

Market Watch Report

Malaysia and North-East China
Cleantech & Healthtech sectors

ASIA-CLEAN
Expand your business to China or Malaysia

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This report is authored in collaboration in the ASIA-CLEAN project as **Deliverable DT1.4.1** by:

Ilkka Aaltio and Evilina Lutfi, Green Net Finland, Helsinki

Olof Malmström, Turku Science Park, Turku

Kristiina Libe and Ragmar Saksing, Tehnopol Science Park, Tallinn

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Sincerely,
the authors

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Abbreviations

GHG	greenhouse gas
UN	United Nations
GDP	Gross Domestic Product
SME	Small or Medium Enterprise
PRC	People's Republic of China
OECD	Organisation for Economic Co-operation and Development
FYP	The Chinese government's Five Year Plan
NBS	Chinese National Bureau of Statistics
MP	Malaysia Plan

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Preface

This report is part of the “ASIA-CLEAN-Access & Success in Northeastern Asia cleantech markets” -project. The ASIA-CLEAN project is part of the INTERREG Central Baltic Programme of the European Union, which supports research and development projects of organizations around the Central Baltic sea. The partners running the ASIA-CLEAN project are located in Finland and Estonia. Table 1 shows in short general information of the project.

TABLE 1. General facts of the ASIA-CLEAN project.

Name	ASIA-CLEAN – Access & Success in Northeastern Asia cleantech markets
Budget total	648.264€
Duration	1.4.2019 – 31.9.2021 (31.12.2021 including the closure period of the project)
Partners	Green Net Finland, Lead Partner, Helsinki, Finland Turku Science Park, Turku, Finland Tehnopoli Science Park, Tallinn, Estonia
Funding	Interreg Central Baltic Programme, EU

The ASIA-CLEAN project targets to support export efforts of Finnish and Estonian companies, particularly SME:s, to do successful business in Northeastern China and Malaysia. Substantial thematic focus of the ASIA-CLEAN is in the solutions aiming to minimize anthropogenic emissions into the environment. The ASIA-CLEAN project provides following support forms for the companies:

1. Business matchmaking and market information sharing events
2. Coaching the companies on cultural and other local specialties of those distant markets
3. Advising in technical adaptation of products to the target market needs
4. Support in communication and networking with local potential customers
5. Seeking business leads on the target markets
6. Advising and supporting in development of sales

The project has gathered company pools, where companies have committed to allocate their resources to the project and they have then obtained extensive support from the project. The project has also arranged coaching and matchmaking events open to all companies and experts in the subject field.

The main objective of this Market Watch -report is to provide updated, accurate and supportive content on Clean technology, Health and clean and smart city markets to boost Finnish and Estonian enterprises – mainly small and medium size – to improve their competitiveness for eventually obtaining access and working actively in their own business frame to reach success on the North-East China and Malaysian markets. The main target group are SME companies, who often do not have very much resources for exports and to whom it may be a big effort just to get exposure at international markets.

In this report the content regarding China and Malaysia is clearly separated, so that it is easy for the readers to focus on their specific country of interest.

The Methodology of collecting the content for this market watch report had a practical approach and the work was conducted by using available resources, gathering relevant information from online publications, summing up expert presentations at project events and utilizing market knowledge of external experts from both the program area and from the target markets. In the content of this report we have emphasized selected cleantech areas, which we hope would be more useful to our participating companies.



Introduction

Economic development and trade of China



China is the second largest economy in the world and it has recently entered a “normal” growth of 6–7% per year, after nearly four decades of rapid growth. This “normal” growth rate of China is on average high compared to most middle-income economies. The per capita GDP in China is 10000 US\$, which is about 25% of the average in OECD countries. China has now entered a new phase from the previously dominating high economic growth driven by investments in physical capital to a mode where such investments will not be as high and the employed workforce will start to diminish. It is necessary that China can answer the new challenges if it wishes to avoid economic diminishing in the future. China’s recent policies have focused on discovery of innovations and investments in new technologies. [1]

Major industrial sectors of competitive strength of China include manufacturing, retail, mining, steel, textiles, automotive, energy generation, green energy, banking, electronics, telecommunication, real estate, e-commerce and tourism. China has four out of ten of the world’s largest financial centers (2020 status). The economic growth in recent decades has been extremely fast. The rapid growth has expanded the consumer groups with very high purchasing capacity: in late 2020 it has the highest number of billionaires (878) in the world – however, it is ranked behind over 60 countries of the total ~180 in per capita economic output. Hence, there is a very large separation in the wealth and standard of living of citizens, compared to e.g. Scandinavia. It is a strategic target of the Chinese Communist party to enhance economic growth in China for improving the standard of living, which is seen as an important way to retain society’s social stability. The increasing deviation of income levels has been accepted as a result or part of the development process [2]. In addition to this deviation of wealth, there is a vast deviation between different regions in China in the built infrastructure, facilities and way to operate in terms of environmental impacts, energy consumption and the use of resources. While the majority of the energy in China is still produced by fossil coal (~60% in 2017) at the same time China is one of the leading countries in manufacturing and using solar photovoltaic (PV) panels. Despite these structural controversies, for exporting companies outside of China, China is among the largest markets in numerous industrial branches.

China is the world’s largest trading nation since 2013, based on the sum of imports and exports. It is also the world’s largest commodity importer, with a share of 45% of the maritime’s dry-bulk global market. It is the largest trading partner of 126 countries by 2016. Has been a member of the WTO since 2001. Since 2010 China has been the world’s second largest economy, after the USA. China is the biggest partner of the ASEAN trade partnership (share of 15%). Also ASEAN countries are the largest trade partner of China. [3]

China is developing its trade channels and networks by substantial scale initiatives, such as the Belt and Road initiative, which in 2020 involves 138 countries, and focuses on building efficient transport routes, including the Maritime Silk Road.

Finland's trade with China in 2010–2020 has had the trade deficit, which consists mainly of trade in electrical machinery and equipment, textiles and clothing. Forest industry products, ores and scrap metal and food are in surplus for Finland. China's share of Finnish exports is around 5% taking 5th to 6th largest exporting country place. In terms of imports, China is taking 4th place with import share between about 6 and 9% in 1–8/2020 (table 2). [4]

TABLE 2. Finland – China trade 2010– (1–8) 2020. (Source: Finnish Customs)

Trade between Finland and China in 2010–2020							
	Import, mill. €	Change, %	Share, %	Export, mill. €	Change, %	Share, %	Trade balance, mill. €
2010	3 797	9.3	7.3	2 733	47.1	5.2	-1 064
2011	4 398	15.8	7.3	2 667	-2.4	4.7	-1 731
2012	4 602	4.6	7.7	2 607	-2.2	4.6	-1 995
2013	3 679	-20.1	6.3	2 766	6.1	4.9	-913
2014	3 741	1.7	6.5	2 564	-7.3	4.6	-1 177
2015	4 003	7.0	7.3	2 534	-1.2	4.7	-1 470
2016	4 067	1.6	7.4	2 680	5.8	5.2	-1 387
2017	4 612	13.4	7.4	3 398	26.8	5.7	-1 214
2018	4 644	0.7	7.0	3 534	4.0	5.5	-1 110
2019	4 923	6.0	7.5	3 495	-1.1	5.4	-1 428
2020 (1–8)	3 521	10.0	9.1	1 916	-19.0	5.3	-1 606

Altogether, with the total population of 1.44x10⁷ and its gigantic size of economy, China is a huge market to enter for any Finnish or Estonian Small and medium size company. Almost regardless of the branch and in many locations the market in China is just Big. The markets change rapidly and there is plenty of competition.

Creating exports to China is not a simple process if you want to succeed. It is wise to plan and consider carefully how to proceed in starting exports to China, find the competitive strengths, where to focus, how to obtain customers, focus the efforts and take into account cultural aspects and local practises. These topics are discussed later in this report.

The centralized governing system, policies and large export and import activities of China have made it an economically strong player in many parts of the world. The active and determined political role has led to tension between China and some other countries. Relationships between China and Finland have been for long and are currently friendly. Open dialogue and frequent contacts have been continuing even if the political systems in the two countries are quite different. President Niinistö of Finland visited president Xi Jinping of China in 2019 and since then they are in contact frequently and discuss relevant matters together, e.g. in June 2021. There are also important connections at lower levels such as the good relationships between Friendship cities Jinan and Vantaa and also Tianjin and Turku.

Overview of administrative and socio-economic structures of China

The country is officially named The People's Republic of China (PRC). In this report we often use the common name China meaning PRC. The PRC is divided into 22 provinces (e.g. Shandong province) and 5 autonomous regions (associated with minority groups), four provincial-level municipalities (Beijing, Chongqing, Shanghai, Tianjin), and special administrative regions (Hong Kong and Macau). Those are structured further to smaller administrative units (Figure 1).

