18 April 2018

SPECIAL REPORT | East Coast Railway Link

- **High output multiplier effect**
- **Facilitate cargo movements**
- **Direct and indirect impacts on construction sector**
- **Spur the petrochemicals sector in the East Coast**

Railway impetus for economic development. Historically, the first railways in Britain were simple systems operated in mining town and were built based on few objectives in mind such as trade, cost, reliability, and population growth. In general, railways would link areas with factories directly to ports and traders would be able to send their produce to market easily and quickly. Economically, the transportation cost is lower for railways, so prices could be reduced and more products can be sold.

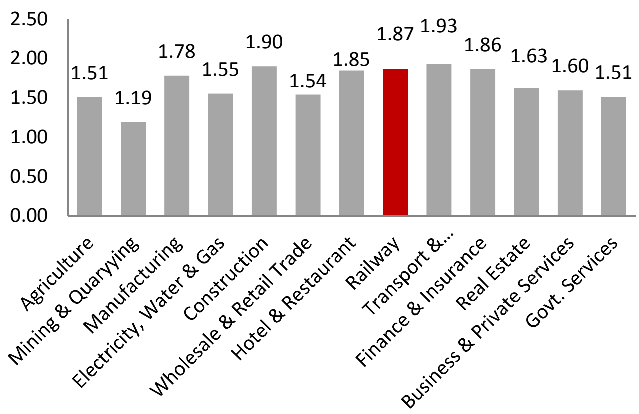
Railway development casts impact beyond economic domain. Railways are not only relevant to one country's economic growth but also give a competitive edge over other countries in the region as it will cut the time and cost of transporting goods and services, as well as mobility of people. For instances, new research shows that Eurostar has transformed the UK's relationship with the continent especially to France and Belgium. Moreover, majority of respondents view that their lives have been significantly enriched by the social and cultural exchange that Eurostar provides. The high speed railway networks in China have developed rapidly over the past ten years and have significantly changed the spatial redistribution of economic activities due to more frequent and rapid mobility.

Beneficial for consumer and producer alike. Furthermore, the economy of more developed area began to transfer into other area once the high speed railway has been developing into certain level. The Liverpool to Manchester railway has been found to be a cheaper and more efficient alternative to canals and allowed fresh dairy ad agriculture produce from rural Lancashire to be delivered to towns and cities. In New Zealand, rail is a useful and proven part of its transport infrastructure and the KiwiRail is foreseen to take decisions that not only champion the value of rail, but increase it as well.

Railways would act as a catalyst for growth. The rail transport is a common medium of transportation across the world. It will open more economic opportunities to explore in multiple sectors, including tourism as it will be easier and more convenient to visit some states or nations with the railways. Back then, railways would act as a catalyst for more aggressive economic growth as it helped to transport the commodity from one country to another. To note, the rail sector facilitates increased output in the rest of the economy as well as the productivity in other sectors.

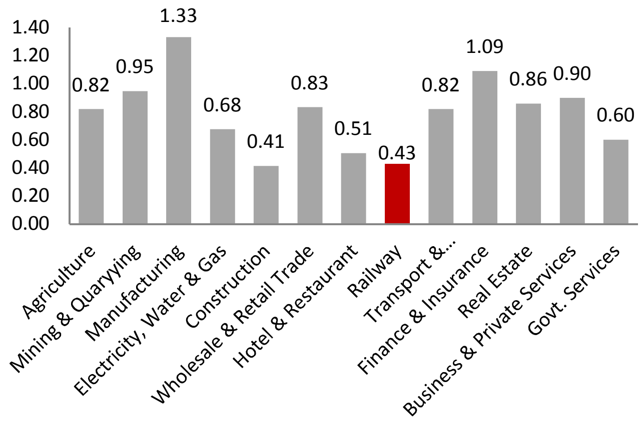
High output multiplier for railway investment. Output multiplier for railway (Land Transport) is relatively high, and among the aggregated 13-sectors, the railway's multiplier is the 3rd highest. In a simple word, a RM1 investment in railway will generate RM1.87 of output to the total economic activity. On a flip side, the sector has a low value-added multiplier of only RM0.43. For every RM1 spent on the sector, it will only reward the Malaysian economy in terms of value-added by less than 0.50. Nevertheless, we opine the investment in railway (ECRL) will spur economic growth and development in Malaysia amid of the strong output multiplier effects.

