

# Malaysia

## Malaysia Economic Monitor FY 2015

### Vol. 2: Transforming Urban Transport

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# Malaysia Economic Monitor

## Transforming Urban Transport

JUNE 2015





**MALAYSIA ECONOMIC MONITOR**  
**JUNE 2015**  
**TRANSFORMING URBAN TRANSPORT**

**Southeast Asia Country Management Unit**  
**Country Director: Ulrich Zachau**  
**Chief Economist: Sudhir Shetty**

**Comments to:**  
**Mathew A. Verghis**  
mverghis@worldbank.org  
**Frederico Gil Sander**  
fgilsander@worldbank.org

30<sup>th</sup> Floor, Siam Tower  
989 Rama I Road, Pathumwan  
Bangkok 10330, Thailand  
+66 (0) 2 686-8300  
[www.worldbank.org/my](http://www.worldbank.org/my)

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## ABBREVIATIONS

ALS	Area License Scheme
AMC	Ahmedabad Municipal Corporation
AOTU	Organization of Transit Authority (France)
ASEAN	Association of Southeast Asian Nations
AUDA	Ahmedabad Urban Development Authority
BNM	Bank Negara Malaysia
BoP	Balance of payments
BPM	Balance of Payments Manual
BR1M	Bantuan Rakyat 1 Malaysia
BRT	Bus Rapid Transit
CAGR	Compound Average Growth Rate
CBD	Central Business District
CIT	Corporate income tax
CPI	Consumer price inflation
CVLB	Commercial Vehicle Licensing Board
DBKK	Dewan Bandaraya (City Hall) Kota Kinabalu
DBKL	Dewan Bandaraya (City Hall) Kuala Lumpur
DECPG	Development Economics Research Prospects Group
DOSM	Department of Statistics Malaysia
E&E	Electrical and electronics
ECCE	Early childhood care and education
EPU	Economic Planning Unit
ERP	Electronic road pricing
ETP	Economic Transformation Plan
EU	European Union
GAMA	Greater Cairo Metropolitan Area
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GFP	Goods for processing
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GKK	Greater Kota Kinabalu
GKL	Greater Kuala Lumpur
GLA	Greater London Authority
GLCs	Government Linked Companies
GLICs	Government Linked Investment Companies
GNI	Gross National Income
GoM	Government of Malaysia
GST	Goods and Services Tax
GVRD	Greater Vancouver Regional District
GVTA	Greater Vancouver Transportation Authority
HNDP	Highway Network Development Plan
HPU	Highway Planning Unit
ILO	International Labor Organization
IMF	International Monetary Fund
JPJ	Road Transportation Department
KK	Kota Kinabalu
KL	Kuala Lumpur
KLCC	Kuala Lumpur City Center
KLCI	Kuala Lumpur Composite Index
KLIA	Kuala Lumpur International Airport
KTM	KTM Komuter
KV	Klang Valley
LAMATA	Lagos Metropolitan Area Transit Authority
LFP	Labor Force Participation
LFS	Labor Force Survey
LLM	Lembaga Lebuhraya Malaysia (Malaysian Highway Authority)
LNG	Liquefied Natural Gas
LPI	Logistics Performance Index
LPT	Land Public Transport
LRT	Light Rail Transit
M&E	Machinery and equipment
MGS	Malaysia Government Securities
MIDF	Malaysia Industrial Development Fund
Mيروس	Malaysian Institute of Road Safety Research

MIROS	Malaysia Institute of Road Safety Research
MITI	Ministry of International Trade and Industry
MoF	Ministry of Finance
MoT	Ministry of Transport
MoW	Ministry of Works
MPC	Monetary Policy Committee
MRR	Middle Ring Road
MRT	Mass Rapid Transit
MRTCorp	MRT Corporation
MTA	Metropolitan Transport Authority
MWFCD	Ministry of Women, Family and Community Development
NAPIC	National Property Information Center
NEM	New Economic Model
NFPE	Non-Financial Public Enterprise
NKRA	National Key Results Area
NPP2	National Physical Plan 2
OECD	Organization for Economic Cooperation and Development
PDRM	Polis Di Raja Malaysia (Royal Malaysian Police)
PEMANDU	Performance Management and Delivery Unit
PMI	Purchasing Managers Index
PPI	Producer Price Index
PPP	Public-Private Partnership
PPP GDP	Gross Domestic Product in Purchasing Power Parity terms
PT	Public transport
PUMA	Platform for Urban Management and Analysis
SME	Small or medium enterprise
SNA	System of National Accounts
SPAD	Suruhanjaya Pengangkutan Awam Darat (Land Public Transport Commission)
SPV	Special Purpose Vehicle
TDRI	Thailand Development Research Institute
TfL	Transport for London
TOD	Transit oriented design
UK	United Kingdom
UPT	Urban public transport
VAT	Value Added Taxation
VOC	Vehicle operating cost
VRS	Verband Region Stuttgart
VT	value of time
VVS	Verkehrs- und Tarifverbund Stuttgart
YA	Year of assessment

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## Executive Summary

### RECENT ECONOMIC DEVELOPMENTS AND OUTLOOK

**After a strong finish in 2014, growth moderated in early 2015.** Malaysia's economy expanded by 6.0% in 2014, accelerating to 7.3% q/q saar in Q4 2014 due to resilient domestic demand and a pick-up of exports. Growth moderated to 4.7% q/q saar in Q1 2015 on account of weaker external demand, but domestic demand remained strong.

**Growth is projected to slow to 4.7% in 2015 before normalizing to 5.0% in 2016.** The outlook reflects some slowdown in domestic demand in the course of 2015 from tighter fiscal and monetary conditions. Private consumption growth will moderate to 5.9% before rebounding to 6.4% in 2016. Despite headwinds from the oil and gas sector, fixed investment will continue to expand moderately, driven by new and ongoing infrastructure projects. Overall, domestic demand will contribute 6.0 percentage points to GDP growth in 2015 and remain the main driver of growth.

**Despite signs of recovery in 2014, exports weakened in 2015.** Real exports of goods and services grew by 5.1% in 2014, largely thanks to a revival in the electrical and electronics sector but also boosted by higher export volumes of crude petroleum as new oil fields came online. Lower exports of palm oil and petroleum products led exports to contract in Q1 2015 (-1.5% q/q saar) while export earnings declined further on lower commodity prices.

**The current account balance should remain in a small surplus.** As natural gas prices decline, investments expand, and firms import to rebuild inventories, the current account surplus is likely to narrow to 2.5% of GDP in 2015. A narrower surplus is not a major concern to the extent it is driven by imports for productive investments such as the Mass Rapid Transit (MRT).

**Heightened volatility in the external environment poses risks to Malaysia's open economy.** Renewed concerns over the Eurozone and the trend deceleration in China are key risks to Malaysia's export outlook. Higher interest rates in the US, an appreciating U.S. dollar and divergent global monetary policies may generate renewed financial volatility. Uncertainty in the direction of commodity

prices, especially crude oil, further cloud the overall outlook and fiscal policy in particular.

**Heightened risks have led monetary policy to remain accommodative.** Despite robust domestic demand, wage growth and some increases in prices due to the Goods and Services Tax (GST), Bank Negara interrupted the tightening cycle started in mid-2014 due to external risks and domestic headwinds to growth. Lower oil prices also pulled monetary policy in two directions: on the one hand, it led to a decline in inflation expectations; on the other, it led to a negative shock to the terms-of-trade and fiscal position which (along with US dollar strength) contributed to a depreciation of the ringgit.