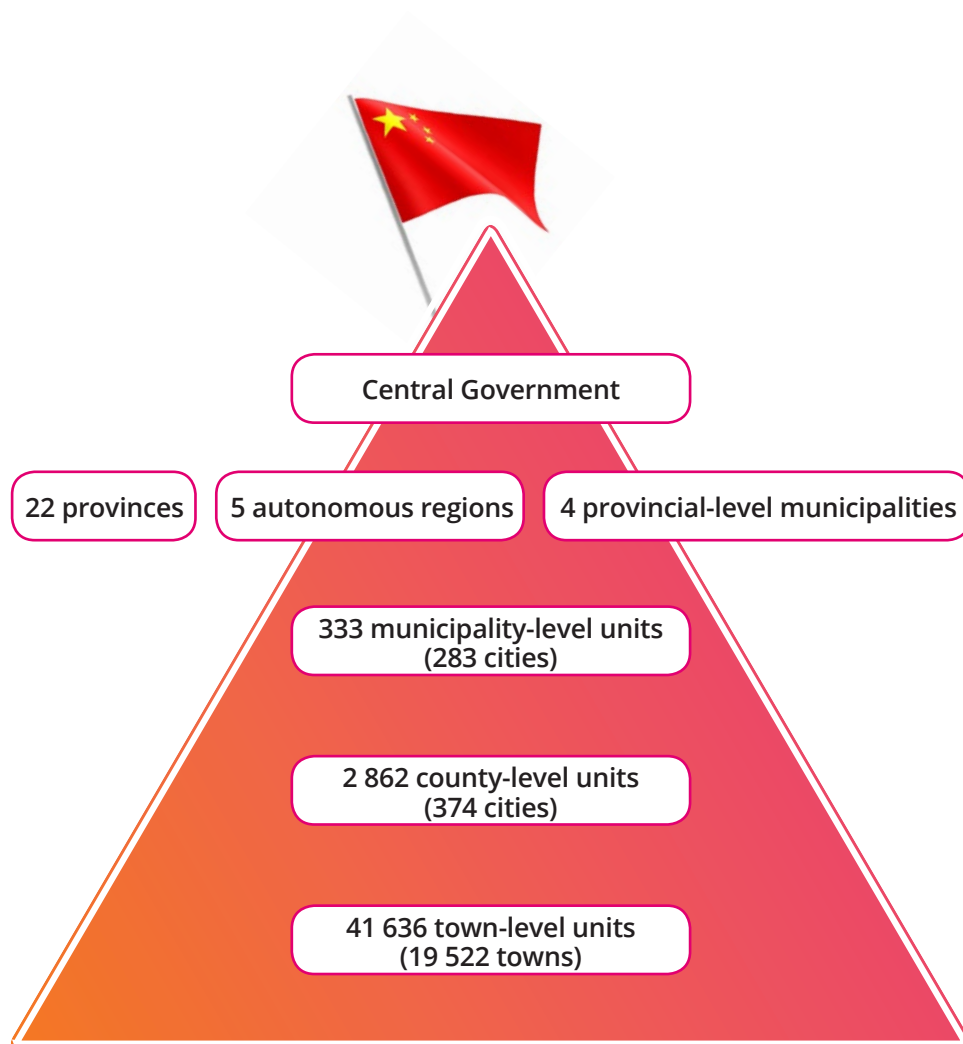


FIGURE 1. Administrative pyramid of areal governance in China.

According to the constitution PRC is “a socialist state governed by a people's democratic dictatorship that is led by the working class and based on the alliance of workers and peasants” [3]. The words “democratic dictatorship” imply that the governing power in the country is highly centralized, unlike in the Scandinavian countries.

The State Council of China is the executive organ of the highest state organ of power, the highest state administrative organ. Practicing a premier responsibility system. The premier directs the work of the State Council. The ministries and commissions shall each practice a minister responsibility system. The organization of the State Council shall be prescribed by law. The State Council shall have the same term of office as that of the National People's Congress. The premier, vice premiers, and state councilors shall serve no more than two consecutive terms. The vice premiers and state councilors shall assist the premier in his or her work. Overall composition of the Council: PREMIER, 4 VICE-PREMIERS, 5 STATE COUNCILORS, SECRETARY GENERAL and 24 MINISTRIES [5]

The State Council's functions and powers include (e.g.):

1. Formulating administrative regulations and issuing decisions and orders in accordance with the Constitution and the law;
2. Submitting proposals to the National People's Congress or the National People's Congress Standing Committee;
3. Stipulating the missions and responsibilities of the ministries and commissions, exercising unified leadership over their work, and directing national administrative work that does not fall within the responsibilities of the ministries and commissions;
4. Exercising unified leadership over the work of local state administrative organs at all levels nationwide;
5. Drawing up and implementing plans for national economic and social development and state budgets;
6. Directing and managing economic work, urban and rural development and ecological conservation;
7. Directing and managing education, science, culture, health, sports and family planning work.

Examples of current economic focus areas in China

Digital China

According to a white paper of the *China Academy of Information and Communication Technology*, **China's digital economy maintained a growth rate of 9.7% in 2020**, reaching 39.2 trillion yuan or **about \$6 trillion** and accounting for **38.6% of the GDP**. The growth is more than three times that of the GDP's growth. The digital economy in Beijing and Shanghai both accounted for more than half of its regional GDP. China highlights the digital economy development in its 14th Five Year Plan (2021–2025) to build a digital China [5].

Development of Industrial sector

The manufacturing of raw materials plays an important role in stimulating the growth of industrial profits, covering 88.4% of profit growth. **The equipment manufacturing and high-tech manufacturing** sectors are also growing driven by rising market demand and booming exports. **Profits in Q1/2021 examples:**

- auto manufacturing profits - 843%
- computer, communication, and electronic equipment manufacturing - 141%

According to the National Bureau of Statistics (NBS) of China, industrial firms with an annual business turnover of at least 20 million yuan (about \$3.08 million) reached in 1.83 trillion yuan in combined profits during the Q1 of 2021. Profits of China's major industrial firms maintained fast expansion in the first quarter this year as the Chinese economy continued its recovery and enterprises' production and sales further restored growth, official data showed on 27.4.2021.

China's **value-added industrial output**, an important economic indicator, went up 24.5% year-on-year in the Q1/2021. Profits in almost all industrial sectors increased during the period compared to a year ago, with nearly 40% of sectors doubling their profits. A total of 30 industrial sectors logged increases in profits compared with the first quarter of 2019. [5]

Education sector

According to the Ministry of Education, China spent more than 5.3 trillion yuan (around \$817 billion) on education in 2020 (about 5.65% growth from 2019). The statistics indicated that about 4.3 trillion yuan, or over 80% of the total spending, came from government budgetary spending.

Spending growth 2019–2020: adult high school education 9.14%, preschool education 2.39%, compulsory education 6.55% and higher education 3.99%. [5]

China's Five-Year Plan

China's Five Year Plans (abbreviation FYP) are guiding the overall development of the country. The 14th plan is set for the period of time 2021–2026, which stresses goals in such indicators as: unemployment rate, energy consumption and carbon dioxide emissions, in line with a mission to improve people's livelihood and quality of development. [6]. Figure 2 demonstrates the indicators.



FIGURE 2. Major targets of China's 14th Five-Year Plan (2021–25). Graphic: Global Times.

In the recent plan for the first time, GDP growth is not set as a target, but the plan is to keep economic indicators at an appropriate range, which gives more flexibility. China's 14th FYP marks a shift away from the quantitative growth-focus to a more inward-looking "new developmental stage" that targets "quality development" of the "internal cycle," by which it aims to strengthen the domestic economy and consolidate social development. The goal is to cut as quickly as possible the reliance on foreign technology and dependence on imported resources, and to double down on existing plans for industrial modernization and technological innovation. [7]

The 14th FYP includes 19 tables listing 119 key projects and initiatives (see Figure 3), which identify specific policy priorities, sectors, and national projects considered central to the targets of the plan. In the areas of **industrial modernization, technological innovation and digitization are 46 (of 119) projects.** [7]

Projects in the 14th Five-Year Plan target modernization

The plan features 20 tables on 119 key projects

Theme	Number of projects
Urbanization, infrastructure, and regional coordination	27
Innovation and industrial modernization	19
Digitization	17
Welfare, public services, and social mobility	16
Sustainability	14
Culture, education, and ideology	12
Agriculture and rural development	8
Governance and public sector	6

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Source: 14th FYP

FIGURE 3. Key projects and initiatives in the 14th FYP.

The absence of a GDP growth target shows that China does not want to grow any more “at any price” but to focus more on the higher quality and sustainable growth. [8]. The target of 7% R&D investment increase per year increases its innovation level. Advanced topics listed are AI, biotech, blockchain, neuroscience, quantum computing and robotics [9]. The focus is systemic resilience – is not only self-sufficiency in essential resources and key technologies. Its stated aim is to become a “manufacturing superpower” and a global leader in strategically important emerging industries. The systemic self-reliance is based on the development of a “dual circulation strategy” which aims to reduce China’s vulnerability to external risks by relying mainly on domestic production, consumption and distribution.



Carbon neutrality by 2060

A particular emphasis is now set to turning **China towards carbon neutrality by 2060** with the special focus on the following strategic sectors [10]:

- electricity
- buildings
- industry
- transport
- agriculture, forestry, land use
- finance

President Xi Jinping has presented a target in China that the country will start to reduce the use of coal in 2026 on its planned way to achieve carbon neutrality in 2060 [11]. The carbon neutrality goal of China is particularly challenging because today China is the world's largest greenhouse gas (abbreviation GHG) emitter and it's GNP is growing, however the growth rate is expected to be slower in the future, as discussed before. It is easy to realize that for achieving the 2060 Carbon neutrality goal in practice almost all sectors in China will have to go through major reforms. What China will achieve (or not achieve) in its carbon neutrality project, has globally a critical impact. China wishes to reach a new goal "ecological civilization" in this process.

China's carbon neutrality goal was announced by President Xi Jinping at his speech at the United Nations (UN) summit on 30.9.2020 [12] and it therefore is set by the highest political level. As said, it is a very ambitious goal and to reach it involves a huge number of practical changes to be implemented at a very large scale. Currently China is globally the greatest consumer and also producer of fossil coal. One could think that it all seems too much to be realistic. However, there are several historical examples of China being able to accomplish major overhauls before, such as the recent development of rapid "bullet train" railroad connections or the giant scale Three Gorges Dam -water project, where entire cities in China were "moved" from one place to another. In this case of Carbon neutrality the major overhaul would be even bigger.

Critical views can be also stated over China's ambitious carbon neutrality goal. China has had extremely severe pollution problems in many areas due to anthropogenic activities. Environmental conditions – in particular air quality, water and soil – have sometimes been so tremendously poor that people's life has been at risk – how could such a way of operation have been acceptable by fellow citizens or authorities? It may give an impression that rules are not always followed and when nature is at stake the ethical code in China has been flexible. The process of achieving Carbon neutrality is of course not free of risks. Anyway the authors wish the best success for the carbon neutrality of China as well as for other forms of environmental and sustainable improvement there.