Chart 1: Output Multiplier (Per RM1 Investment)



Source: DOSM, MIDFR

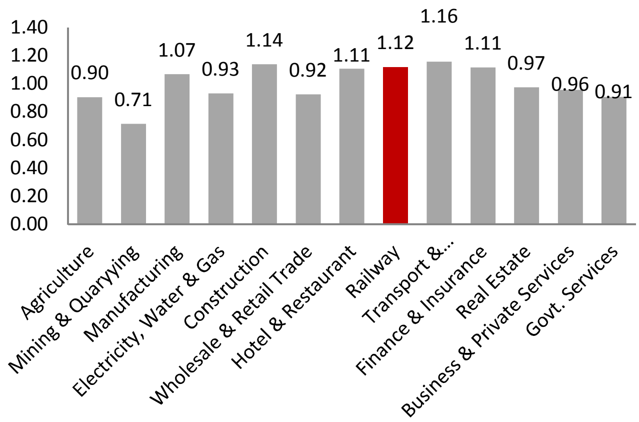
Chart 2: Value-Added Multiplier (Per RM1 Investment)



Source: DOSM, MIDFR

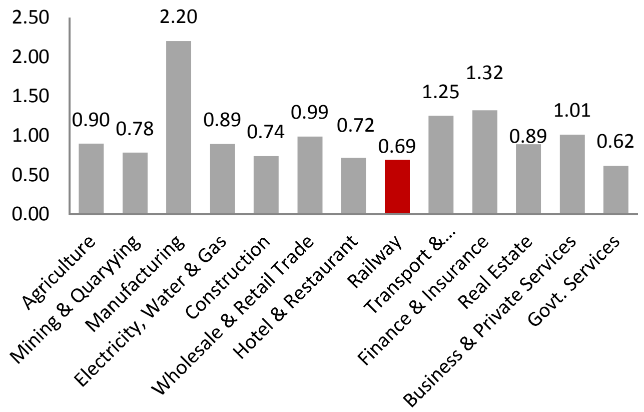
Improving economic interdependence and connectivity. After transport & communication and utilities sectors, investing in railway project will have long-term positive spill-over effects in Malaysia's economy. Particularly, backward linkage of the sector is the 3rd highest at 1.12. Backward linkages refer to the ability of a sector in creating demand for inputs from other sectors whereas forward linkages explain the level of a sector in supplying input to other sectors. Henceforth, having high backward linkages level, the ECRL project would boost economic growth and development especially in eastern coast states like Kelantan, Terengganu and Pahang.

Chart 3: Backward Linkages by Sector



Source: DOSM, MIDFR
*Less than 1 is weak, More than 1 is strong

Chart 4: Forward Linkages by Sector



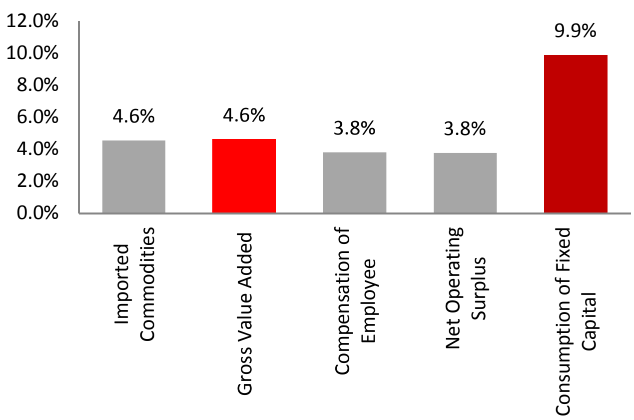
Source: DOSM, MIDFR
*Less than 1 is weak, More than 1 is strong

ECRL to boost economic growth by 4.6%. According to the project owner Malaysia Rail Link Sdn Bhd (MRL), ECRL is expected to create RM50.1 billion of GDP impacts. Based on our estimate, we forecast the project to contribute 4.6% to the domestic growth. The boost for the growth is expected to kick-in from the project inception until completion. However, the full estimated GDP contribution will depend on the pace of spillover effects towards other economic sectors. In addition, compensation of employees and net operating surplus are projected to rise by 3.8%. As the project requires machinery and transport equipment, our estimate shows imported commodities and consumption of fixed capital to increase by 4.6% and 9.9% respectively. Moving forward, the railway project would affect economic expansion by direct and indirect effects in the long run, partly by jobs creation, opening-up new areas, foreign direct investment, increase external trade activities and strengthening domestic demand.

Various sectors benefited from ECRL. The RM55 billion railway project is expected to contribute to circa 5.3% expansion in the real estate sector. This can be explained with the ECRL in place, we can anticipate an increase in new township areas and better town-development in existing areas along the railway. The transportation ratio is 30% passengers and 70% freight. Hence, both tourism and industrial as well as external activities are predicted to benefit from the ECRL project. For instance, wholesale & retail trade and hotel & restaurant sectors up by 2.1% and 1.3% respectively while manufacturing and business & private services surge by 2% and 2.2% accordingly.