**Introducing the GST and scrapping fuel subsidies helped Malaysia weather the 2014 oil price shock; further reforms will help address remaining risks and challenges.** Savings of RM10.7 billion from the fuel subsidy removal and a partial recovery of oil prices suggests a deficit even smaller than the 3.2% of GDP target is achievable. But lower oil prices will lead PETRONAS to slash its dividend in 2016-17, and further measures (e.g. examining new revenue sources such as fuel taxes that raise revenues and promote public transport and a clean environment, and introducing a medium-term expenditure framework) are required to achieve the deficit target of 0.6% of GDP by 2020.

**Refining the implementation of the GST can help Malaysia maximize its fiscal benefits.** International experience shows that successful GST systems are simple, with one unified rate and few exemptions and zero-rated items. Periodically reviewing exemptions/ zero-rated items and conducting incidence analysis would help ensure that the GST fulfils its revenue-raising potential. Targeted spending on low-income groups, including through direct transfers, and more progressive personal income tax can be effective tools to compensate for any regressivity in the GST.

**Continued efforts to realize the full economic potential of women will help to lift productivity.** Higher levels of education and more jobs in the services sector have helped to boost women's labor force participation, which increased substantially to 53.6% in 2014. Efforts to make childcare and pre-primary education more accessible have also helped. Ensuring the quality of these options and paying

greater attention to the role of gender norms to bring more women into management positions is necessary to make further improvements in women's labor force participation.

## **TRANSFORMING URBAN TRANSPORT**

**Urbanization has been a key driver of Malaysia's success, but growing challenges in urban mobility threaten to dampen the benefits of cities.** In 1985, 51% of Malaysians lived in cities; today, nearly 75% do. Rapid urbanization boosted productivity and access to economic opportunities, and helped raise incomes and reduce poverty. Today, road congestion is increasing in Malaysia's cities; there is insufficient public transit as an alternative to car use, and public satisfaction with public transport is low. These developments hamper urban mobility and threaten the achievement of Malaysia's ambition to become an inclusive and sustainable high-income nation.

**Congestion imposes a high economic and personal toll.** It is estimated that commuters in Greater Kuala Lumpur (GKL) travel 29km/h slower on average during morning peak hours compared to off-peak hours due to congestion, translating into income losses of RM10.8-19.6 billion annually for the city, or 1.0-1.8 percent of Malaysia's GDP from delay costs alone. Including the costs of fuel wasted and the economic cost of CO<sub>2</sub> and other emissions, the total cost of congestion in GKL is estimated conservatively at 1.1 – 2.2 percent of GDP in 2014. These estimates do not account for the reduction in subjective well-being that is consistently associated with commuting.

**High motorization rates exacerbate congestion.** Car ownership rates in Malaysia have nearly doubled since 2000. In the Federal Territory of KL, there are an estimated two cars for each resident and even among the poorest 10 percent of households, about half owned a car as of 2012. These trends are partially due to low density urban development and the National Automotive Policy. Although a high level of car ownership is not necessarily undesirable, in Malaysia it is linked to significant congestion.

**Land-use policies that encourage low density urban development raise the cost of delivering efficient urban transport.** Even if not as sprawling as American cities such as Atlanta, major cities such as Kuala Lumpur, Penang and Johor Bahru are less than a quarter as dense as Barcelona or Beijing. Urban sprawl raises connectivity costs and induce high

levels of car ownership and high levels of per capita emissions.

**Low public transport usage is due to high motorization as well as supply constraints.** The modal share of public transport in Kuala Lumpur has declined from 35 percent in 1985 to 12 percent in 2009, recovering more recently to 17 percent in 2014. This is lower than cities such as London (42) or Singapore (62). The relative unattractiveness of public transport can be partly attributed to the shortage of rail-based options (in GKL there are only 20 kilometers of metro per million people compared to 166km in London and 92km in New Delhi), but equally importantly to the lack of coordination on first and last mile connectivity.

**Efforts are underway to improve urban mobility.** These include visible projects such as the construction of the MRT and Light Rail Transit (LRT) extension, but important institutional changes as well. Since its establishment in 2010, the Land Public Transport Commission (SPAD) has developed into a technically capable, multi-disciplinary planning and regulatory agency that helped realize the visible rail projects.

**Remaining coordination and planning challenges hamper the delivery of efficient urban transport.** Overseen by different agencies, urban transport planning is not integrated across modes and administrative boundaries. Transport plans do not necessarily span the GKL metropolitan area or 'conurbation,' which is often defined differently by different agencies. The Ministry of Works and SPAD are federal-level agencies responsible for planning and delivering urban transport at the city level, in contrast to the experience of transit-oriented cities such as Vancouver where urban transport planning is done at the metropolitan level.

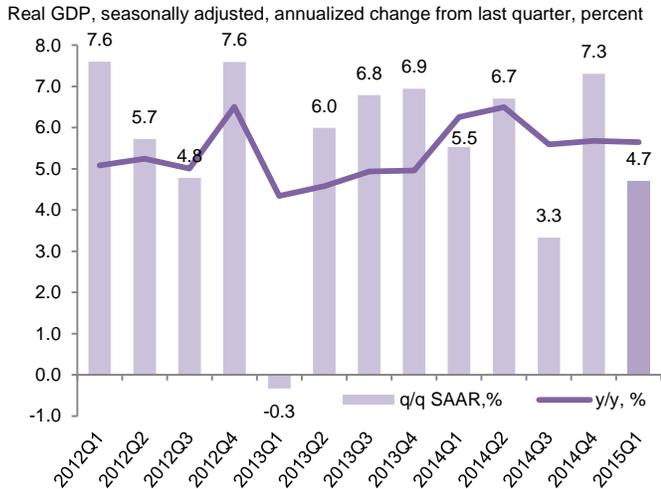
To transform the planning and delivery of urban transport, Malaysia may consider prioritizing the following reforms: **(a) Establish lead transport agencies at the conurbation level** that spearhead an integrated approach towards the planning and delivery of urban transport across different modes. **(b) Identify and implement sustainable financing mechanisms for the lead agency.** Introducing local taxes on fuel would not only result in environmental gains and trim the fiscal deficit (by RM10-19 billion), but also fund transport (for example, 24% of Vancouver's transit system is funded by municipal gas taxes). Reviewing impediments to transit-oriented development would be another option, but should

be considered alongside implications for affordability and inclusion. **(c) Align policies to promote public transport with incentives to discourage the usage of private transport in congested areas.** Introducing

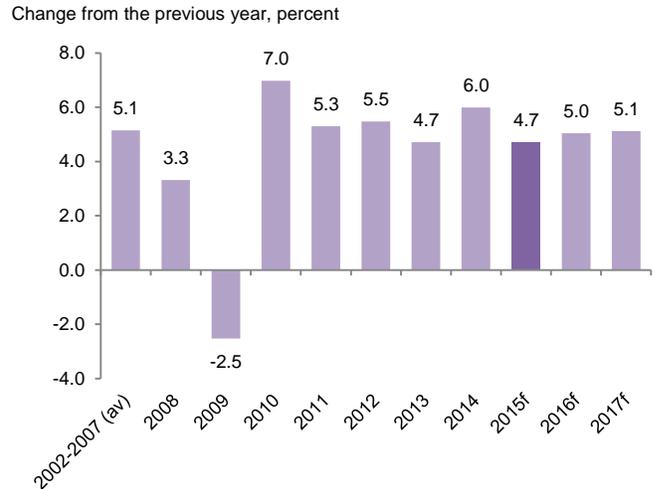
congestion pricing in areas well-covered by public transport as is done in Singapore would be an example of such policies.