Opportunities for foreign enterprises

According to Chinese Cleantech Market Opportunities report from 2017 by PwC, the most potential cleantech sectors are waste management and recycling, water and soil treatment, air pollution control, electric vehicles and biomass (see extract from the report in Figure 4). [13]

Subsectors	Indicators				Score
	Market Size	Policy driven	Technology	Foreign trade	
Waste management	5	5	3	5	18
Soil treatment	4	5	5	2	16
Water	4	5	2	4	15
Air pollution control	3	5	2	4	14
Electric vehicles	2	4	2	3	11
Biomass	2	3	3	2	10
Energy efficiency and energy conservation	3	2	1	3	9
Geothermal	2	2	3	2	9
Hydrothermal and ocean energy	1	2	4	2	9
CSS technologies and carbon services	1	3	3	2	9
Hydropower	1	2	1	2	6
Aero thermal	1	1	3	1	6
Noise protection	1	1	1	1	4



PwC's view

- We identified **waste, soil, water, air, electric vehicles and biomass** as having greater potential particularly for foreign companies.
- Despite the growing market size, China's cleantech sector is not an easy playing field as technology quickly penetrates, leaving little room for foreign competitors for example in the wind and solar sectors. In addition, opportunities may vary across different regions and depend on local circumstances.

FIGURE 4. Potential cleantech sectors in China [13].

Provincial level initiatives

ASIA-CLEAN project's particular target areas in China are **Shandong** province (including its capital **Jinan** City) and **Tianjin** area, the latter is located east from Beijing and the former South-East from Beijing (marked in graphic map page 7).

Special zone in Jinan

The China's State Council approved in 2021 a plan to construct a special zone to transform old growth drivers into new ones in Jinan city, East China's Shandong province. It focuses on sustainable high-quality development, should innovate urban development, protect ecological environment, deepen opening-up and cooperation,

and improve institutions. Ensuring the implementation of this plan as scheduled is under the responsibility of the authority of Shandong province, which should strengthen organization and leadership with corresponding policies.

The National Development and Reform Commission should step up analysis, supervision, and inspection on the implementation, and report major issues to the State Council. [5]

Shandong key cleantech topics

Shandong province authorities have published in 2020 **Shandong key cleantech topics** for the next few years providing details of the projects with contact information [14]. The topics are:

1. Groundwater pollution remediation (focuses e.g. carbon tetrachloride contaminated groundwater areas in Jinan covering more than 30000 m². Total budget 11.9 million USD. Initial intention is to do the project in collaboration with Schuplin corporation (GER).
2. Demonstration of clean heating in the Yellow river basin of Jinan City. Project focuses on building a shallow geothermal heating system and deep geothermal heating system for 200000 m² residential area. A pilot project of 6.7 mUSD. Initial cooperative intention unit for the project is Lvyuan Co. (Island).
3. Production of eco-environmental protection dust suppressant products. The R & D project focuses on developing the production of a dust suppressant with automatic spraying and on-line monitoring. Aim is to address PM2.5 and PM10 particles. Production scale aim is 50000 ton/a of liquid dust suppressant, etc. Jilai Cooperative innovation park, Jinan.
4. Intelligent heating project of Graphene far-infrared composite electrical heating film. Undertaker: Ocean University of China. Project duration Sep 2020 to Dec 2022.

The key topics above give the readers a glimpse of which branches are currently particularly potential for the Shandong area. In general, the markets in just Shandong and Tianjin are very large compared to Finland or Estonia, which may surprise foreign SME:s who wish to enter the market. According to experts opinion [15] a thumb rule for the Finnish and Estonian companies is that any cleantech market sector in China is “big enough” in terms of potential sales, but very competitive compared to Scandinavia. If you want to sell your products or services, you should be better than all others and you should show to potential Chinese customers exactly on what basis your products and services are better than all others.

The large size of the Chinese cleantech market means in practice that a company should first focus on a “small” pilot project in China which should then be very successfully executed and which presents a good local reference. This approach often works because practically you have to gain the trust of customers before you can realize sales in China. When such successful reference is noticed by other Chinese customers, trust in the Finnish or Estonian company with its products can exist and growth of exports can be expected [15].



Economic development of Malaysia

Overview of administrative and socio-economic structures of Malaysia

Malaysia is one of the most open economies in the world with a trade to GDP ratio averaging over 130% since 2010 and with about 40% of jobs linked to export activities. Openness to trade and investment has been instrumental in employment creation and income growth. Since gaining independence in 1957, Malaysia has successfully diversified its economy from one that was initially agriculture and commodity-based, to one that now plays host to robust manufacturing and service sectors, which have propelled the country to become a leading exporter of electrical appliances, parts, and components. Malaysia's economy has averaged growth of 5.4% since 2010, and is expected to achieve its transition from an upper middle-income economy to a high-income economy by 2024. However, the COVID-19 (coronavirus) pandemic has had a major economic impact on Malaysia, particularly on vulnerable households. Having revised its national poverty line in July 2020, 5.6% of Malaysian households are currently living in absolute poverty. The Government is focused on addressing the well-being of the poorest 40% of the population ("the bottom 40"). This low-income group remains particularly vulnerable to economic shocks as well as increases in the cost of living and mounting financial obligations.

Income inequality in Malaysia remains high relative to other East Asian countries but is gradually declining. While income growth for the bottom 40 has outpaced the top 60 over much of the last decade, the absolute gap across income groups has increased, contributing to widespread perceptions of the poor being left behind. Following the removal of broad-based subsidies, the Government has gradually moved toward more targeted measures to support the poor and vulnerable, mainly in the form of cash transfers to low-income households.

Malaysia's near-term economic outlook will be more dependent than usual on government measures to sustain private sector activity as the shock of COVID-19 reduces export-led growth, and as a depleted fiscal space limits public investment-led expansion. Over the longer term, as Malaysia converges with high-income economies, incremental growth will depend less on factor accumulation and more on raising productivity to sustain higher potential growth. While significant, Malaysia's productivity growth over the past 25 years has been below that of several global and regional comparators. Ongoing reform efforts to tackle key structural constraints will be vital to support and sustain Malaysia's development path.

According to the World Bank's Human Capital Index, Malaysia ranks 55th out of 157 countries. To fully realize its human potential and fulfil the country's aspiration of achieving the high-income and developed country status, Malaysia will need to advance further in education, health and nutrition, and social protection outcomes. Key priority areas include enhancing the quality of schooling to improve learning outcomes, rethinking nutritional interventions to reduce childhood stunting, and providing adequate social welfare protection for household investments in human capital formation. [16]



The Federal Territory of Kuala Lumpur (KL) is the official capital and Malaysia's beating heart. Kuala Lumpur is the largest urban area and Malaysia's cultural, commercial and transportation centre. The population in the Federal Territory of Kuala Lumpur was 1.8 million in 2020, while over 7.7 million people reside in the Metropolitan Kuala Lumpur area in the Klang Valley (2019). The urbanisation level is 100%. Houses of Parliament and the Royal Palace are located in Kuala Lumpur. [17]

Malaysia is a former British colony and the political structure and legal framework are largely based on British systems. The national language is Malay, or Bahasa Malaysia but English is one of the most widely spoken languages, especially in business.

For over 60 years Malaysia was ruled by the same political party, the Barisan Nasional, a coalition of three racially based parties led by the United Malays National Organisation (Umno). However, in the historic 14th General Election in May 2018, Tun Dr. Mahathir bin Mohamad returned as Prime Minister at the age of 92 when the opposition party Pakatan Harapan (Malay for 'Alliance of Hope') won the election and took over the country. Less than two years later the new opposition government was ousted, and the old ruling party came back to power in March 2020. [17]

Malaysia is a federal constitutional elective monarchy with 13 states and 3 Federal Territories (Wilayah Persekutuan). Malaysia is the only federal country between India and Australia. The Federal Constitution of Malaysia is the supreme law of the land. The King of Malaysia "Yang di-Pertuan Agong" is Head of State while the Prime Minister is Head of Government. Executive power is vested in the Cabinet, led by the Prime Minister, who is chosen from among both houses of the Parliament. Malaysia follows the Westminster parliamentary system as a representative democracy. The federal government consists of three branches: executive, legislature and judiciary. The federal executive is The Cabinet, a council of ministers led by the Prime Minister who are accountable collectively to the Parliament. Legislative power is divided between the Federal and State Governments. The federal parliament consists of the House of Representatives "Dewan Rakyat" (lower house) and the Senate "Dewan Negara" (upper house). [17]

Malaysia's legal system is based on English Common Law. The highest court in the judicial system is the Federal Court, followed by the Court of Appeal and two High Courts, one for Peninsular Malaysia, and one for East Malaysia. The subordinate courts in each of these jurisdictions include Sessions Courts, Magistrates' Courts, and Courts for Children. There is a separate Special Court to hear cases brought by or against all Royalty and Malaysia also practises Syariah law, however the Syariah Courts have jurisdiction only over Muslim in the matters of family law and religious observances. [17]

Malaysia is a relatively open country, recognized language is English and they have Regional HQ program business visas. The Malaysian economy is freshly industrialized and the state government plays an important role in the economy. According to the Global Competitiveness Report 2019, the Malaysian economy is the 27th most competitive country in the world.

Federal government is in Putrajaya. Officially the Federal Territory of Putrajaya government was shifted in 1999. Population of Putrajaya ~ 30 thousand.

The Malaysian government is trying to balance economic growth with environmental protection.

Cyberjaya is a town with a science park as the core that forms a key part of the Multimedia Super Corridor in Malaysia. It is located in Sepang District, Selangor. Cyberjaya is adjacent to, and developed along with Putrajaya, Malaysia's new seat of government. This town aspires to be known as the Silicon Valley of Malaysia, which is located 26 km from downtown Kuala Lumpur.

Malaysia Plan – 5 year plans for national development

Malaysia Plan is a framework, which defines the country's development strategies for five year periods. In the years 2021–2025 is ongoing the Twelfth Malaysia Plan (12MP).

The 12MP will be aligned with the shared prosperity initiative encompassing **three dimensions, namely economic empowerment, environmental sustainability and social re-engineering.**

Economic Empowerment dimension will include new sources of growth, including Industrial Revolution 4.0, digital economy, aerospace industry, integrated regional development as well as growth enablers such as sustainable energy sources and infrastructure connectivity.

Environmental Sustainability dimension, among others include the blue economy, green technology, renewable energy as well as adaptation and mitigation of climate change.

Social Re-engineering dimension comprises enhancing societal values, improving purchasing power of the people, building resilient Bumiputera community, strengthening social security networks and improving the wellbeing of the people. [18].