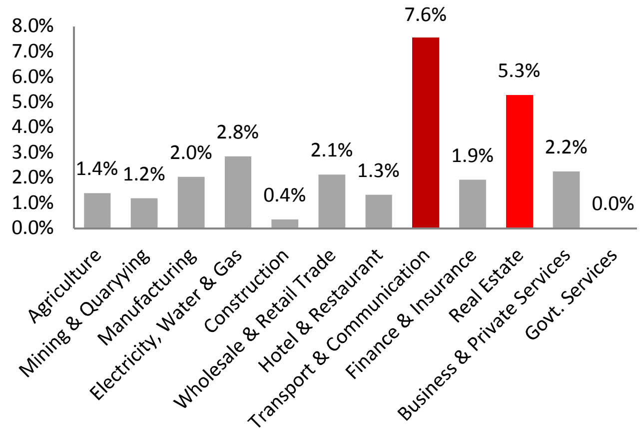
Strategic locations near to China. As 70% of the transportation is for freight purposes, we view the railway project will be a catalyst for industries and exporters in Malaysia. Plus, it gives Malaysia a cutting-edge in international trade due to the strategic locations to China and other Asean economies. On the other hand, improvement in transportation and connectivity will assist Malaysia in terms of better resources allocations, upgrade in productivity, increase in mobility and improving socio-economic developments.

Chart 5: GDP by Income Performance (% Change)



Source: DOSM, MIDFR

Chart 6: GDP by Sector Performance (% Change)



Source: DOSM, MIDFR

Three main states to economically benefit from ECRL. Kelantan, Terengganu and Pahang which are located in the east coast of peninsular Malaysia are likely to reap economic benefits of ECRL. These states are distinct in physiognomies, each with a large rural hinterland. By economic activities, the trio has a common top sector which is services. However, further breakdown showed dissimilarities in which public sector services accounted the largest share for services in Kelantan while utilities, transportation & storage, information & communication in Terengganu and wholesale & retail trade, food & beverage & accommodation in Pahang. Besides services, agriculture and manufacturing are another two key sectors in the three states. For instance, 24.6% and 23.4% of total economic activities in Kelantan and Pahang are of agriculture while 38.4% in Terengganu is of manufacturing.

Positive supply and demand effects on output. The new stream railway technology will reduce the cost of doing business at the three states as it provides better transport quality which can stimulate increases in output. There will be both supply side and demand side effect on output. For example, considering an agricultural economy such as Kelantan, ECRL is likely to lower the cost and time of bringing fertiliser or tools from Kuala Lumpur to the state. In return, it will also lower the distribution cost of getting the end product from Kelantan to new markets in Kuala Lumpur, eliminating market arbitrage. On top of that, the carrying capacity of railways is large and elastic as it can be increased by adding more wagons. Additionally, it also offers greater choice of goods and services such as fresh food particularly from east coast to Selangor and Kuala Lumpur.

Open up to competitive forces. Some sectors are subject to economies of scale however cannot be fully exploited due to transport costs which lead to imperfect competition. Railway in that sense helps to balance between production costs and distribution costs largely on transport intensive products. This is applicable to services sector as well, particularly of office employment as it encourages centralisation in order to exploit economies of scale in office functions.

A new latent passenger demand. ECRL with its 30% allocation for passengers could form a new latent passenger plea by creating demands that were not there before, beyond merely moving them from one place to another. As travelling hours are reduced on top of declining cost, individuals could afford to take train for a shopping trip that they never would have considered. This will increase demand for authentic products at that particular state. Besides that, railway also caters the new trends in tourism such as "slow travellers", who look for unique and quality products to maximize their utilities. This will also promote and reinforce east coast tourism industry both domestically and internationally.

Table 1: Sectoral Share in each State GDP (%)

	Malaysia	Kelantan	Terengganu	Pahang
Agriculture	8.1	24.6	8.3	23.4
Mining & Quarrying	8.8	1.2	0.2	1.6
Manufacturing	23.0	5.4	38.4	22.1
Construction	4.5	2.3	2.7	3.7
Services	54.3	66.4	50.2	49.0
Import Duties	1.4	0.1	0.2	0.2
Services				
Utilities, transportation and storage, information and communication	12.1	9.2	16.9	5.5
Wholesale and retail trade, food & beverage and accommodation	17.8	19.4	11.0	16.2
Finance and insurance, real estate and business services	11.2	5.9	4.0	5.5
Other services	4.4	7.8	3.8	10.5
Government services	8.8	24.2	14.5	11.2

Source: DOSM, MIDFR

Improvement in household income. High speed train is expected to improve household income in the east coast states which is currently below national level. The median household income for Kelantan, Terengganu and Pahang in 2016 were registered at RM3,079, RM4,694 and RM3,979 respectively, below national level of RM5,228 and far lower than RM9,073 and RM7,225 recorded in Kuala Lumpur and Selangor. The railway industry alone on top of the developments along the route will create more jobs for the east coast states particularly for Kelantan and Terengganu which registered unemployment rate above national level of 3.5% in 2016. Besides that, it will also broaden labour markets and offer employees a wider network of employers to choose from by facilitating labour movement to cities.