## The Malaysian Economy in Pictures

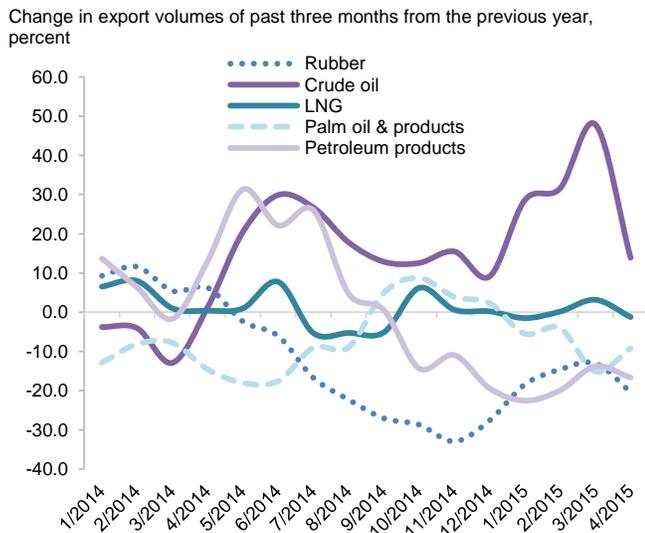
After a strong finish in 2014, growth moderated in early 2015...



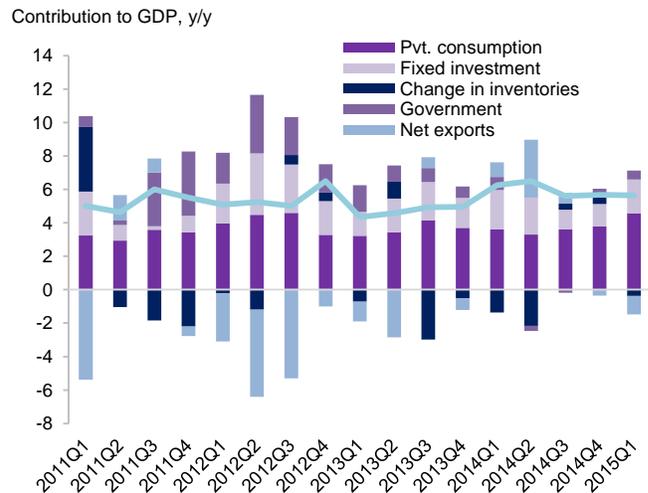
...and growth for the year is expected to slow.



Export growth shrank, mostly due to commodities...

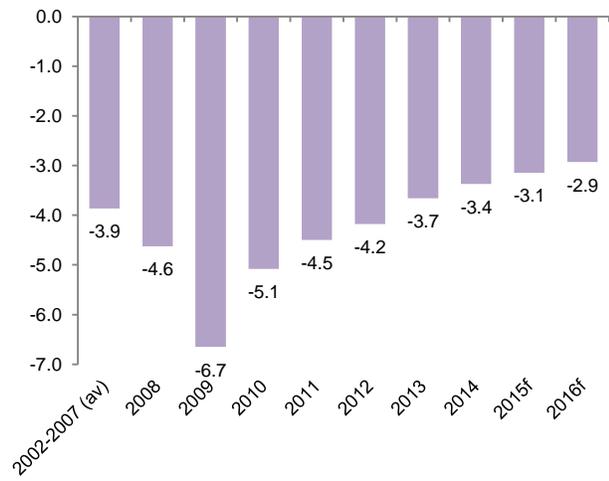


...but private consumption and investment remained robust.



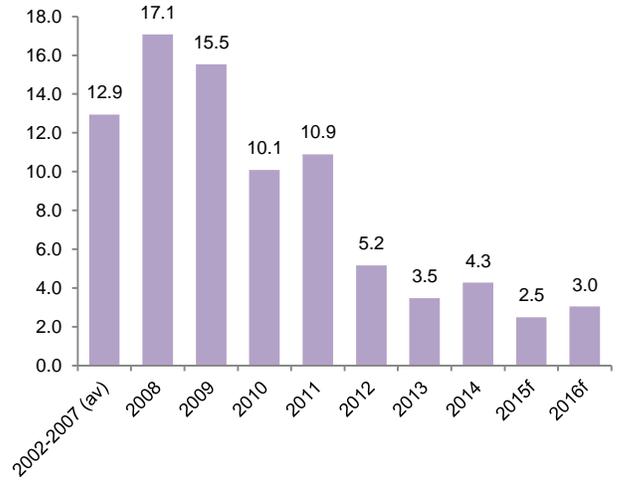
### Fiscal consolidation continues at a marginally slower pace

Federal Government balance, percent of GDP



### The current account is projected to remain in a small surplus

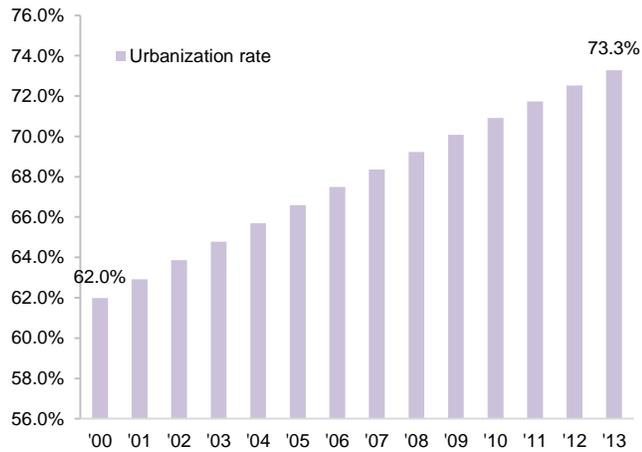
Percent of GDP



## Transforming Urban transport in Pictures

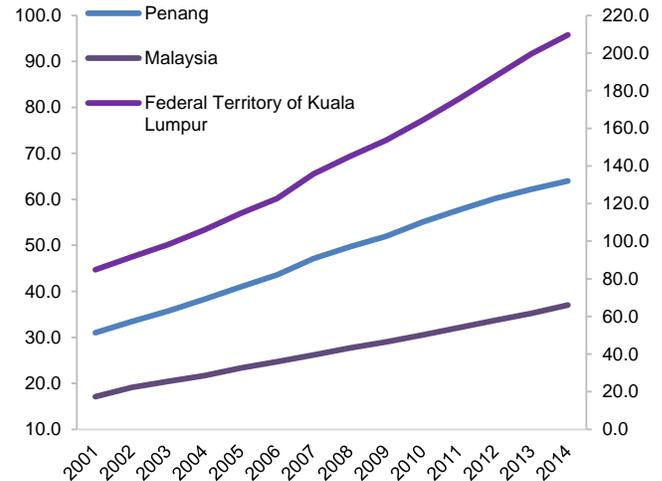
Malaysia's rapid urbanization is linked to economic growth...

Urban population as a share of total, percent



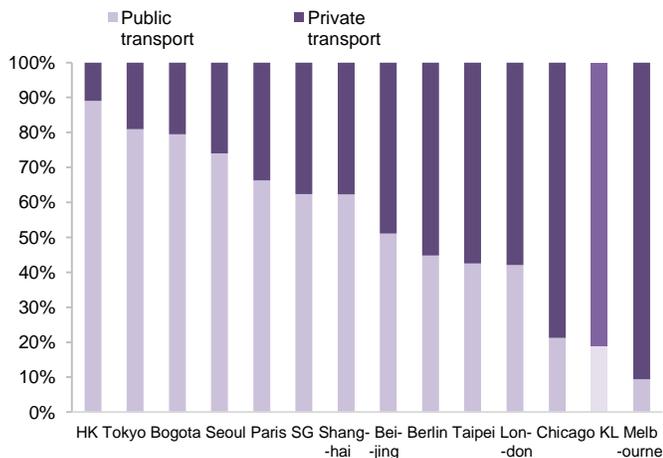
...as well as an exceptional increase in car ownership.