Malaysia's energy sector

Malaysia's energy production is largely based on oil and natural gas reserves, which is the fourth largest Asia-Pacific region following China, India and Vietnam. In the power supply in 2018 natural gas share was 62.4% and crude oil 29.2%, covering in total 91.6%. [19]

The energy industry accounts for almost 20% of Malaysia's total GDP, making it a critical sector for the economy's growth. The National Energy Policy, gazetted in 1979, was introduced for the securing of a more cost-effective and efficient utilisation of environmentally friendly energy.

Malaysia is a manufacturing center for solar energy equipment. Many international companies have the largest production capacity in Malaysia. Photovoltaics manufacturing in Malaysia: First Solar, Panasonic, TS Solartech, Jinko Solar, JA Solar, SunPower, Hanwha Q Cells, and SunEdison in locations like Kulim, Penang, Malacca, Cyberjaya and Ipoh.

The Four-Fuel Diversification Policy (1981) and Five-Fuel Diversification Policy (2001) were introduced to reduce the country's reliance on fossil fuels and create more efficient use of natural resources by seeking alternatives in the energy sector.

Four types of power plants electrify the country (totalling to 44 power plants): gas (22), coal (7), hydroelectricity (11) and LLS Transmission Connected (4). A majority of Malaysia generates electricity through thermal sources, 54% of which are by gas-fired plants. While 93.4% of Malaysia's total population has access to electricity, only 88.8% of those in rural areas and lower for those in Sabah and Sarawak are able to receive access to electricity. It is planned that by 2020, Malaysia will increase outputs from hydro, biomass, biogas and solar up to 13.1%. Malaysia power supply comparison between 1998 and 2018 is presented in Figure 5.

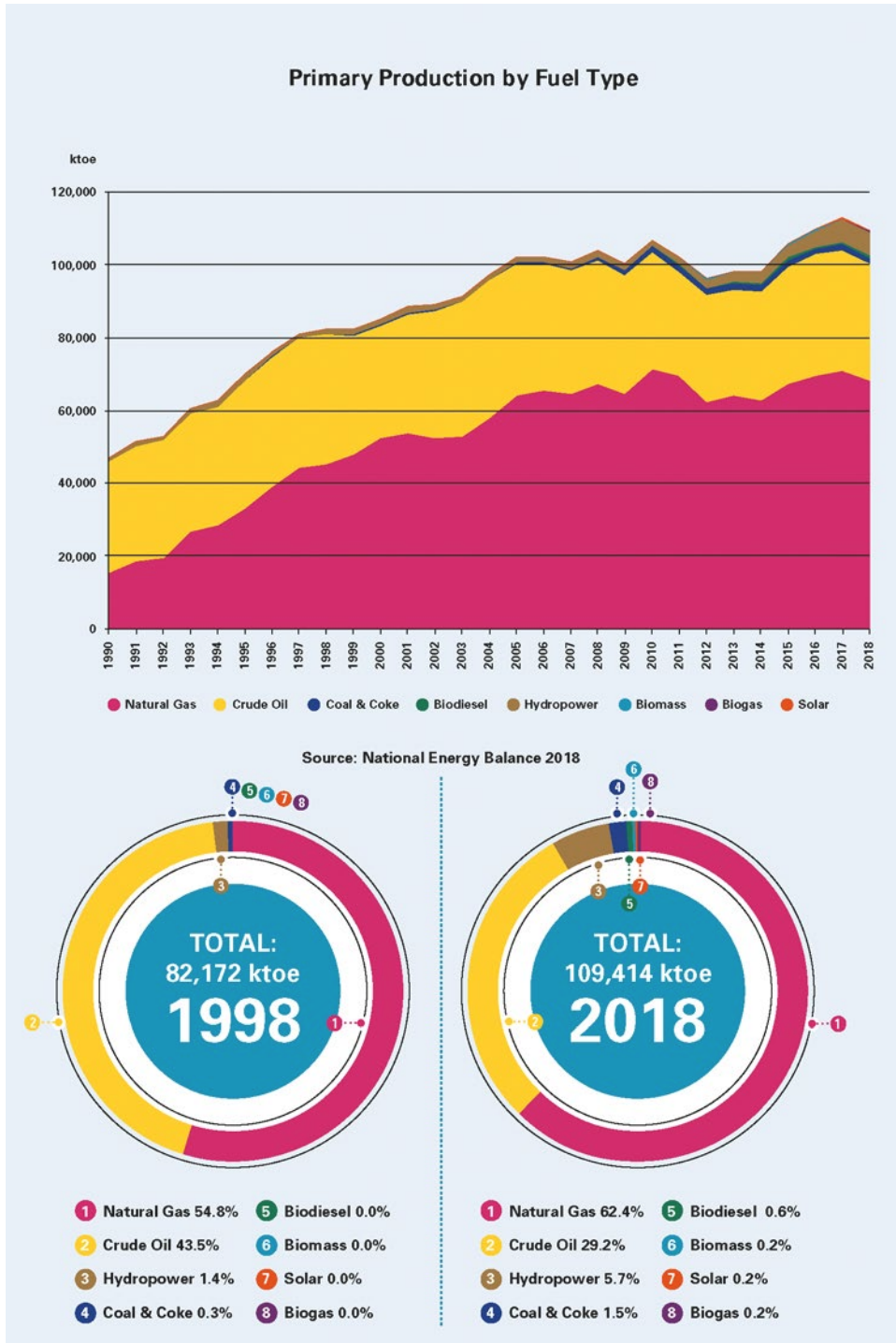
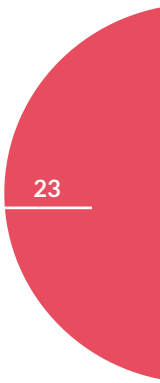


FIGURE 5. Malaysia's energy supply comparison between 1998 and 2018.
Source: Malaysia Energy Statistics Handbook 2020.



Malaysia expects to reach the estimated capacity of 2,080MW by 2020 through contribution by the following types of renewable energy: Biomass 38%, Mini-hydro 24%, Solid waste 17%, Biogas 12%, Solar Photovoltaic 9% (Source: *International Trade Administration (ITA)*).

The World Energy Council (WEC) publishes the Energy Trilemma Index that measures the overall performance of countries in achieving a sustainable mix of policies and the balance score highlights how well a country manages the trade-offs in the Trilemma (Energy Security, Energy Equity and Environmental Sustainability.). As a key player in the energy sector, the Energy Commission has developed its own action plan in the context of the Energy Trilemma (Figure 6).

THE ENERGY TRILEMMA PENINSULAR MALAYSIA'S ROAD MAP

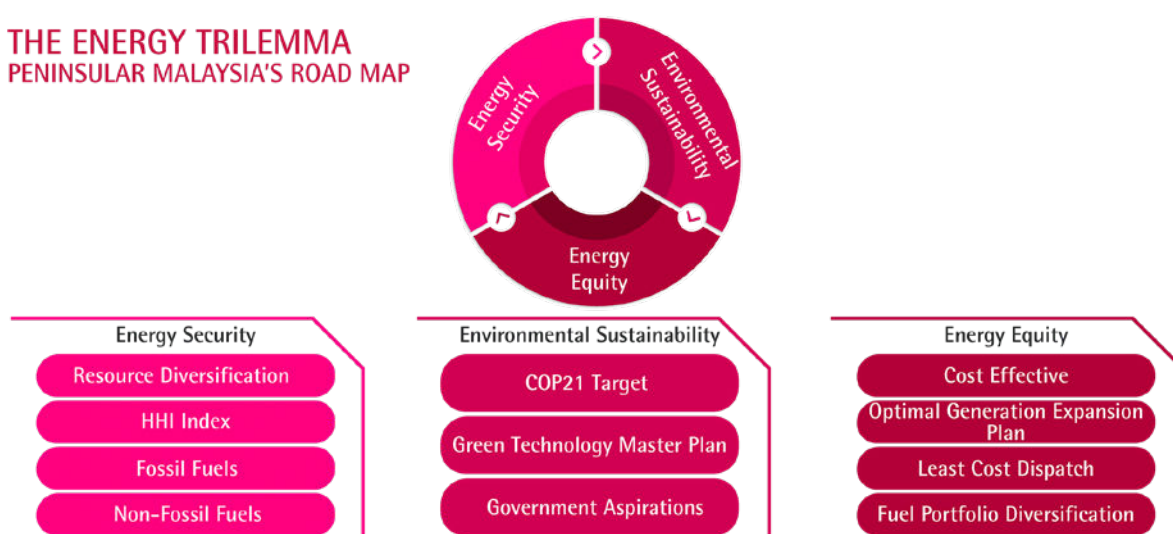


FIGURE 6. *The Energy Trilemma – Peninsular Malaysia's Road Map.*
Ref: *Peninsular Malaysia Electricity Supply Industry Outlook 2019.*

Automotive and Smart City

The Malaysian automotive industry includes 27 vehicle manufacturers and over 640 components from the manufacturer. Proton and Perodua / The automotive industry in Malaysia primarily serves domestic demand. The country has been on track to reduce CO₂ emissions by 40% in the last 3 years.

Smart cities within Malaysia are seen as a new approach in urban management and development to make Malaysia's cities more sustainable and liveable in line with the advancement of technology through the usage of information technology (IT) mechanisms.

Malaysia's aim of developing smart cities has been embedded in the 11MP (plan for 2016–2020), the National Physical Plan 3 (NPP3) and the National Urbanisation Policy 2 (NUP2). Similarly, the development of Malaysia's smart cities framework takes into consideration global agendas such as the United Nations' Sustainable Development Goals (SDGs) as well as UN Habitat (Kuala Lumpur Declaration on Cities 2030).

It has also been noted that Malaysia's urban population rate is expected to rise from 74.3% in 2015 to 79.6% in 2025, by which such conditions (which have also been amplified by rapid development) have resulted in various issues such as environmental pollution, road congestion and the inefficient usage of energy and resources, i.e., land, space, energy and clean water. As such, the government aims to maintain the urbanisation rate at not more than 85% by 2040 through smart city initiatives that optimise sustainable energy, promote green infrastructure investment and improve quality of life.