Table 2: Median Household Income by State (RM Per Month)

	1995	1997	1999	2002	2004	2007	2009	2012	2014	2016
Malaysia	1,377	1,724	1,704	2,049	2,211	2,552	2,841	3,626	4,585	5,228
Kuala Lumpur	2,321	3,090	2,828	3,364	3,336	3,697	4,409	5,847	7,620	9,073
Selangor	2,255	2,850	2,750	3,144	3,588	4,046	4,306	5,353	6,214	7,225
Kelantan	789	872	946	1,154	1,258	1,510	1,713	2,276	2,716	3,079
Terengganu	756	1,026	1,155	1,331	1,353	1,796	2,096	3,034	3,777	4,694
Pahang	1,138	1,259	1,202	1,423	1,783	2,235	2,479	3,067	3,389	3,979

Source: DOSM, MIDFR

Table 3: Household Income Survey 2016 by Income Group

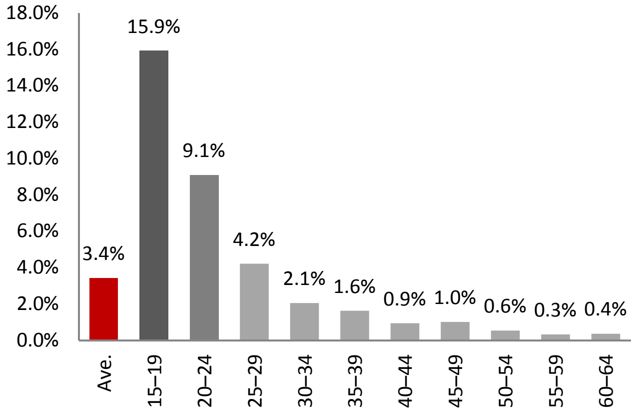
	Median Income (RM)			% Share of HH Numbers		
	Bottom 40	Middle 40	Top 20	Bottom 40	Middle 40	Top 20
Malaysia	3,000	6,275	13,148	40.0	40.0	20.0
Johor	3,420	6,554	12,304	34.1	46.7	19.2
Kedah	2,154	4,412	9,602	59.1	31.0	9.9
Kelantan	1,869	3,667	8,427	68.6	24.0	7.4
Melaka	3,458	6,572	12,077	34.9	45.7	19.4
Negeri Sembilan	2,658	5,409	10,857	46.7	40.2	13.0
Pahang	2,722	4,648	9,049	56.1	35.1	8.8
Pulau Pinang	3,286	6,382	12,268	36.8	45.5	17.7
Perak	2,366	4,678	9,540	56.1	34.1	9.9
Perlis	2,572	4,751	9,017	53.6	39.7	6.7
Selangor	4,395	8,585	17,410	19.7	47.3	33.0
Terengganu	3,135	5,443	10,692	45.6	40.9	13.5
Sabah	2,169	4,843	10,886	55.6	31.5	12.9
Sarawak	2,275	4,986	10,688	52.5	35.0	12.4
Kuala Lumpur	5,344	10,564	20,201	12.1	41.7	46.2
Labuan	3,654	7,217	15,238	27.2	46.0	26.8
Putrajaya	5,960	9,492	21,994	12.1	53.7	34.2

Source: DOSM, MIDFR

Development policies at utmost importance. For all the changes to have effect including the occurrence of regeneration or economic growth in the east coast areas, government or policymakers need to construct strong supporting planning and development policies. While a new rail service would benefit in numerous ways, it might also carry undesirable side effects such as land exploitation, over production and existing boom towns which could bust. Hence, proper guidelines and policies need to be in place to ensure its stability and sustainability.