Private motor cars per 100 inhabitants (RHS: Kuala Lumpur)



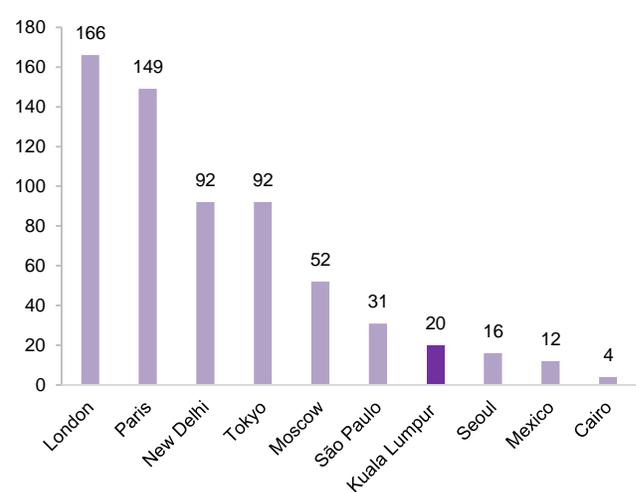
Reliance on public transport is low compared to other cities...

Modal share of public and private transport, percent (2011)



...partially due to a shortage of rail-based transport.

Kilometers of metro per million population (2010)

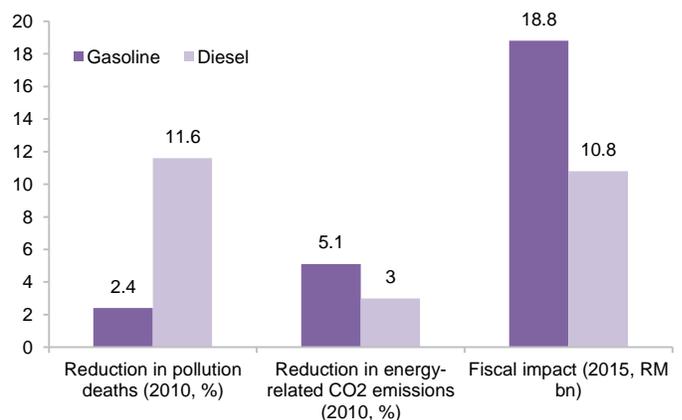


Congestion costs amount to 1.1-2.2 percent of GDP...

Type of cost	Annual monetary cost (RM billion)	Cost (% of 2014 GDP)
Delays	10.8 – 19.6	1.0 – 1.8
Fuel	0.9 – 2.4	0.1 – 0.2
CO2 and other emissions	0.9 – 2.7	0.1 – 0.2
<b>Total</b>	<b>12.7 – 24.7</b>	<b>1.1 – 2.2</b>

...a figure that could be reduced by taxes on fuel, which would also generate resources to finance public transport.

Percent / RM (bn)



# 1. Recent Economic Developments and Outlook

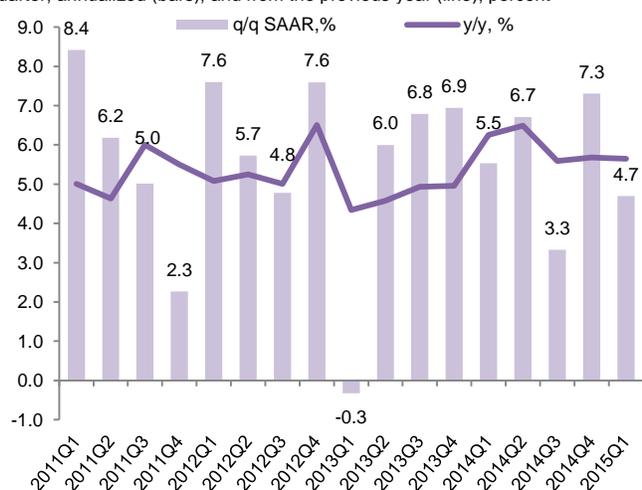
## Robust domestic drivers support continued economic expansion

### 1. The Malaysian economy ended 2014 on a strong note and proved resilient to external headwinds in early 2015.

Real Gross Domestic Product (GDP) expanded by 7.3 percent in the last quarter of 2014 on a sequential (quarter-on-quarter, seasonally adjusted and annualized – q/q saar) basis (Figure 1)<sup>1</sup>. This brought real GDP growth over 2014 as a whole to 6.0 percent, exceeding both consensus expectations (5.8 percent) and the World Bank's projection (5.7 percent) due to slower growth of imports compared to the projection. Growth in 2014 benefited from both a recovery in exports and resilient domestic demand. Domestic demand (especially public and private consumption) remained resilient as external demand waned in 2015. This led GDP growth to moderate to a still-robust 4.7 percent q/q saar in the first quarter of 2015, leaving output higher by 5.6 percent than its year-ago level. Underlining the external nature of the slowdown, sequential growth fell across East Asian economies (Figure 2).

**Figure 1. GDP growth has been volatile over the last four quarters and slowed in early 2015...**

GDP adjusted for inflation and seasonal fluctuations, change from the previous quarter, annualized (bars), and from the previous year (line); percent



Source: CEIC, DOSM, World Bank staff calculations

**Figure 2. ... largely due to external factors as other Asian countries also slowed.**

GDP adjusted for inflation and seasonal fluctuations, change from the previous quarter, annualized; percent



Source: CEIC, DOSM, World Bank staff calculations

### 2. In line with vigorous domestic demand, construction and services expanded most on the supply side.

Value-added produced and consumed in Malaysia expanded by 10.3 percent q/q saar in the first quarter of 2015, faster than the previous quarter (6.8 percent) and the 2014 average (7.3 percent; World Bank staff estimates). Construction value-added posted the strongest sequential growth, surging 56.8 percent q/q saar; in year-on-year terms, construction was up by a more modest 9.6 percent, though this is still indicative of rapid growth given the high Q1 2014 base (19.3 percent y/y). This likely reflected in part the temporary impact of post-flood repair and reconstruction work and ongoing real estate and infrastructure projects. Services growth moderated slightly from 6.1 percent q/q saar in the last quarter of 2014 to 5.4 percent. In contrast, value-added in Malaysia and consumed externally contracted by 7.8 percent q/q saar. Manufacturing value-added was little-changed, following expansion in Q4 2014 (Q1 '15: +0.1 percent; Q4 '14: 9.8 percent q/q saar). Agricultural and mining sector output, characterized by high volatility, both contracted from their Q4 2014 levels, at an annualized pace of 3.3 percent and 3.0 percent, respectively. Following downward pressures over much of 2014, particularly in Q4 due to the floods, agricultural output was down 4.7 percent from its Q1 2014 level, while mining output was higher by a substantial 9.6 percent y/y given the start in production at the Gumusut-Kakap oil field.

<sup>1</sup> Unless stated otherwise, annualized quarter-on-quarter GDP figures are calculated based on the national account series seasonally adjusted by DOSM.

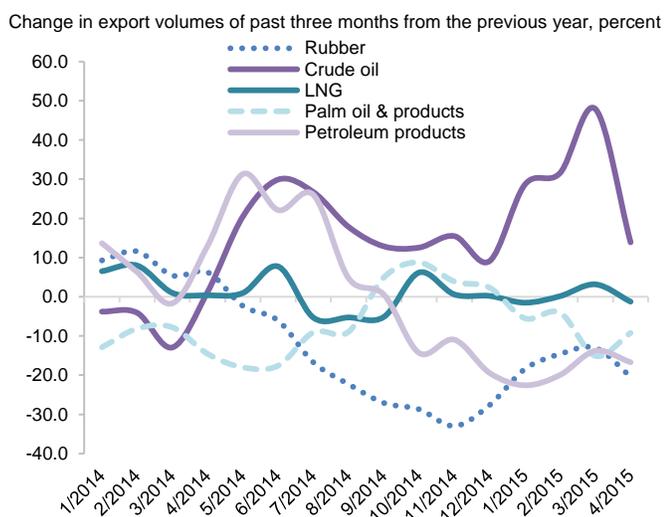
**3. In contrast to real GDP, nominal GDP growth was subdued due to a decline in economy-wide prices.** Due to a 1.4 percent y/y fall in the GDP deflator (the broadest measure of prices in the economy), nominal GDP growth in Q1 was 4.2 percent y/y as measured implicitly from the national accounts, significantly lower than real output growth of 5.6 percent y/y. Much of this fall is linked to lower export prices (-2.1 percent y/y), in turn likely due to weaker energy prices. But prices fell in aggregate across all GDP expenditure categories except consumption. Lower nominal GDP growth due to declining prices may point to downward demand pressures in some parts of the economy, and this may filter into reduced real activity, most obviously in the energy sector. The nominal GDP growth deceleration is also relevant for fiscal planning, since revenues are more immediately sensitive to lower nominal GDP growth than expenditures.