Additionally, 4 out of the 26 cities in the ASEAN Smart City Network (ASCN) are located in Malaysia: Kuala Lumpur, Kota Kinabalu (Sabah), Kuching (Sarawak) and Johor Bahru (Johor). Kuala Lumpur has also been ranked 70th out of 102 cities in the list of smart cities globally, based on the IMD Smart City Index 2019, which takes into consideration matters such as structure and technologies in transport and mobility attainment, urban sustainability as well as digital technology, among others.

Under the 12MP (2021–2025) smart city projects are also currently being laid out in Johor, allowing the integration of technology in public spaces while improving public safety and quality of life. To that end, the state aims to enhance its use of Internet of Things (IoT), artificial intelligence, big data, advanced analytics, autonomous vehicles, and 5G technology. *(Source: Extracted from IMD Smart City Index 2019 Report, IMD World Competitiveness Center, 2019)*

Health Tech

Malaysia is known as one of the preferred medical tourism destinations.

Featuring Modern private care facilities and highly efficient medical staff Medical tourism is an important sector of the Malaysian economy.

Relevant Federal & State Authorities Companies Commission Malaysia

Companies are incorporated, regulated and monitored by the Companies Commission of Malaysia, or Suruhanjaya Syarikat Malaysia (SSM). All companies intending to do business in Malaysia are required to register with the SSM. Most dealings can be done on the internet through the web portal www.ssm.com.my.

Ministry of International Trade and Industry (MITI)

MITI is responsible for the development of international trade, investment and productivity. MITI's target is to make Malaysia a preferred investment destination and among the most globally competitive trading nations; to attract quality investment and innovate industrial activities to produce high value-added goods and services.

MITI has several subunits with different targeted responsibilities.

- The Malaysian Investment Development Authority (MIDA) provides assistance to companies intending to invest in the manufacturing and services sectors as well as facilitates the implementation and operation of new projects. MIDA's wide range of services include providing information on investment opportunities, immigration procedures, facilitating joint ventures and B2B matchmaking.
- Malaysia External Trade Development Corporation (MATRADE) is the National Trade Promotion Agency with the mission to develop and promote Malaysia's export to the world and has enabled many local companies to enter new markets and commence international trade.
- InvestKL is a government Investment Promotion Agency mandated to attract Fortune 500 and Forbes 2000 type multinational companies to establish their regional hubs and undertake regional activities in the Greater Kuala Lumpur region.
- Exim Bank (Export-Import Financial Institution) offers conventional banking facilities and Islamic banking to Malaysian companies. Exim Bank promotes reverse investment, supports export from strategic sectors such as capital goods, infrastructure projects, shipping, value-added manufactured products, and facilitates Malaysian companies to enter new markets, particularly to non-traditional markets.
- SIRIM Berhad (Certification, Testing and Inspection, Research, Advisory etc.)
- Malaysia Productivity Corporation
- Malaysian Industrial Development Finance Berhad (MIDF)
- Malaysia Automotive Robotics and IoT Institute (MARii)
- Malaysia Steel Institute (MSI)
- The Malaysia Design Council - Majlis Rekabentuk Malaysia (MRM)
- Malaysia's Standards and Accreditation Body – Jabatan Standard Malaysia (JSM)
- Halal Development Corporation (HDC)
- National Measurement Council

Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC)

MESTECC was formed after the general election in 2018 when the new government decided to combine the Ministry of Science, Technology and Innovation (MOSTI), the Green Technology and Energy Components from the Ministry of Energy, Green Technology and Water (KeTTHA) and the Climate Change and Environment Components from the Ministry of Natural Resources and Environment (NRE). The new ministry's vision for the country is to achieve energy and environmental sustainability and create wealth through science and technology.

Malaysian Green Technology Corporation (GreenTech / MGTC)

GreenTech Malaysia is a government agency under the Ministry of Energy, Science, Technology, Environment & Climate Change. MGTC's mission is to promote green economy through green technology and culture, with the vision to "Be the Leading Organisation in Spearheading Green Technology for Growth and Sustainability".

Malaysia's Green Recognition Scheme (MYHIJAU)

MyHIJAU is Malaysia's official green recognition mark endorsed by the Government of Malaysia, bringing together certified green products and services that meet local and international environmental standards under one single mark. Registered green products and services are listed in the MyHIJAU Directory which acts as a reference for green procurement, green incentives and related green technology initiatives.

National Solid Waste Management Department (SWCorp / PPSPPA)

In 2007 the Solid Waste and Public Cleansing Management Act was launched with the purpose of integrating solid waste management and public cleansing on a national level under the Ministry of Housing and Local Government. The Solid Waste and Public Cleansing Management Act has been implemented in 6 states (Johor, Malacca, Negeri Sembilan, Kedah, Perlis and Pahang) and the federal territories of Kuala Lumpur and Putrajaya on September 1, 2015.

Energy Commission – Suruhanjaya Tenaga (ST)

The Energy Commission is responsible for regulating the energy sector, specifically the electricity and piped gas supply industries in Peninsular Malaysia and Sabah. Taking over the role of the Department of Electricity and Gas Supply, the Energy Commission started its operation on January 1, 2002. The main focus of the commission is reliable electricity and gas supply, reasonable costs and safety.

The Sustainable Energy Development Authority Malaysia (SEDA)

SEDA is a statutory body formed under the Sustainable Energy Development Authority Act 2011 with the key role to administer and manage the implementation of the feed-in tariff mechanism which is mandated under the Renewable Energy Act 2011.

Green Technology Financing Scheme (GTFS)

GTFS helps companies finance investments or assets for production of green products, invest in energy efficiency and/or energy performance projects, and utilize green technology.

Invest Selangor Berhad

Invest Selangor is a one-stop agency that provides information, advisory services, as well as start-up or expansion assistance to potential and existing investors in the Selangor State.

SME Corporation Malaysia

SME Corporation Malaysia (SME Corp. Malaysia) is the central coordinating agency (CCA) under the Ministry of Entrepreneur Development and Cooperatives (MEDAC) that coordinates the implementation of development programmes for small and medium enterprises (SMEs). SME Corp. acts as the central point of reference for research and data dissemination on SMEs and entrepreneurs, as well as provides business advisory services for SMEs and entrepreneurs. [\[17\]](#)

Malaysia's government is strongly committed to incentivising its entrepreneurial ecosystem, specifically cleantech entrepreneurship focusing on green growth in the country. With public policy and funding commitments, the cleantech sphere has begun to thrive and attract private support, including venture capital and the creation of corporate-backed accelerators. Malaysia shows some evidence of these incentives translating into commercialised cleantech companies. [\[20\]](#)

Cleantech-Specific Innovation Drivers

Malaysia stands out with a score of 6 out of 8 of selected cleantech-supportive policies, as well as ambitious carbon emissions reduction commitments to cut emission intensity by 45% by 2030, using 2005 as the baseline. Malaysia plans to reach 13% renewable energy consumption by 2050, with an estimated cost of USD\$4.5 billion to reach this target.

Malaysia shows evidence of making policy commitments to incentivise cleantech growth through entrepreneurship. The country targets the cleantech start-up ecosystem through the National Green Technology Policy (2009), implemented by the Malaysian Greentech Corporation (MGTC). Further examples of cleantech promoting initiatives include the recently introduced tax exemption for hybrid and

electric vehicles. In addition, the Malaysian Investment Development Authority (MIDA) provides direct tax incentives for green technology industries, including those extending beyond the renewable energy sector, which in turn promotes domestic market demand.

The government is also engaged in trying to turn government procurement, which amounts to 15% of Malaysia's GDP, into green procurement. Energy efficiency is also directly incentivised by various programmes including the Malaysian Industrial Energy Efficiency Improvement Programme (MIEEP) and the Green Building Index.

For transportation and auto-emissions, Malaysia has regulations set by the Road Authority Department (JPJ), which apply to fleet operators such as the taxis, logistics and transportation companies and transport operators, but to-date is limited in its real impact on vehicles owned by the population. [20]

R&D and accelerator/incubator support

The government's commitment to the cleantech space is reflected in Malaysia's estimated cleantech R&D budget relative to GDP, which ranks much higher than Thailand, Vietnam and India. While Malaysia has relatively few established cleantech clusters – only Sarawak Corridor of Renewable Energy (SCORE) and Sustainable City (previously Green City) in Melaka – different cities in the country have evolved to specialise in certain aspects of the cleantech sphere, with Putrajaya and Cyberjaya embarking on the Smart and Sustainable City concepts, turning the city scape into a cluster as well as a space for technological application. While there is an extensive accelerator & incubator base, there are no cleantech-specific ones yet.

To extend current cleantech policy efforts to the start-up sphere, MGTC offers training courses to increase SMEs' capacity and capability to comply with the green standards established in Malaysia, in particular being certified as 'green' under eco-labelling. The Green Technology Financing Scheme (GTFS) has to-date approved and financially supported 237 green innovation projects in Malaysia.

A good number of university programmes are designed to produce talent specifically for the cleantech innovation sphere, and some technical universities play an important role in providing a general talent pool for cleantech start-ups. For example, the National University of Malaysia (UKM) has an established Solar Energy Research Institute (SERI), and the University of Malaya (UM) has the Power Energy Dedicated Advanced Centre (UMPEDAC). More generally, the University of Technology Malaysia (UTM) has a Department of Environment & Green Technology, while the University of Science Malaysia (USM) has an Office of Sustainability that cuts across the faculties. [20]

Malaysian Green Technology Master Plan 2017–2030

The Green Technology Master Plan (GTMP) is fundamentally an outcome of the 11 MP (2016–2020) which has earmarked green growth as one of six game changers altering the trajectory of the nation's growth. The GTMP creates a framework which facilitates the mainstreaming of green technology into the planned developments of Malaysia while encompassing the four pillars set in the National Green Technology Policy (NGTP) i.e. energy, environment, economy and social.

This first edition of the GTMP focuses on **six key sectors**:

Energy, Manufacturing, Transportation, Building, Waste and Water and attempts to harmonise the policy directions of each sector towards a common goal of sustainable utilisation of natural resources. The green technology goals established for each of these sectors will be progressively realised and fine-tuned in the policies and actions developed in every MP. Key initiatives that are underway and planned, as well as challenges flagged in each of the six sectors are briefly outlined in the GTMP.

