

INNOVATION

The Middle East and East Africa

A LEGACY OF
CIVILISATION

The twin forces of trade and innovation have driven the founding of many of humanity's greatest civilisations. The Middle East and East Africa bore witness to those empires and are now a vital part of CK Hutchison's success.

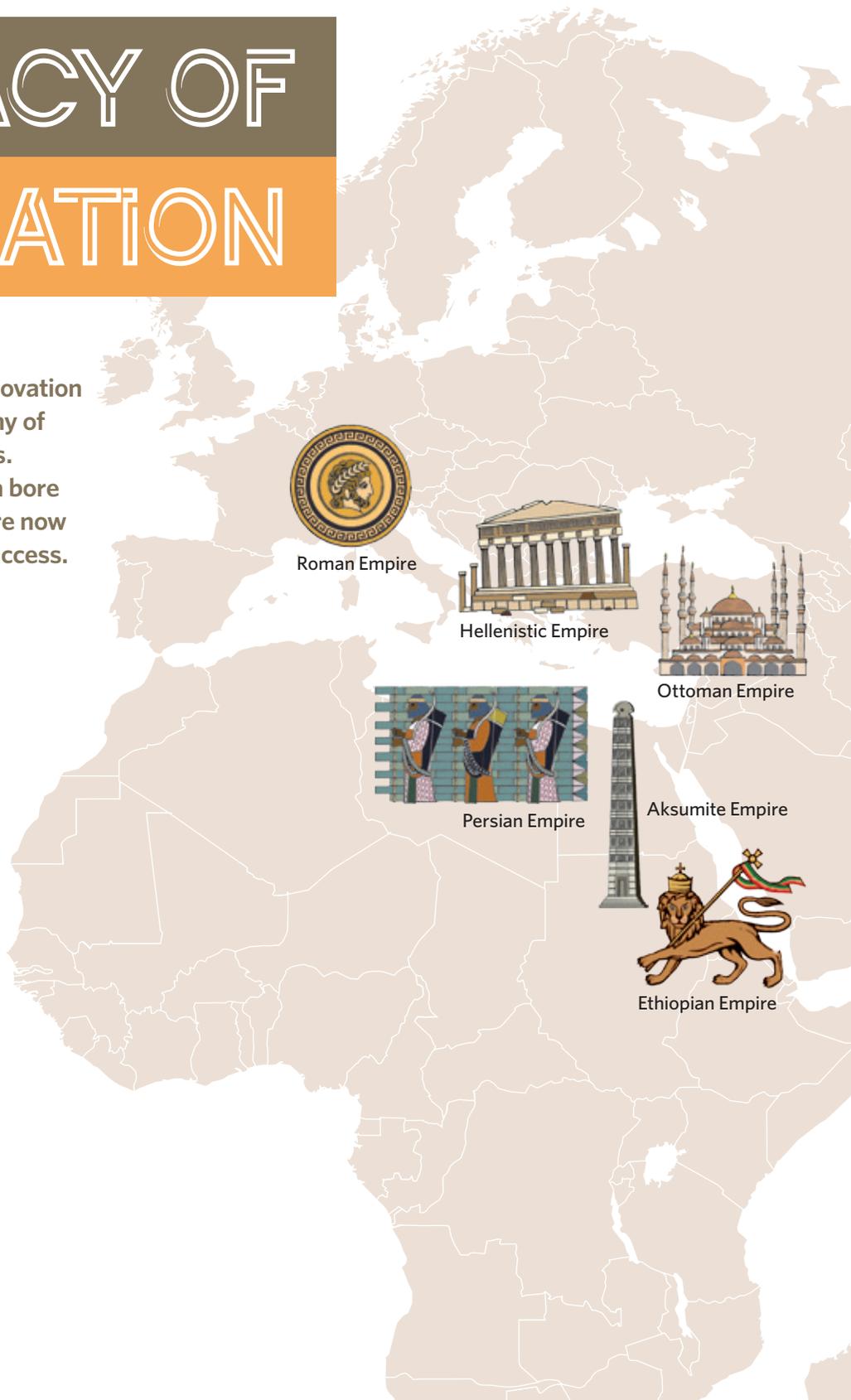
The Middle East and East Africa have a long history of being at the crossroads of seaborne trade, driving innovation and learning that led to the birth of great empires. Actually, grander than empires: civilisations.