## Renewed headwinds from the external sector

### Broad-based weakness of exports, especially commodities

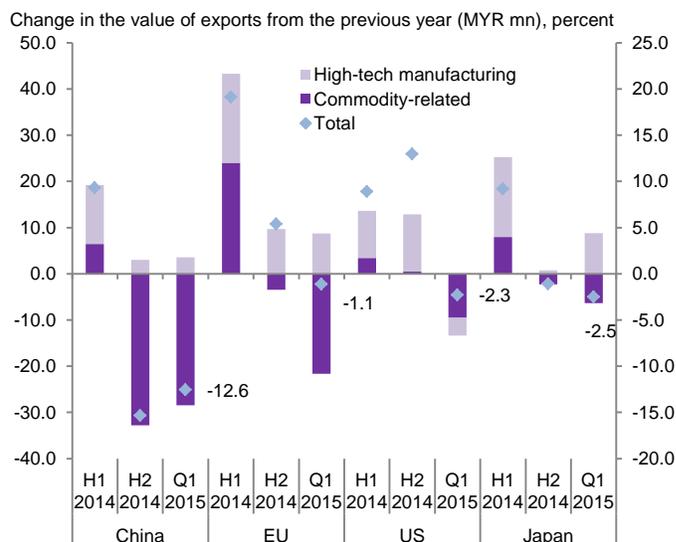
**4. Exports contracted in the first quarter of 2015, largely due to continued weakness in commodity-related exports.** Exports of goods and services grew by 5.1 percent in 2014 in real terms, but the pace of growth slowed significantly in the second half of the year and in the first quarter of 2015 exports of goods and services weakened further, contracting by 1.5 percent q/q saar. The slowdown was largely attributable to the decline in commodity-related exports. Crude petroleum export volumes initially surged as the newly-commissioned Gumusut-Kakap oil field commenced production, but plunged in April compared to their year-ago levels (Figure 3). Agricultural commodity exports remained soft as volumes of palm oil and palm-based agriculture products were more than 15 percent below year-ago levels in Q1, likely due to year-end floods, land constraints and switch of Chinese imports from palm to soy bean oil. The largest export declines since H2 2014 have been of commodity-related goods to China (Figure 4).

**Figure 3. Commodity export volumes growth declined across the board...**



Source: CEIC, DOSM, and World Bank staff calculations

**Figure 4. ...especially to China and the EU.**



Source: CEIC and World Bank staff calculations

**5. E&E also slowed in early 2015, but value-added may have increased.** Electrical and electronics (E&E) exports in nominal USD terms grew by 4.3 percent in 2014 but contracted by 2.8 percent in Q1 2015 (y/y; April: -13.1 percent y/y), also contributing to the overall export contraction. High-tech exports to the EU and Japan, a main driver of export growth earlier in 2014, slowed in Q1 2015 compared to the same period in 2014, while high-tech exports to China remained slow (Figure 4). A bright (if still small) spot within E&E exports has been solar equipment, which has seen strong average growth of 7.6 percent between 2011 and 2014 and continued to expand in Q1 2015<sup>2</sup>. The

<sup>2</sup> Source: MITI.

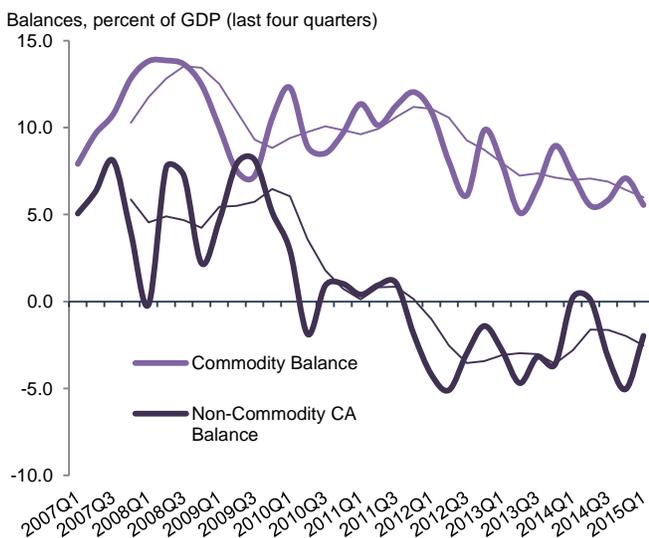
decline in E&E export value is in contrast to growth in E&E value added by 9.3 percent y/y in Q1 2015 following robust growth of 10.7 percent in 2014. This development, along with a slower growth in E&E imports compared to exports for the first time in many years, suggests that domestic value-added of E&E exports may have increased.

### The current account surplus widened despite lower commodity prices

**6. The trade surplus was flat in the first quarter of 2015, as a narrower services deficit and weak intermediate imports offset lower commodity prices on the goods balance.** The surplus in the goods balance remained on a downward trajectory (Q1 2015: RM 27.5 billion; Q4 2014: RM 29.4 billion), mainly due to lower commodity prices and export volumes outside of crude oil, which led to a narrowing of the commodity surplus from RM 19.6 billion in Q4 '14 to RM 15.5 billion in Q1 '15 (Figure 5). The non-commodity goods surplus widened as lower exports were offset by even lower imports, especially of intermediate goods, which contracted from the previous quarter and previous year (-6.7 percent q/q and -2.4 percent y/y respectively). This decline may be linked to the change in E&E production noted above and continued depletion of inventories (which have declined for seven consecutive quarters). After contracting in 2014 (-2.1 percent), capital goods imports expanded in Q1 2015 (+8.5 percent) along with the recovery in equipment investment. A narrower services deficit (Q1 '15: RM 3.8 billion; Q4 '14: RM 5.5 billion) offset the decline in the goods balance and largely resulted from declines in transport, construction and insurance service imports and deficits. The surplus in the travel account was sustained at RM7.2 billion with softer travel-related service exports matched by declining imports.

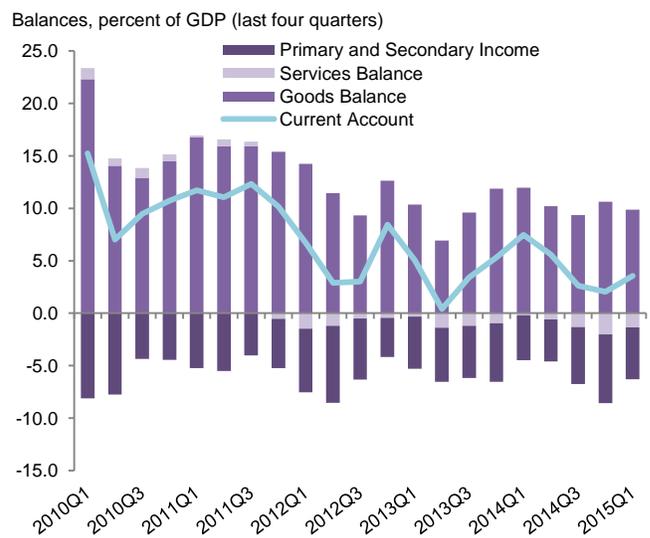
**7. The current account surplus widened in Q1 2015 compared to the last quarter of 2014.** The current account surplus came in at 3.6 percent of GDP compared to 2.0 percent in the previous quarter (Figure 6). This was largely a result of an improvement in investment income inflows, which were exceptionally low in the fourth quarter of 2014.