Efforts have been put into place by the Government to ensure the long-term sustainability of the **energy sector** through resource diversification, continuous investment in new infrastructure and state-of-the-art technology deployment. The main challenge highlighted was governance in the future energy economy which will be important in setting the tone for harnessing renewable energies and energy storage technologies.

A series of initiatives has also been put into place addressing efficiency in electricity generation and consumption. Funding to buffer the transition to a more market-based approach in energy generation and supply has been provided along with funds for R&D&C. Recommendations include enhancing the energy planning framework to leverage on disruptive technologies such as the massive scale-up of distributed generation, microgrids, independent energy storage, the internet of things, and electric vehicles among others.

Malaysia's **manufacturing sector** is dominated by the SMEs (95% of the sector). Initiatives have been put into place to green the industry, with measures promoting energy efficiency and adoption of 'greener' manufacturing processes that reduce water and raw material consumption while minimising air pollution, solid waste and wastewater generation. Challenges highlighted: diverse range of industrial segments, each with its own unique environmental issues and circumstances requiring tailored solutions. Recommendations include: scaling up towards a circular economy.

Transport sector's initiatives are being looked at to utilise green technology across the land, aviation and maritime transport sectors which will improve energy efficiency and reduce carbon emissions, as well as embed greener operations. An example is the Green Port Policy for the maritime transport sector. Plans are also underway to improve connectivity and infrastructure to make travel more efficient. Governance of the transport sector has been flagged as an issue requiring attention, as there is a lack of coordination in the regulation of the multiple transportation segments. Other issues include the affordability of new transportation technologies such as energy efficient vehicles (EEVs) and the poor market perception and confidence in

these new technologies. Recommendations include: improving market demand for public transportation and providing information on mobility choices to the public.

Building Sector's projects and measures include green building ratings, industrialised building systems, green building designs, green construction materials, and green product directories. The Government has led the way by implementing initiatives to realise a 5% reduction in energy consumption of ministry buildings in the federal capital by 2020 as well as the adoption of green building rating scheme.

The main challenges highlighted: the high cost of investments in green technology and materials, the absence of regulatory drivers on building energy codes which largely dictate a building's energy intensity (BEI), inadequate sustainability performance standards for building materials, lack of research in sustainable building materials and the need for a more skilled workforce in the construction industry. Recommendations include: standardisation of rating and audit tools and nudging the construction industry towards a circular economy.

Waste sector has multiple goals to reduce waste generation per capita and to turn waste into a source of wealth through waste recovery for material extraction and conversion of waste to energy. The main challenge is the poor public awareness which must be persistently addressed to change consumption behaviour and lifestyle habits that generate undesirable quantities of waste. Issues in the jurisdictional scope over treatment of the different types of wastes generated is complicating the matter. Recommendations: innovations for minimisation of generation and safer disposal technologies, resource recovery, and conversion of waste to energy and reusable materials.

Water Sector. Several initiatives to address the whole water continuum from resource use to distribution, utilisation, recovery and treatment. Emphasis has been shifting towards a closed water loop system, water efficient products and services, as well as intensification of R&D&C on water conservation, treatment, distribution and rainwater harvesting. Some of the challenges highlighted: the lack of funding for R&D&C, slow shifting of the industry and consumers towards water efficient products and services, inadequate use of analytical tools and detection technologies to address issues related to inefficient network distribution and end-user consumption. Recommendations: adaptation and adoption of suitable technology to facilitate efficiency and optimisation of scarce water resources, improved and cheaper treatment options and migration to a closed water loop system.

Malaysia's shift towards a low-carbon economy is a strategic and bold move that will leverage on green technology as the enabler to undergo this transition. However, since green technology applies to all spheres of life, it is a complex challenge to embed it in a coordinated manner across all sectors in the economic plans of the country. The approach therefore must be multi-phased and increasingly expansive in sectoral coverage, underpinned by an increasingly deep grasp of the underlying carbon emissions data. [\[21\]](#)

Malaysia in Finnish and Estonian context

Finland and Malaysia established diplomatic relations in 1972. Finland has had a resident ambassador in Kuala Lumpur since 1988. The presence in Malaysia is well established and reflected in many contacts and in excellent relations between our two countries. The field of responsibility of the Embassy of Finland in Kuala Lumpur also covers Brunei Darussalam and the Philippines. [22]

The value of merchandise exports from Finland to Malaysia totalled \$176 million in 2020. Growth of merchandise exports from Finland to Malaysia reached 17% compared to 2019. Goods exports grew up by \$25 million in 2020 (in 2019, sales of goods from Finland to Malaysia were equal to \$151 million). [23]

Malaysia recognised the independence of Estonia on 11 September 1991 shortly after the dissolution of Estonian Soviet Socialist Republic on 20 August 1991. The relations between the two countries have been established since 4 November 1993. [24]

Malaysia is the 61st largest export partner of Estonia. In 2020, Estonia's exports to Malaysia amounted to €11,2M and imports from Malaysia to €13,9M, resulting in a negative trade balance of €2,64M. Compared to the previous year, exports from Estonia to Malaysia experienced growth at an annualized rate of 38.6%, from €8.1M in 2019 to €11.2M in 2020. Most recently, exports were led by communication equipment, which represent 13.4% of the total exports to Malaysia, followed by wood sawn or chipped lengthwise, sliced or peeled,..., which account for 9.23%. [25]



Business culture specialties in the target market

You will meet with different cultures when you start doing business abroad and will be more likely to succeed if you're aware of these differences. It is imperative that being familiar with local customs will help you deal successfully with foreign business partners. Sometimes we even have difficulty understanding business partners from neighbouring countries. This is less likely to be a problem if we understand their background and culture. How should you approach your business partner? Are relations hierarchical or egalitarian? Do you need to follow strict rules on etiquette, or is a relaxed approach the norm? Doing business is easier if you understand business culture in your target market.

The Lewis Model is the latest to gain world-wide recognition, articulated in Richard Lewis's blockbuster, *When Cultures Collide* (1996). Lewis, after visiting 135 countries and working in more than 20 of them, came to the conclusion that humans can be divided into 3 clear categories, based not on nationality or religion but on behaviour. The Lewis Model is based on data drawn from 50,000 executives taking residential courses and more than 150,000 online questionnaires to 68 different nationalities. Lewis's typologies are Linear-active, Multi-active and Reactive. According to the model, Finnish and Estonian people are in the Linear-active group. Instead, people in major countries in Asia (including China and Malaysia) are in the Reactive group (see visualisation in Figure 7). While the three types are distinctive, each possesses behavioural elements from the other two categories. It is a question of which one is dominant. Many individuals deviate from the national type in a work situation e.g. engineers and accountants tend to be Linear, sales people Multi-active, lawyers and doctors Reactive. [26]

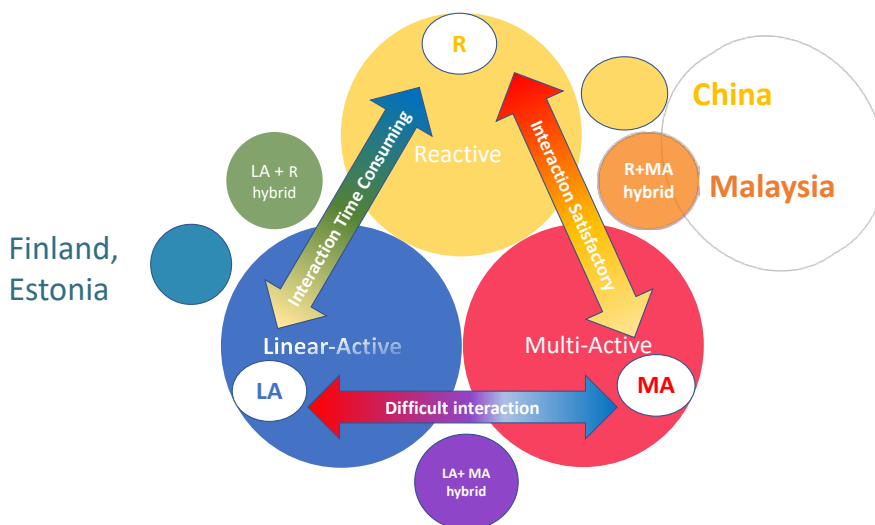


FIGURE 7. Culture pyramid in Lewis' Model – Finland and Estonia vs China and Malaysia.

CHINA

With its thousands of years long traditions, the Chinese way to do business has many differences to European or Scandinavian ways. Meetings and getting to know a business-acquittance personally is important, as it can be a way to gain more trust between people. Confucianism is the base for Chinese culture together with Marxism, both very hierarchic. If you are a stranger, you are not being trusted by default. It is easier to gain trust if you are introduced to someone by somebody who already knows him/her. This gaining trust is crucial for making real progress in business. If there is not enough trust, the meeting can still be polite, which in some cases gives Europeans a false impression of having made great progress. The hierarchic culture is reflected also in the business culture, meaning that negotiations take place with individuals at the same organizational levels. Titles are important. This is something to watch out for.

In China the relationship – so called *guanxi* – is important. It is appreciated that one does a favour to another but at some later time the other would return the favour. Therefore, it may be an opportunity for you if you get to help your Chinese person in a natural way.

It is usual that the negotiation process for a business deal takes a long time and is often complex. This can be understood, because the process of building trust has to progress sufficiently before the partners can consider to commit themselves to a business deal. Local partners often can increase trust. Experienced persons from Finnish companies say that it is impossible to do business in China without good local partners.



Tips for operation and special features of China as a business environment

Importance of marketing

According to the managing director of Finnish Oilon corporation Mr. Tero Tulokas, **the Chinese market changes amazingly fast and you only understand it when you have seen it [27]**. Competition is part of business life. As discussed before, Economy and market in China is very large compared to Scandinavia. There are numerous companies already operating in the market. If you wish to sell products or services in China, you should have clear aspects and advantages for your own products. Why are they the best ones? What is the reason for the customer to purchase them?