Today, CK Hutchison's efforts in the region support millennia-old trade routes and drive technological change that will help secure its future.

THE MIDDLE EAST? MIDDLE OF THE WORLD!

From the mountainous Caucasus to the fertile Nile Valley, the Middle East was for millennia known as the civilised world. It was the centre of the world, with barbarism at its fringes. The Hellenistic, Persian, Roman, and Ottoman empires were all blessed with – at times – diversity, tolerance, military strength and vibrant trade.

For thousands of years, the Middle East connected the known worlds, Western empires and their Eastern counterparts. Those empires may have risen and fallen, but intermediaries from the Middle East



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Group Managing Director
Hutchison Ports

were always there to bring the likes of silks, spices, glassware and ceramics to lords’ and princes’ tables, generating enormous wealth for cities such as Damascus, Baghdad and Samarkand during the medieval period.

As the poles on which civilisations turned multiplied and spread around the world, the region became known as “the Middle East” and drew its power in knowledge, mythology, technology and culture from being the facilitator of East-West exchanges; a wellspring of inventions and discoveries.



4000BC~

Blessed by the fertile soil between the Euphrates and the Tigris, the Mesopotamian civilisations see the rise of ancient cities in the region.

200BC-
200AD

The Ancient Silk Road shapes East-West exchange during the Chinese Han dynasty.

600-
1250

The Islamic Golden Age sees numerous technological advancements and fosters East-West trade along the Ancient Silk Road.

1400-
1700

Disintegration of the Ancient Silk Road gradually pushes trade onto the high seas and brings about the Age of Discovery. Zheng He presents a giraffe to the Chinese imperial court in 1414 after returning from one of his far-ranging voyages.

ANCIENT LINKS, UNBROKEN

From Dakar to Qatar, it brought together the three major cultural zones – Europe, the Far East and Sub-Saharan Africa. Trade routes, both by land and sea, were its *raison d’être*, and a constant striving for people to better their lives through innovation and technology has been common to the people in this important nexus of world trade.

When the ancient Silk Road disintegrated from political instability circa 1400-1700, merchants turned to the high seas for alternative routes, stimulating an era of great voyages.

Legends were revived that matched the needs of the time, like that of Sinbad the Sailor, a Homeric figure who travelled the seas off East Africa and South Asia, encountering magic and monsters around 1,300 years ago. While Sinbad was a fictional character, much mythologised in books and films, another adventurer plied the same waters about 700 years later. However, that adventurer was no myth to match the times – he was very, very real.

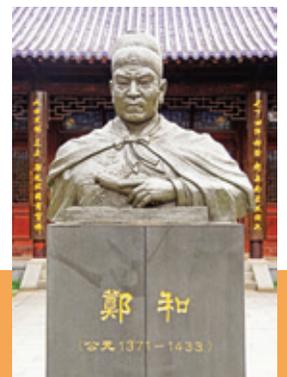
Zheng He was a mariner, diplomat, explorer and eunuch that led one of the world’s greatest armadas from China to the Arabian Peninsula and even the east coast of Africa. He returned to China from one voyage with a giraffe in 1414.

Trade to and from the region was exotic indeed – but persisted. The Strait of Hormuz, as well as the Suez Canal – which was built in later eras to connect with the Mediterranean – are still two of the busiest shipping lanes in the world, connecting Europe and even North America to the east coast of Africa, the Indian subcontinent and onwards to Asia and Australia.

Hutchison Port Holdings Limited (Hutchison Ports) is a major link in this venerable chain of trade. The port giant operates in 49 ports spanning 26 countries across the seven seas. Among them, 24 locations in 19 countries are along the 21st-century Maritime Silk Road, far more than any other port operators. Its Middle East and Africa Division currently operates seven container terminals in six countries: Pakistan, Oman, Saudi Arabia, The United Arab Emirates, Tanzania and Iraq. One more port in the region, in Egypt, is managed by its Europe Division. The Middle East and Africa Division started operations in 2001 – a rather new addition to the family. It handled a total of 3.8 million Twenty-foot Equivalent Units (TEUs) in 2016 and is a leading operator in terms of its diversified portfolio and number of ports in the region.