**Figure 5. The commodity balance narrowed...**



Source: CEIC and World Bank staff calculations  
 Notes: Commodity-related exports include food, beverages & tobacco; mineral fuels & lubricants; chemicals; animal and vegetable oils and fats

**Figure 6. ... but net income outflows eased, leading to a higher current account surplus in early 2015.**



Source: CEIC and World Bank staff calculations

### Consumption and investment show resilience against external headwinds

#### Public and private consumption surged ahead of GST implementation

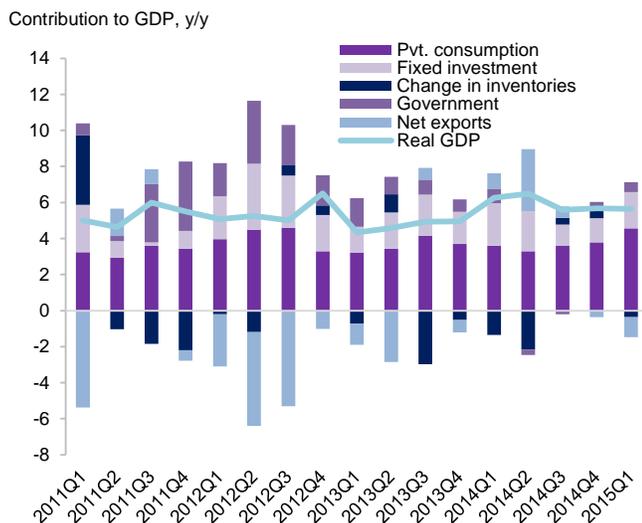
**8. Domestic demand was driven by a ramp-up in private consumption, but also a rebound in public consumption.** Private consumption accelerated from 6.5 percent q/q saar in Q4 2014 to 10.0 percent q/q saar in the first quarter, likely propelled by anticipatory spending ahead of the introduction of the goods and services tax (GST) on April 1<sup>st</sup>. An additional factor supporting private consumption in Q1 was BR1M cash transfers, which were distributed in mid-January to ease reconstruction efforts in the aftermath of year-end floods. Beyond these important transitory factors,

private consumption continues to be supported by solid real household income growth (in turn due to the stable labor market and low inflation on account of lower oil prices), despite the drag on the incomes of smallholder households whose incomes are tied to palm oil and rubber prices. Government consumption surged 22 percent q/q saar in Q1 2015 after contracting 9.3 percent q/q saar in the previous quarter, largely reflecting a bonus paid to civil servants in January. The resulting contribution of consumption to y/y GDP growth in the quarter was 5.1 percentage points or 90 percent.

**9. Private investment also rose, as machinery and equipment investment picked up following a contraction in 2014.**

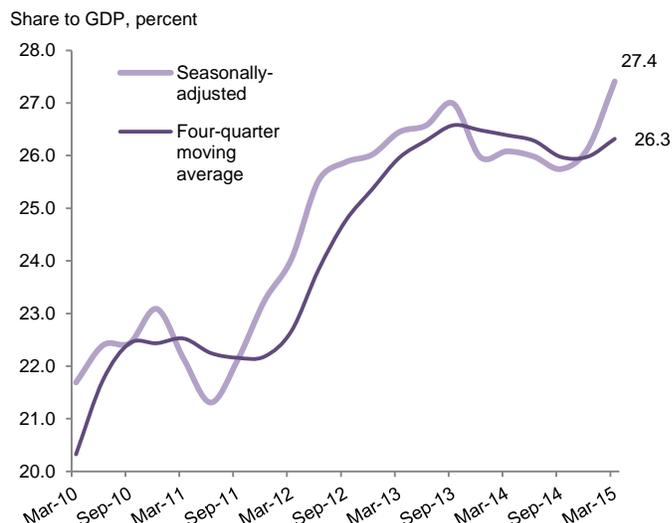
The overall gross fixed capital formation (GFCF) picture in 2014 was mixed: investment in structures rose 9.9 percent, while machinery and equipment (M&E) investment contracted by 0.7 percent, leading to an overall expansion of 4.8 percent, the lowest since 2009. This reflects the completion of large equipment-intensive investments in the oil and gas sector such as floating LNG platforms, and continued resilience of real estate investment in light of rising incomes and strong consumption demand. Going into 2015, both structures and M&E investment growth were strong in Q1, lifting real spending in these categories by 9.9 percent and 5.8 percent over their year-ago levels, respectively. Investment growth has been dominated by private spending, which was up 11.7 percent y/y in Q1, while public investment was flat (0.4 percent y/y). As a result, fixed investment expanded by 8.0 percent q/q saar (Q4 '14: 23.8 percent) and the investment-to-GDP ratio rose to 26.3 percent after declining slightly in 2014 (Figure 8).

**Figure 7. Strong private consumption and investment have helped to offset the growing drag from net exports**



Source: CEIC, DOSM, World Bank staff calculations

**Figure 8. The investment-to-GDP ratio rose in early 2015 after remaining mostly stable throughout 2014**



Source: CEIC, DOSM, World Bank staff calculations

**Wage growth and high employment support consumption growth**

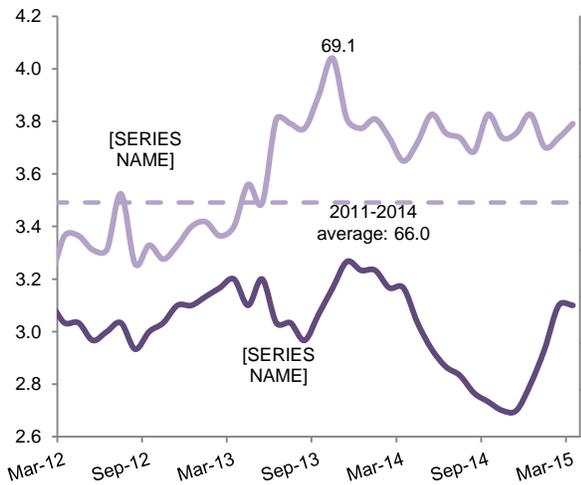
**10. Overall jobs growth has been rapid enough to keep the unemployment rate low and stable.** Malaysia's economy added 333,100 net new jobs<sup>3</sup> in the year to March 2015, an increase of 2.5 percent. Of Malaysia's working-age population (estimated at just under 21 million as of March 2015), 67.7 percent were employed or looking for a job, comprising 65.6 percent in work and 2.1 percent involuntarily unemployed, resulting in an unemployment rate (unemployed/labor force participants) of 3.0 percent (Figure 9). Both the employment and unemployment rates are at close to their average levels since the start of 2014 (though the unemployment rate was down to 2.7 percent briefly in mid- to late-2014), consistent with a labor market that has been generating enough net new jobs to keep up with population growth. Many of these jobs are being created in the services sectors, as manufacturing employment growth remains subdued (Figure 10). The higher overall participation rates since 2012 are due primarily to the increase in the labor force participation rate among women, a topic that is analyzed in more detail in Special Issue Note B.

<sup>3</sup> Defined as the difference in the number of employed individuals at two points in time, as reported in the Labor Force Survey.

**11. Real wage growth picked up in Q1 2015.** After weakening appreciably in the final months of 2014, real manufacturing wage growth picked up in Q1 2015, to 4.6 percent y/y (Figure 10), led by electrical and electronics sector wage increases, which averaged 6.1 percent y/y over the quarter. Real wage growth for workers in domestically-oriented manufacturing sectors also rose by a healthy 3.6 percent y/y in Q1 2015. Overall, employment and wage growth had a robust start to the 2015, broadly consistent with the strong domestic demand recorded for the quarter.