Importance of marketing in China should be emphasized when aiming to establish new exports there. The starting point is that the Finnish or Estonian SME is first “a stranger” at the Chinese market. The Chinese economy is very large and it is to major extent self-sufficient. There are big and visible local players already at all market branches in China and by default smaller foreign companies do not get noticed

at all. In China there are large Chinese language web-portals and other Chinese information sources of products and technology, which are followed. Marketing in China is essential as advised by Yang Fenghui [15]. A tip here is that “you have to let Chinese people know about you and your products. If you keep silent, customers in China don’t know you. You cannot sell anything that way.” As Mr. Yang suggests, often the first thing to do is to hire a local marketing or sales manager.

Mr. Yang’s tip here [15] is to *focus on business and to go and experience yourself in China*. Don’t trust the media in that respect that you would not go to China but only try to market via media from outside of the country. He also advises not to be discouraged by the media but to go to China and learn by yourself. His example of success is of a FIN company Runtec, where he earlier worked and tried to get new exports to China. It is interesting how he first introduced his company inside China. He arranged a big and visible marketing event in Shanghai, even if he did not have almost any organization in China. He invited 200 important potential customers to a promotion event at a well known top-notch business center. For his company at that point this one event was a remarkable investment of about 300 kEUR. But from this single event he got 5 new customers, which were essential in the process of entering the China market and helped the company sales to start growing fast.

Fast reaction

Even if the process of reaching a business deal may be long, the economy in China changes fast. When people contact you by email, they usually expect a reply quite soon. For Scandinavians this might not be how we are used to communicating so it is good to pay attention to replying at least in some way rather quickly.

As said before, but which cannot be too much emphasized, good local partners are very valuable. It is often not easy to find a good and reliable local partner in China. There have been examples of Finnish companies, who had bad luck in choosing their partner and have found out that the partner company was in the end not what they expected [28]. It is wise to select the local partner carefully, even double check their background and to really get to know them. Also, in China changes can happen suddenly and you should prepare yourself for possible changes.

Business meetings with a matching rank counterpart are very important and at higher level even more so. Mr. Yang’s tip here [15] is that when going to an important business meeting in China, prepare for it and be ready to make decisions at once. If you will get an appointment with the CEO of a potential lead in China, it is probably for you a unique situation which does not happen many times - usually not even a second time. When having a cup of tea with the CEO, you will give your price and the CEO gives a counterprice. Yang’s practical tip is that **“dont walk out of the office without a deal”**. If you say that “I will think about it”, you will loose the deal. It is wise that you immediately consider the counterprice and make a deal at that very appointment. If you postpone your response, it may well happen that you won’t get another appointment.

Collaboration with universities

One difference in China compared to Scandinavia, is that the public authorities in China have a lot of power in controlling the business and economy either directly or indirectly. This is a fact also in the cleantech sector. Usually, only larger companies have the permission to do export/import business. This topic has been discussed in another chapter of this report.

A tip of Mr. Tulokas [27] is that Collaboration with Chinese universities may be helpful in the cleantech sector. Chinese universities often have good connections to businesses and vice versa. It might be beneficial for a company to collaborate with a Chinese university. This could increase the trust of potential customers in China.

Trademark registration

Tips from a blog of the Finnish IPR-specialist enterprise Kolster on trademark registration in China are collected into Figure 8 [19].

China is eager to obtain the latest technology. New technology is a good tool to get good relations and do marketing in China [27]. In China, there is a great focus on learning. A negative consequence nowadays is that this also leads to copying. This means that IPR becomes increasingly important. Foreign trademark protections have no real impact, and trademarks are registered with the same or similar trademarks. This can lead to Trademark squatting, meaning that a Chinese organisation has registered your trademark and tries to sell it back to the right owner. Trademarks shall be registered in English and Chinese. It is also important to file possible Patents in China as early as possible. Both Trademark and Patent filings shall be made in the company's own name, not in the name of a partner or distributor.

TRADEMARK REGULATIONS AND PRACTICES IN CHINA

- 1** **WHAT?** The China's Trademark Law and its provisions differ in content from the Trade Marks Directive of the EU (and the Finnish Trademarks Act). There is a high risk of hijacking if trademark registration in China is narrower than in the EU.
- 2** **WHY?** Establishing of a Chinese version of the trademark and a brand strategy for China is advisable due to that facts that most Chinese people find foreign names difficult to pronounce and the Chinese authorities only accept registration certificates in Chinese.
- 3** **WHEN?** At the latest when the trademark is introduced in China to avoid "hijacking" or being registered fraudulently. In China, the first to apply for registration of a trademark will also obtain it. It can take months to obtain a Chinese registration certificate.
- 4** **HOW?** The Chinese version should be associated with the original trademark, which builds a stronger brand. Pay attention to **Class and Subcategory!** An identical trademark may be accepted for registration in China if it covers goods in different subcategories.

Source: Kolster

FIGURE 8. Trademark regulations and practices in China – What? Why? When? How? [19].

Digital payments

Digital payments are widely used in China. The dominant Chinese digital wallets offer financial service to individuals covering infrastructure, shopping, life consumption, P2P, splitting the bills (which you just found in European startups), travel, taxi, restaurant, credit card, insurance, donation, gifts, lucky money, family accounts sharing, university, financing, saving etc etc. The P2P payment via digital wallet hasn't been anywhere seen in Europe without Alipay or WeChat Wallet, also because of tax and other reasons. However, the Chinese digital wallet can only support Chinese bank account holders. The online payment gateway for overseas entities is on high transaction fee terms. [30]

Reducing margins

There is a pitfall in starting exports to China, which a company should avoid. It is important to realize that at the huge cleantech markets in China there are numerous companies who provide services and products at almost any branch. The high competition in general pushes market prices and margins strongly down. It should be realized that the sales margins typical for Finland are too high in the competitive markets in China and the companies have to be able to reduce their margins to get real deals there. The profits will eventually come along with a very fast growing turnover and increasing sales volumes, which create a very profitable business even with smaller overhead per each sale [15].

e-commerce

In China there are 7 different main cross-border e-commerce models [30]:

1. B2C platform + bonded facilities: no inventory; services like logistics and sales play critical roles (eg. Tmall)
2. Retail + platform: strong internal financial conditions but lack of overseas goods resources or limited on categories (eg. Suning)
3. Retail department store + strong supply chain: strong financial conditions and strong goods resources, with minority of platform module (eg. JD)
4. Retail + special offers: they are rather influential on consumer market; strong suggestive contents and special promotions; fairly well equipped bonded facilities and logistics (eg. Jumei, as the “make infamous famous” type; started from vertical e-commerce)
5. Retail special offer directly from overseas: to rely on overseas resources; strong sourcing and logistics (eg. VIP, with the best linkage system with Chinese customs so far)
6. Vertical retail with versatile sourcing and logistics: the most comparable model with normal European e-commerce; mostly they have very good financial base or solid and well financed for especially acquiring consumers (eg. Mia)
7. C2C/B2C platform: this model takes advantages of a great many of overseas intermediary buyers or business (Chinese speaking); the challenge is integrated management; a lot of smaller cross-border e-commerce companies are using this model as part of their modules (eg. YMatou)

Social media

Chinese use accounts mostly connected with major third party social media operators (Weibo, WeChat, QQ), accounts connected with a telephone number, or payment account (Alipay). For the third party account, you could encounter difficulties to acquire an effective email address. However, QQ number (account) corresponds 100% to their QQ email box, which still has the biggest market share as an email provider in China. (QQ and WeChat both belong to Tencent group). [30]

WeChat, Youku Tudou, Weibo. Chinese indulge in their social media and messengers on mobile phones with significant hours per day:

1. WeChat (Weixin – in Chinese pinyin), is an all-function app akin to a combination of whatsapp, facebook, twitter, paypal, online store, driftbottle etc.
2. Youku Tudou replaced Youtube in China, without an equal comparable business role as Youtube. (Youku and Tudou have just merged into one lately and were acquired by Alibaba in November 2015.)
3. Weibo is akin to a hybrid of Twitter and Facebook. [30]

MALAYSIA

Malaysia is a complex mix of different ethnicities and religions living and working together and has therefore a distinctive business culture that could vary based on your local counterpart's background. [31] You will probably make business not only with Malaysians but also with Chinese and Indians. They all have different rules of conduct and what might be seen as appropriate by one group can be considered as offensive by the other. [32] Despite internal differences, patience, tolerance, respect for hierarchy and interest in personal relationships are common values across all ethnicities and religions. [31] Malaysian multiracial and multicultural population is still a relatively young workforce however, the population is aging and changes in the age structure are becoming more evident. Malaysia will become an aged nation in 2035 when more than 15% of the population are aged 65 years and above. [17]

Religion

Malaysia is not a pure Islamic State but a Muslim-majority nation, where the Federal Constitution provides that Islam is the religion of the Federation, but other religions are allowed and may be practiced. Pure Islamic states have adopted Islam as the ideological foundation of state and constitution. This is not the case in Malaysia. However, as Islam is the official and largest religion in Malaysia, Islamic religious duties, principles and values are taken into account in many aspects of everyday life and have been applied to many parts of society, business, economy and trade, even by non-Muslims. For example, workday timing and standard working hours take into account Muslim prayer times and Ramadan, the month of fasting, is usually slow businesswise, events and meetings are scarce and staff absence rates go up due to tiredness, illness, indigestion and other ailments. [17]



Different rules

The different rules for different ethnical groups already apply to handshakes. As Malaysia is a Muslim country, physical touch between sexes might be seen as inappropriate. Malay women do not necessarily shake hands with men. To be on the safe side, wait for the woman to reach out her hand first. Only then is it appropriate to shake it. If the woman does not extend her hand, only bow slightly with your hand placed over the position of your heart to demonstrate respect. When you shake hands with Chinese business partners, it is appropriate to shake hands with a woman, but wait for her to reach out her hand first. As for men, shake the hands only lightly but prolonged. When being introduced to Indian business partners a nod and a smile might be sufficient, but shaking hands is allowed. [32]



Hierarchy

Malaysian business culture tends to be very hierarchical, which can be seen in various aspects surrounding meetings, from seating arrangements to decision-making process. Decision-making meetings are quite popular and extensive as every attendee is consulted before reaching a decision. Large decisions are usually made from the top.