ONE SEA, ONE ROAD

“The long-term outlook for this region remains very strong, given the size of the population and the import and export volume ratios versus various key economic indexes,” says Andy Tsoi, Managing Director of Hutchison Ports Middle East and Africa Division. “Many countries are witnessing expansion in key infrastructure developments and the ports will complement these kinds of developments because most infrastructure projects will need materials from overseas.”





● Hutchison Ports operations

Smooth Sailing on the Maritime Silk Roads

China's Belt and Road Initiative could be a game changer, reshaping the economic topography of the Eurasian continent, comprising around 60 per cent of the world's population and 30 per cent of global GDP. This ambitious strategy of the government of the People's Republic of China aims to financially, technologically and institutionally support the development of countries along the ancient Silk Road land route as well as the Maritime Silk Road, covering maritime routes from China to Europe.

With more than USD1 trillion of infrastructure investment already pledged by the Chinese government to various projects over the next five years, the ambitious strategy will bring the vibrant East Asian economic zone closer to its European counterpart, while offering enormous growth opportunities to the developing countries along the two routes.

It takes visionary leaders to help realise this grand initiative. Hutchison Ports began expanding the port businesses along the new Maritime Silk Road years ago. It now operates 24 locations in 19 countries along the route, with a combined annual throughput of 70.58 million TEUs in 2016, representing about 86.6 per cent of the company's total throughput.

As global trade grows and more opportunities for maritime logistics services arise in Asia and East Africa, Hutchison Ports is proactively rolling out plans to invest and expand its facilities and services. Expansion plans are already underway in the ports in Thailand and Oman, with advanced remote-control operation of the new quayside cranes designed to reap the full benefit of the fast-growing ASEAN and Middle East regions.

"The Belt and Road Initiative is like a wheel ... you can see that it is rolling out ...

running faster and faster, and the wheel could give itself impetus now," says Eric Ip, Group Managing Director of Hutchison Ports. "Hutchison Ports is always exploring new and existing terminal facilities to face the needs of the Belt and Road Initiative. We will develop our land and sea capacities in China, Southeast Asia, the Middle East and Europe to cope with the future growth of cargo transportation volumes."

The ports group is also looking into establishing a strong upstream business such as building warehouses, logistics parks and transportation services to meet the rising demand in countries like Pakistan, the UK, the Netherlands and Spain.

The routes may be ancient, but the investment being made is modernising infrastructure and connecting people in a truly contemporary way!

1869

Construction of the Suez Canal completed, reducing maritime journey between the Mediterranean Sea and the Indian Ocean by approximately 7,000 kilometres.

2001

Hutchison Ports Middle East and Africa Division starts operation.

2017

Hutchison Ports operates 24 locations in 19 countries along the 21st century Maritime Silk Road, far more than any other port operators.



Mr Tsoi is intrigued by the region and its challenges, many arising from a dynamic and diverse economy: "Operating in this region is something you don't learn in business school. I have never seen any country growing from zero to a hundred so fast. Everything is completed at such high speed and such large scale." But local speed and practices don't mean that Hutchison Ports abandons its core values or hard-earned business practices and procedures.

Mr Tsoi explains, "Hutchison Ports focuses on planning and is constantly finding ways to connect as the middleman between local partners and governments to send one message: Master planning is more important than short-term targets."

Where opportunities to trade exist, people of all nations must learn to work together. Hutchison Ports' port in Saudi Arabia has staff from at least 10 different countries. While this ensures a cosmopolitan workforce, it also demands thoughtful staff management.

"The complexity and sensitivity of managing people from different cultures and ethnic groups are a critical factor when it comes to good governance," explains Mr Tsoi. "To enhance a healthy working environment and to meet the challenges in the region, Hutchison Ports strives to build up an international management team." Previous and current examples include a Native American in Tanzania, a native Brit in Saudi Arabia and Pakistanis in Oman.

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Andy Tsoi
Managing Director
Middle East and Africa Division
Hutchison Ports



Galleons, triremes, dhows and now mighty container ships: The Maritime Silk Road has its heart in the Middle East – and Hutchison Ports.

"Our fundamental values in people management will always be honesty, and strong partnerships with customers and employees. But there are other complexities that make doing business in the Middle East and Africa region very challenging and interesting at the same time," he adds.