**Figure 9. The labor force participation stabilized while the unemployment rate remains low**

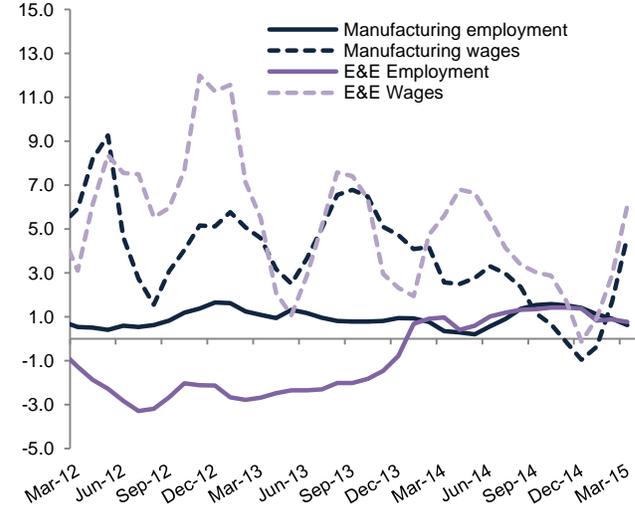
Unemployment rate, percent  
Labor force participation rate, percent  
Both series seasonally unadjusted, 3-month moving averages



Source: CEIC and World Bank staff calculations

**Figure 10. Wage growth spiked in early 2015**

Real wage and employment, growth from the previous year, percent  
(3-month moving averages)



Source: CEIC and World Bank staff calculations

### Subdued inflation on account of lower oil prices

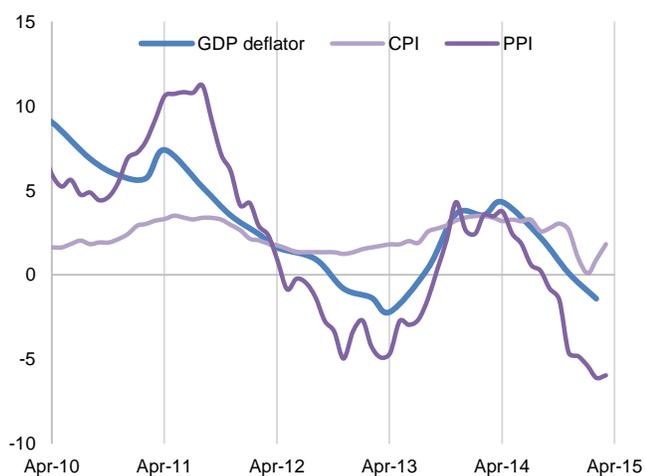
**12. Lower fuel prices sharply reduced headline consumer inflation but “core” inflation also fell.** The consumer price index (CPI) fell by 0.8 percent between December and March, cutting headline consumer price inflation from 2.7 percent y/y in December 2014, to a low 0.9 percent y/y in March 2015 (Figure 11). Lower retail fuel prices drove most of this decline, erasing the increase seen during the final quarter of 2014 due to subsidy reform. Prices bounced back partially in March (+1.2 percent m/m; Figure 12). Even “core” inflation (excluding transport and food components, as estimated by the World Bank) was benign during the first quarter, declining to 1.3 percent y/y in March from its 2014 average pace of 2.1 percent. The decline in the PPI and robust domestic demand suggest that low inflation is being driven by supply-side factors including global prices and capacity expansions that allow growth to be non-inflationary.

**Figure 11. Significant, widespread disinflation in wholesale (PPI), retail (CPI), and economy-wide (GDP) prices indices since mid-2014**

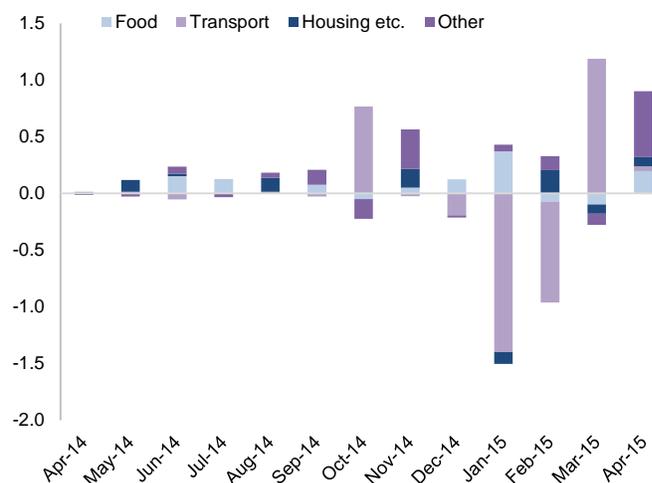
Percent (y/y)

**Figure 12. Transport (fuel) prices were in the driving seat through March, GST in April**

Contributions to month-on-month changes in CPI, percent



Source: CEIC, DOSM, BNM and World Bank staff calculations  
 Note: Core inflation is World Bank estimate



Source: CEIC, DOSM and World Bank staff calculations

**13. Moving into the second quarter of 2015, the GST raised prices modestly, but across a wide spectrum of expenditure categories.** The CPI rose 0.9 m/m in April, the same pace as the prior month but, due to base effects in the annual comparison, this moved headline inflation higher, to 1.8 percent y/y, from 0.9 percent y/y in March. However, while the March CPI increase was driven by higher fuel prices, in April it was non-food and fuel ("core") prices which accounted for the bulk of the general increase in prices (0.7 percentage points of the 0.9 percent m/m increase in headline CPI). This can be attributed to the introduction in April of the new 6 percent GST in replacement of sales and services taxes. The GST will likely continue to exert some upward pressure on retail price levels, and hence, temporarily, elevate the inflation rate. The magnitude of the increases observed has been lower than expected, and there may still be some pent-up hikes in coming months as the Government has been vigilant of excessive price increases.

### Fiscal consolidation proceeds, but helped by slow disbursements of the development budget

**14. The government ran a smaller deficit in 2014 than targeted, assisted by lower spending in supplies and services and slow disbursements on the development budget.** The deficit of the federal Government came in at 3.4 percent of GDP in 2014, better than the target of 3.5 percent of GDP and the 3.8 percent posted 2013 (based on the revised GDP). This is notwithstanding revenues coming below target for the first time since 2009 (by RM 3.5 billion). Shortfalls in development expenditure affected the performance of public investments but helped the fiscal position, with disbursements at about 88 percent of the budgeted amount. Had development expenditures come in as budgeted, the fiscal deficit would have been higher by 0.4pp of GDP. Operating expenditures exceeded their original allocation by only RM1.9 billion or 0.9 percent (2013: 4.3 percent, 2012: 13.2 percent), primarily due to restraint in spending on supplies and services. Finally, the higher nominal GDP base following rebasing and higher-than-expected growth also contributed to surpassing the 2014 fiscal target.

**15. Revenues came in below target partly due to weak collections of personal income tax.** Total oil-related revenues were essentially flat in nominal terms as a higher dividend from PETRONAS offset lower collection of PITA, and other categories remained flat. This resulted in oil-linked revenues standing at 30.1 percent of overall revenues compared to 31.2 percent in 2013 (Figure 13). Collections of corporate income tax continued to demonstrate buoyancy<sup>4</sup>, growing at a rate of 12.1 percent compared to 8.6 percent for nominal GDP and were largely in line with their earlier estimates. Personal income taxes underperformed by over RM4 billion in 2014, leading these revenues to come in 5.9 percent higher than in 2013 but 1.5 percent below target. Corporate income tax currently accounts to nearly 30

<sup>4</sup> Growth rate of income taxes exceeds the growth rate of nominal GDP.

percent of revenues, compared to a low of 19 percent in 2009 and an average of 24 percent for 2003-2008. Indirect taxes also under-performed as excise duty collections came in below target.