Personal relationships

Malaysians appreciate personal relationships and prefer physical meetings over communicating via email and/or Skype. When meeting Malaysian business contacts for the first time, it is important to show respect to their status within the company. The exchange of business cards is expected after a first meeting. The respect shown by the foreign business contact to the business card is considered indicative of their respect to the local counterparts. It is advised to use both hands (or the right hand only) to receive and present a business card. Foreign business contacts should also study the card and not put it in the back pocket of their trousers as a sign of respect. The first meeting or initial meetings are for learning to know your counterpart rather than reaching a decision. When negotiating with Malaysian business contacts regardless of their religious and ethnic background, personal relationships are essential. Loyalty, harmony and non-aggression are key to a good relationship.

Punctuality and time management

Punctuality and time management are not a high priority in Malaysia. However, arriving on time for a meeting is important. Meetings may start later than scheduled even if everyone is present, as people tend not to rush or appear urgent. It is not unusual for meetings to start with a lot of small talk. Meetings are usually not timed in advance (especially outside the Chinese community) and may over run. Muslim business partners may also take a break for the Islamic daily prayer.

Gift giving

Gift giving is not as common as in some other Asian countries such as Japan and South Korea. Nonetheless, small gifts are appreciated and sometimes exchanged after a first meeting. Large gifts are usually not exchanged as they are considered bribery. Gifts should be wrapped and it is unlikely that the gift will be opened in front of the gift-giver. Foreign business contacts should take the ethnic and religious identity of their Malaysian counterparts into consideration: Alcohol or pork-based items to Muslims, sharp objects or clocks to the Chinese are to be avoided.

Wearing for business meeting

Both men and women are expected to wear formal and being well groomed is appreciated. Standard Western business attire of suits and ties for men and suits or skirts and blouses for women are appropriate. Women should be aware of Muslim sensibilities and dress conservatively. Wearing anything yellow should be avoided as the colour is designated for the Malaysian royalty.

Behaving

Foreign business contacts should remain calm and diplomatic, and refrain from being overly animated in either speech or body gesture. Rejecting a Malaysian's proposal immediately is considered impolite as it can be interpreted as the person that made the offer. Foreigners should also avoid interrupting or showing displeasure through facial or eye movements and talking over someone during meetings. Malaysians usually avoid directly giving a negative response, even when they do not agree with their counterparts' offer. Foreigners should focus on hints of hesitation and pay close attention to what they subtly allude to. Bad news is also given in a very circuitous way through the use of coded messages, therefore foreigners should read between the lines. It is common for Malaysian business contacts to entertain their foreign counterparts. Lunch or dinner follow important meetings, mostly to continue light conversation, and not necessarily to engage in further negotiations. The host usually orders the dishes to be served. Foreign business contacts are advised to use their right hand when handling food. [31]



Summary, conclusions, recommendations and tips

This market watch report gives a short insight to Chinese (North-East) and Malaysian cleantech markets in the perspective of a Finnish or Estonian SMEs interested in them. In addition, it presents in short useful information about cultural differences and tips for preparing to visit these areas in terms of business trips.

Both target countries' national development plans are framed into the five year plans. In both countries the new period started in 2021.

China is now entering the 14th five-year plan phase, which adds significance to green tech, cleaning of environmental pollution cleaning and low-carbon energy branches. As described more thoroughly in this report, the Chinese market is huge in size, very competitive and dynamic. It may be an excellent opportunity for a fast growing export business, if you can adapt to its needs, differentiate yourself from competitors, establish effective delivery channels and attain publicity by emphasizing the advantages of your products or services in China.

Malaysia is now entering the 12th national development plan, which focuses on economic empowerment, environmental sustainability and social re-engineering. The plan includes Industrial Revolution 4.0, digital economy, aerospace industry, integrated regional development, sustainable and renewable energy sources, infrastructure connectivity, blue economy, green technology, adaptation and mitigation of climate change.

China and Malaysia have clearly different cultural and business environments. Malaysia's more frequent use of English language in business and also more open economy makes communication there easier than in China. Our market watch is a good starting point for a newcomer to get familiar with basic information.

China and Malaysia are both growing economies. Finnish or Estonian cleantech companies with suitable products and services have good opportunities to "access and succeed" there – like the slogan of our project. The size of the Chinese market is very large and there is significant potential in several cleantech / health sectors such as the energy and distribution branches. We wish you luck and success in Asia!

References

1. World Bank Group, 2017, report: Innovative China: New Drivers of Growth, 187 p. <https://documents1.worldbank.org/curated/en/833871568732137448/pdf/Innovative-China-New-Drivers-of-Growth.pdf> (Accessed on 24.6.2021)
2. ETLA, report Leijona ja lohikäärme – Suomen ja Kiinan taloussuhteet, 2017. <https://www.etla.fi/wp-content/uploads/ETLA-B276.pdf> (Accessed on 24.6.2021)
3. wikipedia.org, "China". (Accessed on 23.6.2021)
4. Finnish Customs, .pdf report Suomen ja Kiinan välinen kauppa vuonna 2020 (1–8). (Accessed on 14.7.2021)
5. ENGLISH.GOV.CN THE STATE COUNCIL THE PEOPLE'S REPUBLIC OF CHINA. <http://english.www.gov.cn/> (Accessed on 30.4.2021)
6. GT staff reporters, China's 5-year plan to lead global recovery. <https://www.globaltimes.cn/page/202103/1217749.shtml> (Accessed on 20.4.2021)
7. Merics, analyses China's 14th Five-Year Plan – strengthening the domestic base to become a superpower. <https://merics.org/en/short-analysis/chinas-14th-five-year-plan-strengthening-domestic-base-become-superpower> (Accessed on 20.4.2021)
8. KPMG, 2021, Kiinan tie tulevaan. <https://home.kpmg/fi/fi/home/Pinnalla/2021/04/kiinan-tie-tulevaan.html> (Accessed on 24.6.2021)
9. Council on Foreign relations, CRD Centennial. <https://www.cfr.org/blog/chinas-quest-self-reliance-fourteenth-five-year-plan> (Accessed on 24.6.2021)
10. Energy foundation China (2020), Synthesis report 2020 on China's carbon neutrality. https://www.efchina.org/Attachments/Report/report-lceg-20201210/Full-Report_Synthesis-Report-2020-on-Chinas-Carbon-Neutrality_EN.pdf (Accessed on 24.6.2021)
11. Sibakov, Jutta, Kiinan kivihiilikeskittymässä paljastui valtava metaanivuoto, Helsingin Sanomat, 5.7.2021.
12. Permanent mission of PRC to UN office at Geneva, China News, President Xi Jinping speech. <http://www.china-un.ch/eng/zgyw/t1822973.htm> (Accessed 24.6.2021)
13. PWC, 2017, Report Chinese cleantech market opportunities. <https://www.pwccn.com/en/energy-utilities-mining/chinese-cleantech-market-opportunities-2017.pdf> (Accessed on 4.5.2021)
14. Report: Cleantech topics in Shandong 2020–2023, obtained with kind assistance of Mrs. Kitty Wang, European Chamber of Commerce, Beijing, 2020.

15. Yang Fenghui, Picus Advisors, General cleantech market situation in China, a presentation at ASIA-CLEAN 2021 Spring coaching webinar, 9.6.2021, ASIA-CLEAN project.
16. The World Bank's Overview. <https://www.worldbank.org/en/country/malaysia/overview#1> (Accessed on 18.8.2021)
17. Niemi, Jari, Niemi, Linda, Nordic House Sdn. Bhd (Malaysia), Market Insights, Characteristics, Business Culture and Market Entry Guide, 22.09.2020.
18. Twelfth Malaysia Plan (12MP). <https://www.malaysia.gov.my/portal/content/31186> (Accessed on 24.8.2021)
19. Malaysia Energy Statistics Handbook 2020. https://www.st.gov.my/en/contents/files/download/116/Malaysia_Energy_Statistics_Handbook_20201.pdf (Accessed on 24.8.2021)
20. Unido.org. The Global Cleantech Innovation Index 2017. https://www.unido.org/sites/default/files/files/2017-11/GCII_GCIP_report_2017.pdf (Accessed on 19.8.2021)
21. Green Technology Master Plan Malaysia 2017–2030. <https://www.pmo.gov.my/wp-content/uploads/2019/07/Green-Technology-Master-Plan-Malaysia-2017-2030.pdf> (Accessed on 19.8.2021)
22. MALAYSIAN–FINNISH BUSINESS COUNCIL. <https://www.mfbc.org.my/blank> (Accessed on 19.8.2021)
23. TrendEconomy. https://trendeconomy.com/data/h2?commodity=TOTAL&reporter=Finland&trade_flow=Export,Import&partner=Malaysia,World&indicator=TV,YoY&time_period=2020 (Accessed on 19.8.2021)
24. Wikipedia. https://en.wikipedia.org/wiki/Foreign_relations_of_Malaysia (Accessed on 19.8.2021)
25. <https://data.stat.ee/profile/partner/my/?locale=en> (Accessed on 19.8.2021)
26. cuco_admin, 2015, The Lewis Model – Dimensions of Behaviour. <https://www.crossculture.com/the-lewis-model-dimensions-of-behaviour/> (Accessed on 20.4.2021)
27. Tulokas, Tero, Case Oilon, presentation at ASIA-CLEAN webinar Starting exports to ASIA – Cleantech in China, August 19, 2020.
28. Vainikka, Nikke, Projects and repatriation of funds, a presentation at ASIA-CLEAN webinar 19.8.2020.
29. Kolster Oy, blog. <https://www.kolster.fi/en/blog/familiarise-yourself-with-regulations-and-update-your-ipr-strategy-how-to-succeed-as-a-brand-owner-in-china> (Accessed on 4.5.2021)
30. Tingting Zhang, <http://www.eubusinessdevelopment.com/e-commerce-europe-different-from-chinese-top-5-examples/> (Accessed on 20.4.2021)
31. <https://santandertrade.com/en/portal/establish-overseas/malaysia/business-practices>
32. <https://www.justlanded.com/english/Malaysia/Malaysia-Guide/Business/Business-etiquette>

