik Abdul Rahim Aki
- Kuala Lumpur Tin Market
- Malaysian Chamber of Mines
- Tin Industry (Research and Development) Board
- Yayasan Albukhary

MMC Corporation Berhad thanks the Group's Heads of Department, the Chairman and Board of Directors, and CEOs of subsidiaries, all other staff, associates and partners who have given their unstinting support towards the publication of this commemorative book. Any errors or omissions are regretted.


Malaysia Mining Corporation Berhad
LAPORAN TAHUNAN 1986 ANNUAL REPORT
1997
ANNUAL REPORT
LAPORAN TAHUNAN 1994 ANNUAL REPORT
Malaysia Mining Corporation Berhad
ANNUAL REPORT
1999
07
YEARS
1911-2011
A CENTURY IN PROGRESS
MMC
MMC
annual
report
06
transport
& logistics
energy
& utilities
engineering
& construction
Moving
Managing
Creating
Malaysia Mining Corporation Berhad
LAPORAN TAHUNAN 1986 ANNUAL REPORT
Annual
Report
98
Malaysia Mining Corporation Berhad
LAPORAN TAHUNAN 1994 ANNUAL REPORT
MMC
1994
Malayan Tin
Dredging (M) Berhad
MMC
Malaysia Mining Corporation Berhad

By reaching 100 years, MMC has achieved an illustrious milestone that few companies in Malaysia can lay a claim to. The next 100 years is likely to be more challenging than the one past, as the business environment becomes even more competitive. Companies need to evolve and be dynamic to withstand the test of time. We hope, with the sound foundation created and the talent in place, MMC will continue to excel and our future generations will be able to celebrate another century of excellence.

Dato' Wira Syed Abdul Jabbar Syed Hassan
(Chairman's Statement, MMC Annual Report 2010)

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