EXPLORING THE LAST FRONTIER

The port in Tanzania, in particular, demonstrates Hutchison Ports' commitment to the long-term success of both the company and the local community. The port in Dar es Salaam is crucial to the nation's trade – over 75 per cent of national trade flows through Hutchison Ports Tanzania. As Hutchison Ports' only footprint in Sub-Saharan Africa, Tanzania joined the portfolio as part of an acquisition in 2001 to also serve neighbouring landlocked countries such as Uganda, the Democratic Republic of Congo and Zimbabwe.

"We initially spent a lot of time upgrading equipment. Now we focus more on training local talent and bringing in new technologies to make trade in this part of the world more efficient and cost-effective," says Mr Tsoi, noting that a lot of positive changes have been wrought by the new administration under President John Magufuli since November 2015.

"As a private foreign investor in Tanzania, we are 100 per cent committed to

supporting development to complement and add value to the president's social and economic strategies whenever needed.

"East Africa is an important gateway to Africa, which we strongly believe is the last frontier with untapped resources. Ultimately, the port development will facilitate economic growth and urbanisation."

PLANTING FOR THE FUTURE

The story of the Middle East has thus been a story of trade, and with trade naturally comes human movement and knowledge circulation. It was therefore no coincidence that two of the most symbolic books in the Middle Ages – one a travelogue on Marco Polo's journey and the other a historical compendium that for the first time included cultures and major events from China to Europe – were both written at the turn of the 14th century when the safety of East-West travel was ensured by the Mongolian khanates.

In antiquity, cities like Baghdad and Istanbul stood as the centre of classical studies, which at that time included maths, the sciences and engineering. In the Bayt al-Hikma (House of Wisdom) library in Baghdad, whose foundation can be traced back to eighth-century, scholars – not just Muslims but also Jews and Christians – were brought together to share knowledge as well as to translate and preserve classical learning.

Many innovations originating in the region were unmatched by their Western counterparts for centuries. The battery seems a rather modern invention, accredited to Italian physicist Alessandro Volta at the turn of the 18th century. An alternative narrative suggests that a set of artefacts, commonly dubbed the Baghdad Battery, were able to create the effects of electroplating as early as 250 BC. Other ingenious inventions and discoveries - including algebra, universities, hospitals, coffee, clocks, cameras, a proto-flying machine and even toothbrushes - find their roots in the Arab world.

The Hanging Gardens of Babylon (circa 600 BC), however, employed that classical knowledge, including advanced water management reminiscent of Hutchison Water Holdings Limited's grand water solutions for the arid region. The Gardens, with all manner of flowering plants rooted on ascending terraces, showcased the architectural brilliance of ancient Middle East civilisations, inspiring awe in travellers for their lushness in a desert, made possible by innovations in water technology.

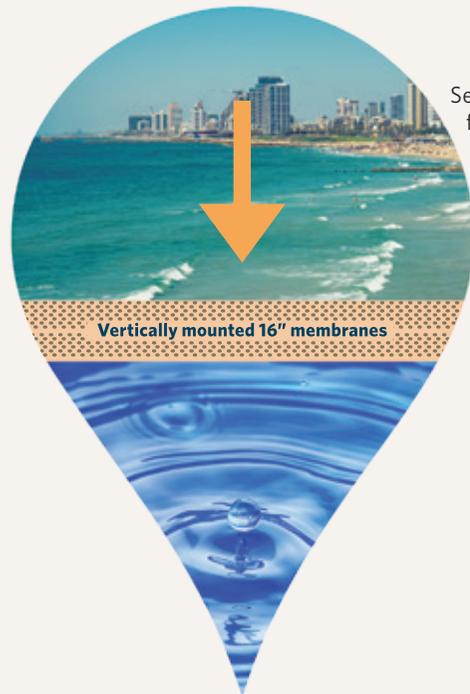
FROM LOWEST TO HIGHEST

As the world is increasingly hit by severe droughts, new technologies that can ensure sustainable sources of clean water are urgently needed. Israel has set a high bar for the rest of the world when it comes to bringing innovation to water management.