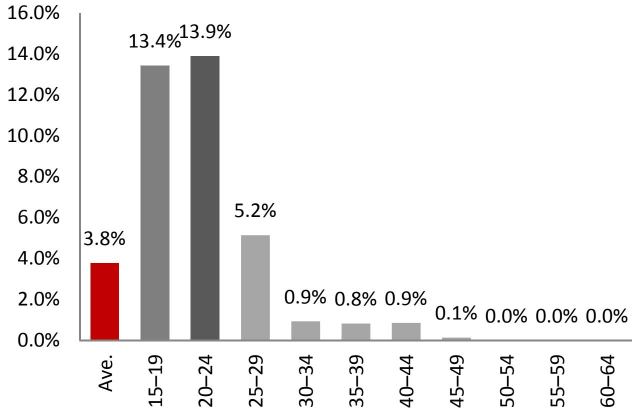
Only 30% of ECRL workers are foreigners. According to MRL, the project owner, only 18% of the workers are from China. The other 12% are from other Asian countries. The project owner together with its main contractor, China Communications Construction Co Ltd (CCCC) and Universiti Malaysia Pahang shall organize East Coast Rail Line Industrial Skills Training Programme (PLKI-ECRL) in order to train and hire Malaysians who had successfully completed the training.

Chart 7: Malaysia's Jobless Rate by Age (% in 2016)



Source: DOSM, MIDFR

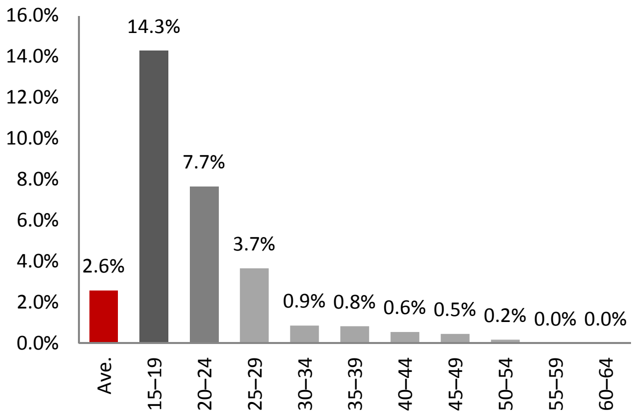
Chart 8: Kelantan's Jobless Rate by Age (%in 2016)



Source: DOSM, MIDFR

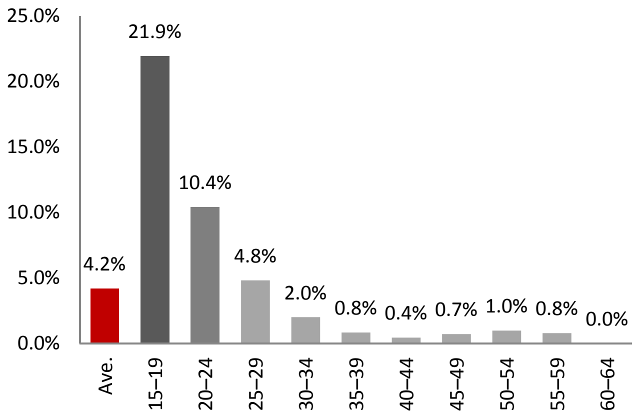
ECRL may put a relief on high youth unemployment. Graduate unemployment which between the age group of 20-24 was at 9.1%. Among the east coast states, the highest graduate unemployment rate is in Kelantan at 13.9%, followed by Terengganu of 10.4% and Pahang of 7.7%. Looking ahead, the multiplier effects of ECRL will help tapering down the unemployment crisis in those states and overall Malaysia. As mentioned earlier, 70% of the transportation is mainly for freight, hence improvement in industrial and external trade activities will eventually generate jobs, uplift in household income and reduce inequality gap.

Chart 9: Pahang's Jobless Rate by Age (% in 2016)



Source: DOSM, MIDFR

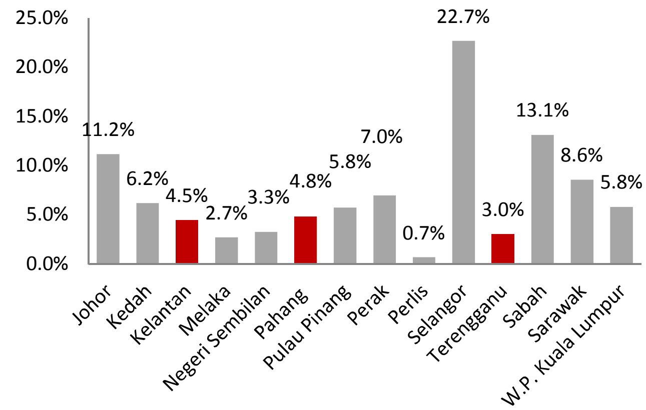
Chart 10: Terengganu's Jobless Rate by Age (% in 2016)