From an arid country constantly facing a dire water crisis, Israel has achieved the impossible feat of producing water in quantities which relieve the agonies of drought and assure an ample supply of fresh water for all residential, industrial and municipal purposes. Formerly, the government monitored the water levels at the Sea of Galilee daily, fearing a need to severely ration distribution of its waters to Israelis. But now, the Sea of Galilee - the largest freshwater lake in Israel and the second lowest lake in the world at 212 metres below sea level (after the Dead Sea saltwater lake, also in Israel) - enjoys predictably safe water levels, made possible by the application of water-saving technologies and management.

Hutchison Water and its family member Hutchison Kinrot have played a crucial role in this water revolution. They are modern-day global leaders in bringing clean water and smart water systems to the region and beyond.

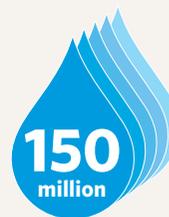
SOREK DESALINATION PLANT



Sea water intake from around 1.15 km offshore on the Mediterranean coast



Clean water for **1.5 million** people



Annual capacity **150 million** cubic metres



20%
domestic municipal consumption

The Sorek desalination plant, located 15 kilometres south of Tel Aviv, became operational in October 2013 and houses one of the world's largest and most advanced reverse osmosis seawater treatment facilities. With an annual capacity of 150 million cubic metres, the plant is able to deliver clean water to more than 1.5 million people, representing around 20 per cent of municipal water consumption.

CLEAN AND GREEN

The Sorek plant has set a number of benchmarks in terms of desalination technology, water cost and environmentally friendly standards. It has its own independent power plant which runs on natural gas. Excess energy is sold to the national grid – not vice versa. The plant is also equipped with devices, including an energy recovery system, that drive additional efficiency resulting in a smaller carbon footprint.

“The project gives us great satisfaction in seeing that water technologies we implemented have established a sound foundation for regional cooperation. The water produced in Israel has not only released the country from dependence upon scarce and insufficient rainfall, but it also helps quench the thirst in neighbouring countries as well,” says Dr Dan Eldar, Executive Director of Hutchison Water. “Providing water to Jordan, for example, demonstrates that the technologies we are using not only produce water but also change the form of cooperation in the Middle East and enable regional partnership rather than conflict.”

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Dr Dan Eldar
Executive Director
Hutchison Water Holdings Limited



Sorek brings fresh water to Israel, the lifeblood of a desert nation.

Amikam Cohen, CEO of Hutchison Water, adds, “We are looking forward to implementing the technologies and the project management capabilities, which have been developed in Israel, in other parts of the world.”

OASIS OF THE FUTURE

Water is important enough for the company to have multiple interests at play in the sector. Based in Israel, Hutchison Kinrot serves as the family's technology arm and as an incubator focusing mainly on the commercialisation of water technology and “cleantech”. Harking back to the ancient tradition of trade and innovation, the firm connects entrepreneurs, investors and key industry players around the world. It has become a prominent leader in the region, providing solutions for water utilities, industrial companies and municipalities, helping them to manage their business operations.

One notable start-up funded by Hutchison Kinrot is Aquarius Spectrum which provides cloud solutions (of the Internet cloud variety, not vapour laden) to provide leak detection. According to Dr Eldar, water wasted as a result of leakage from various sources can account for 40 per cent or even 50 per cent of water which flows through certain cities. Through cloud solutions and the application of advanced analytical algorithms, Aquarius Spectrum helps manage and monitor networks of

pipes with sensitive and low-cost acoustic sensors which enable cities to identify leaks as small as one millimetre in diameter across their infrastructure.

Aquarius Spectrum's smart and effective monitoring system has already been deployed in more than 600 kilometres of pipe in Israel and has expanded to the United States and Europe. It was named as one of the four Israeli start-ups – and the only one in Israel focusing on water technology – on the 2016 Global Cleantech 100 Ones to Watch list.

Another start-up, HydrosSpin, offers smart devices to support smart water networks in the modern water distribution system. These devices, mini-generators that convert water-generated kinetic energy into electric hydropower, are installed in city pipelines to generate electricity and to also enable real-time water quality measurement and network management. To date, the solution has already been widely deployed in Asia, Europe and the two Americas.

The solutions may be modern, but the ancient tradition of connecting people through trade, often on the high seas, remains. That interaction leads to innovation that enables people to live better, safer, happier lives – a civilised proposition for the cradle of so many civilisations. □