Source: DOSM, MIDFR

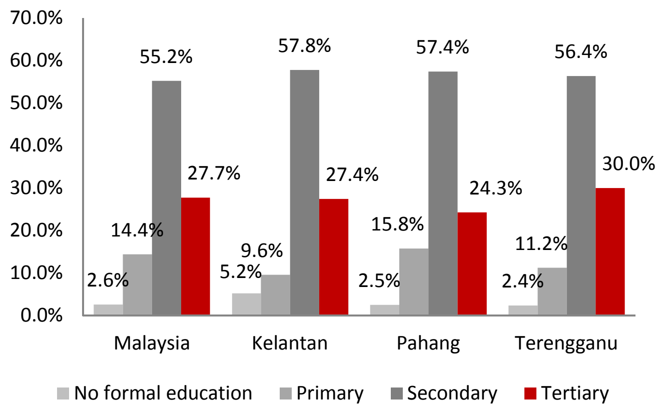
Catalyst for higher labor productivity. In line with the 11th Malaysia Plan, skilled-worker is targeted to reach 35% of total workforce by 2020. As of 2016, national skill-worker ratio is at 27.7% while Kelantan, Terengganu and Pahang are 27.4%, 24.3% and 30% respectively. Moving forward, we opine with the ECRL project in the pipeline, added with supportive economic policies will spur the uplift in Malaysia's quality of workforce. We foresee the share of skilled-worker to meet the targeted point by 2020.

Chart 11: Labour Force Share by State (% in 2016)



Source: DOSM, MIDFR

Chart 12: Edu. Level Share by State (% in 2016)

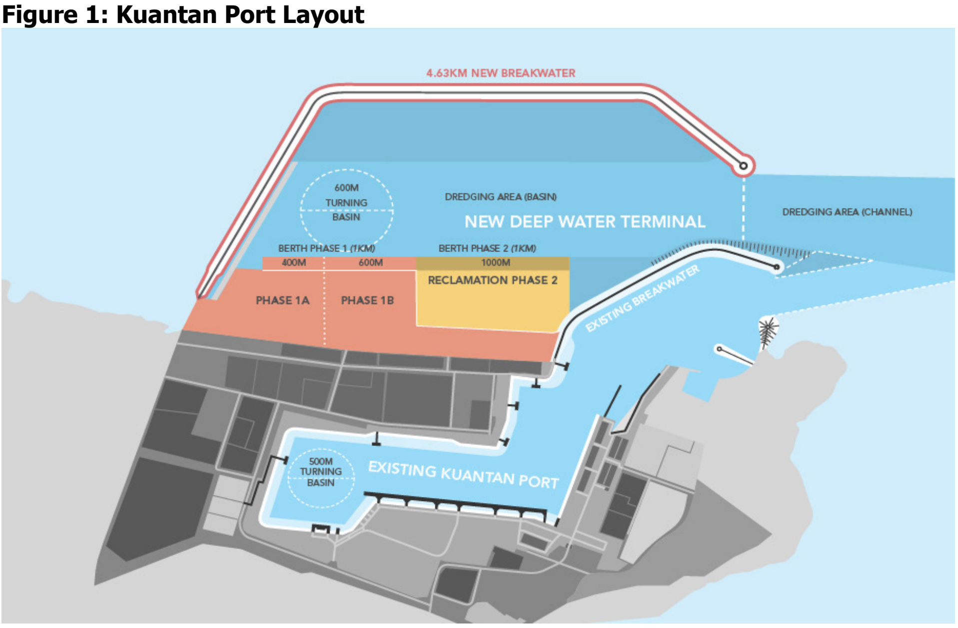


Source: DOSM, MIDFR

IMPACT ON TRANSPORT SECTOR (PORT)

Expansion of Kuantan Port. Kuantan Port, which is 60% owned by IJM Corp while the remaining stake by China's Guangxi Beibu Gulf International Port Group, holds a 30-year concession for port management. The port is currently undergoing deepening and expansion works with the construction of a New Deep Water Terminal (NDWT) with that will double the capacity to 52 million freight weight tonnes (FWT) from 26 million FWT to cater for larger vessels with a ship draught of up to 16.5 metres.

Figure 1: Kuantan Port Layout



Source: Kuantan Port

Interest from Chinese companies. Kuantan Port has so far caught interest of Chinese companies namely Alliance Steel which is investing RM5.6b to construct an integrated steel complex on 710 acres of land in the Malaysia China Kuantan Industrial Park (MCKIP), located around 10km from Kuantan Port. Alliance Steel will be the first customer to ship its products to Kuantan Port once phase 1A of the NDWT commences operations in mid-2018. Other industrial players include Hong Kong's New Ocean Energy which partnered with Kuantan Port Consortium to develop an oil refinery complex in Kuantan Port for RM5.1b. China's collaboration with Malaysia's Kuantan Ports and MCKIP can further enhance the flow of its trade and investment in Malaysia.

Role of ECRL. ECRL will come into play to facilitate cargo movement from the east coast to the west coast via the Phase 2 of ECRL which connects the integrated Transport Terminal (ITT) in Gombak to Port Klang. Instead of shipments from Shenzhen, China having to pass through Singapore to reach west coast of Peninsular Malaysia, the cargoes can be offloaded at Kuantan Port and subsequently transported via railway to Port Klang.

Shorter travel time. The travel time taken from Shenzhen via Kuantan Port and ECRL to Port Klang could be reduced by slightly more than a day. We note that the cost estimates via Kuantan Port and ECRL are slightly higher and railway could only accommodate around 100 TEUs of containers per service compared 20,000 TEUs that can be carried by mega vessels. Nonetheless, we reckon that this could be partially mitigated by demand to transport time sensitive goods especially during peak festive seasons.

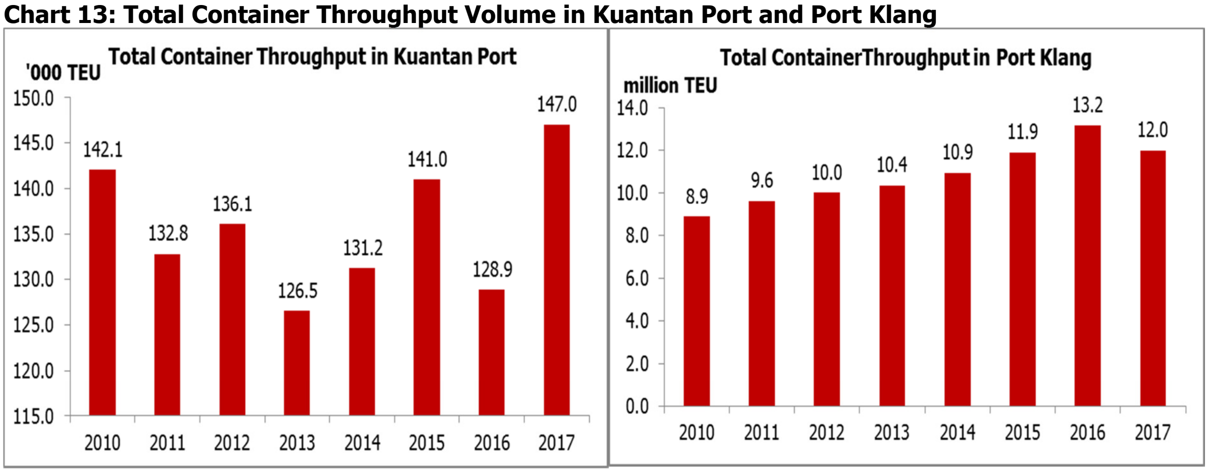
Table 4: Cost and travel time comparison

Route from Shenzhen	Travel Time	Cost Estimates for Bulk Cargo per Tonne
Via Kuantan Port and ECRL	135 hours	USD56
Via Singapore and Straits of Malacca	165 hours	USD60

Source: Malaysian Logistics Executives/Government Officials

Buffer for container volume. While the market share of major Chinese container lines such as COSCO Shipping Co Ltd, Evergreen Line and OOCL only has a combined global market share of 17% as of 16 April 2018, this would not pose a major threat to PSA. Notwithstanding this, Kuantan Ports could absorb the share of volumes from Chinese container lines which will increase its conventional and gateway container volume. Meanwhile, this may also serve as a buffer for gateway volumes in Port Klang (i.e. Northport and Westports) especially following the recalibration of shipping alliances in April 2017 which saw container volumes being relocated to Singapore. All in, we opine that both of these ports are set to benefit from the ECRL and help leapfrog the economic growth especially in east coast states as they play a role in facilitating Malaysia China trade.

Chart 13: Total Container Throughput Volume in Kuantan Port and Port Klang



Source: Kuantan Port Authority, Port Klang Authority and Ministry of Transport

IMPACT ON CONSTRUCTION SECTOR

Positive contribution through construction packages. East Coast Railway Link is set to contribute RM60.0bn worth of packages to construction companies externally and domestically. There are a total of 24 stations from Port Klang, Selangor to Pengkalan Kubor, Kelantan. Additionally the railway link will pass through mountainous terrain in Pahang and Kelantan as well as sandy soil with low bearing capacity in Terengganu. Thus, we can infer that the direct impact to the local construction sector will involve packages of; a) civil works for site clearing, b) tunnelling, c) substructure soil reinforcement, d) design and build for stations, e) infrastructure works for viaducts and railway tracks system (ballast/slab-tracks, fasteners and sleepers).

Potential civil and substructure packages for local construction companies. The project is expected to contribute to RM15.0bn or 30.0% of its total cost of RM60.0bn to local contractors. We surmise that the packages of; a) Civil works for site clearing, b) substructure soil reinforcement, and c) design and build for stations would be potentially snapped by local construction companies. We reckon that **IJM (TP: RM4.00)** would possibly clinch packages of design and build for stations Kuantan Port City 1 and 2 as well as site clearing or civil works. It is possible due to the proximity of the station sites and Kuantan Port which is a subsidiary of IJM and Malaysia-China Kuantan Industrial Park - its joint venture project with Guanxi Beibu Gulf ASEAN Investment. Apart from that we reckon that **Gabungan AQRS (TP: RM2.30)** will also benefit due to its proximity and involvement for the development of Kota SAS. Notably, we expect that AQRS would potentially clinch prospective packages for Kota SAS and Kuantan Sentral (provisional) stations. Both stations have sensible surrounding populace for the stations to be developed as a transit-oriented development. (TOD). TOD construction would open up other opportunities such as roadworks and upgrades of social amenities. We can see the parallel impact from the development of North-South Expressway when it was completed in 1994. The development of cities along the highway was impacted positively through developments of housing, industrial parks and better access to infrastructure.

Heavy engineering companies would benefit from ancillary impact. Indirect impact to the sector would be the development of oil and gas (o&g) infrastructure to support the development policies mooted by the government in the Eastern Corridor Economic Region (ECER) through its ECER 2008 Masterplan in forming the economic cluster catering to o&g services. The current facilities are located; a) Kertih Integrated Petrochemical Complex (KIPC) in Terengganu and b) the Gebeng Integrated Petrochemical Complex (GIPC), both a part of the PETRONAS Integrated Petrochemical complex and Tok Bali Supply Base, Kelantan in line with 4 proposed stations along the ECRL track; i) Kuantan Port City 1, Kuantan Port City 2, Kerteh (provisional) or Dungun and Tok Bali. There are strong chances of construction of pipelines, tank farms, marine engineering and plant expansion in which heavy engineering companies such as **Muhibbah (TP: RM3.60).** The indirect impact would be more meaningful as this would also spur the need for housing and social amenities for states of Pahang, Terengganu and Kelantan.

IMPACT ON OIL AND GAS SECTOR

ECRL – Linking west to east. The ECRL has the potential to further spur Malaysia's oil and gas industry as it links Malaysia's financial hub in the west with the country's oil and gas hub in the east. The ECRL will allow for human capital and goods to be easily transported from west to east, thus allowing for greater connectivity of goods from Port Klang to Kertih and Kemaman. Currently, the only mode of transportation from west to east is via road.

Kertih – Petrochemical town. Kertih has long been an oil and gas town in the eastern coast of Peninsula Malaysia. The town is a hub for both upstream and downstream oil and gas activities. Kertih is famous for its petrochemical refineries, predominantly the PETRONAS Kertih Refinery – Petronas' first oil refinery in Malaysia. It is owned and operated by PETRONAS Penapisan (Terengganu) Sdn Bhd. The refinery processes 49,000 barrels of Malaysian light, sweet crude oil per day. Throughout the years, the refinery has undergone expansion to include a Condensate Splitter Unit (KR-2A) with a rated capacity of 74,300 barrels per day of naphtha condensates. The heavy naphtha produced in KR-2A is used as feedstock in the aromatics plant located adjacent to the refinery.

Kemaman – Hub for offshore supplies. Kemaman is famous as a supply base hub with the Terengganu state-owned and managed Kemaman Supply Base (KSB). KSB is the hub of South China Sea's oil & gas exploration and production activities, while at the same time serves as the gateway for oil & gas and heavy industrial complexes of global stature in the East Coast of Peninsula Malaysia. The supply base is a one-stop center for oil and gas activities, providing services such as cargo handling, berthing, repair maintenance and warehousing.

DISCLOSURES AND DISCLAIMER

MIDF AMANAH INVESTMENT BANK : GUIDE TO RECOMMENDATIONS	
STOCK RECOMMENDATIONS	
BUY	Total return is expected to be >10% over the next 12 months.
TRADING BUY	Stock price is expected to *rise* by >10% within 3-months after a Trading Buy rating has been assigned due to positive newsflow.
NEUTRAL	Total return is expected to be between -10% and +10% over the next 12 months.
SELL	Total return is expected to be <-10% over the next 12 months.
TRADING SELL	Stock price is expected to *fall* by >10% within 3-months after a Trading Sell rating has been assigned due to negative newsflow.
SECTOR RECOMMENDATIONS	
POSITIVE	The sector is expected to outperform the overall market over the next 12 months.
NEUTRAL	The sector is to perform in line with the overall market over the next 12 months.