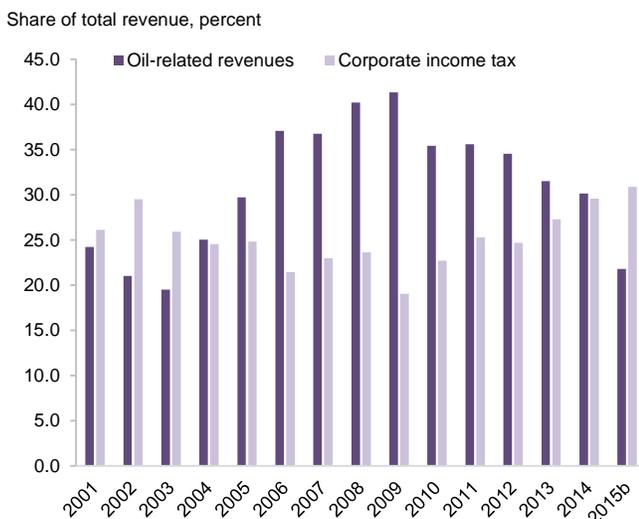
**16. Operating expenditures continued to grow at a modest pace on restraint in supplies and services spending.**

Operating expenditures grew by 3.9 percent (2013: 2.8 percent) and came in only slightly above its budgeted amount. This was due to lower spending in supplies and services, which grew just 1.2 percent from 2013 (2013: 5.9 percent) and came RM 2.4 billion below budget. Despite subsidies cuts in October and their elimination in December, the subsidy bill came in line with the budget. On the other hand, emoluments, pensions and gratuities exceeded their budgeted amount by RM 5.9 billion or 7 percent (compared to 5 percent in 2013 and an expected 3 percent in the Economic Report; Figure 14), largely due to the payment of civil servant bonuses.

**17. Disbursements from the development budget remained weak and contributed to a contraction in public investment growth.**

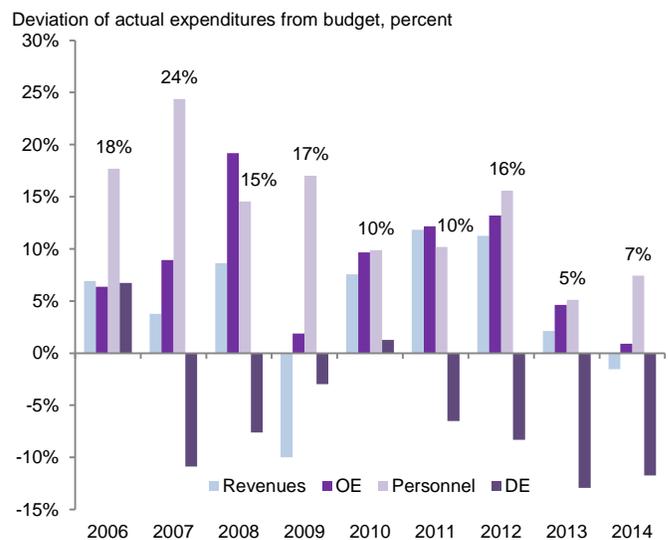
Development expenditures fell for the fourth consecutive year (2014: -5.5 percent; 2013: -8.2 percent) and came in RM5.1 billion lower than the original budget and RM2.8 billion below the ER estimate. In some cases, disbursements are expected to be made up in 2015, as development projects that have been completed in previous fiscal years may not have been billed yet. Considering nominal public investment growth of -3.2 percent, overall domestic NFPE investment was also likely flat despite PETRONAS increasing its investments by 14.3 percent during the year<sup>5</sup>. This is also reflected in a stabilization of debt guaranteed by the government, much of which is linked to NFPE-driven infrastructure projects such as the MRT. The public and publicly-guaranteed debt of the federal government has declined slightly to 68.1 percent of GDP from 68.4 percent in 2013.

**Figure 13. The dependency on oil-related revenues continues to decline**



Source: CEIC, MoF and World Bank staff calculations  
 Note: Oil-related revenues include Petroleum Income Tax, export duties on crude oil, petroleum royalties, the PETRONAS dividend, income from the Joint Malaysia-Thailand Development Area and petroleum permits

**Figure 14. Spending on personnel is expected to exceed the budget by less than in previous years**



Source: CEIC, MoF, and World Bank staff calculations  
 Note: 'Personnel' includes emoluments, pensions and gratuities

**18. The decline in commodity prices led to a re-prioritization of expenditures and an upward revision of the deficit target for 2015, but consolidation continues.**

In January, the Government revised its 2015 budget based on new assumptions of Brent crude oil of USD55/bbl (vs. USD100/bbl in the original budget) and increased the deficit target up from 3.0 to 3.2 percent of GDP. This included savings of RM10.7 billion from the removal of fuel subsidies in end-2014, higher estimates of GST collections (RM1 billion) additional dividends from GLCs (RM0.4 billion) but larger losses

<sup>5</sup> Refers to changes in cash flows for the "Purchase of property, plant and equipment, investment properties, prepaid lease payments and intangible assets" and includes both domestic and international investments. Source: PETRONAS Group Interim Financial Report for 2014.

in oil-related revenues and higher emoluments from the bonus to civil servants paid in January. Operating (current) expenditure is to be reduced by RM5.5 billion, mostly from cuts to grants/transfers to statutory bodies and GLCs (RM3.2 bi), followed by further cuts to supplies and services (RM1.6b) and others. The Government has also recently announced a hiring freeze for civil servants, which would help in containing operating expenditures in 2015 and beyond. There were no cuts to development (capital) expenditure, with MRT and other mega projects to continue. With the subsequent improvement in oil prices, diligent pursuit of the expenditure measures should allow the Government to meet or exceed its consolidation targets in 2015.

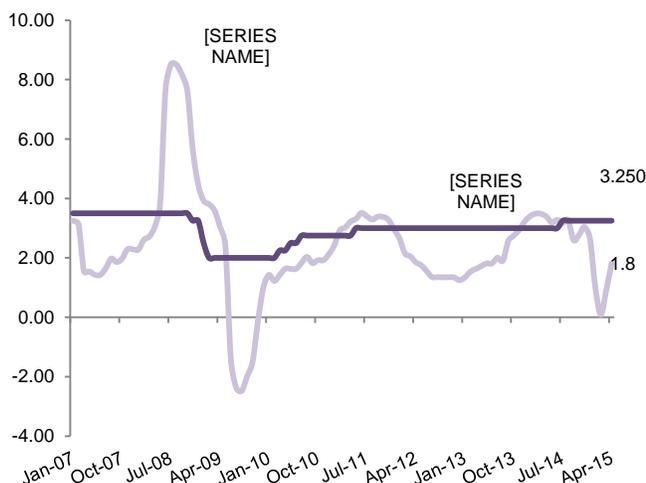
## Greater stability in domestic and external financial conditions

### Monetary policy on pause amid uncertainty in the domestic and external outlooks

**19. Monetary policy has been little-changed given low inflation and significant uncertainties about potential domestic and external risks to growth.** Subdued inflation and risks to growth stemming from lower oil prices led Bank Negara Malaysia (BNM) to return to a holding pattern after raising the Overnight Policy Rate to 3.25 percent in July 2014. Given the continued favorable inflation dynamics, risks to external demand from slower growth in major trading partners and headwinds to domestic demand from the GST implementation, fiscal consolidation and slower investment growth, monetary policy remains supportive of growth. In its latest (May) Monetary Policy Statement, BNM characterized the monetary policy stance as “accommodative”, suggesting that it is willing to look through the temporary inflation resulting from the introduction of the GST (Figure 15), which in any case has so far been modest and below initial expectations.

**Figure 15. Real policy rates have remained in positive territory since the latest hike**

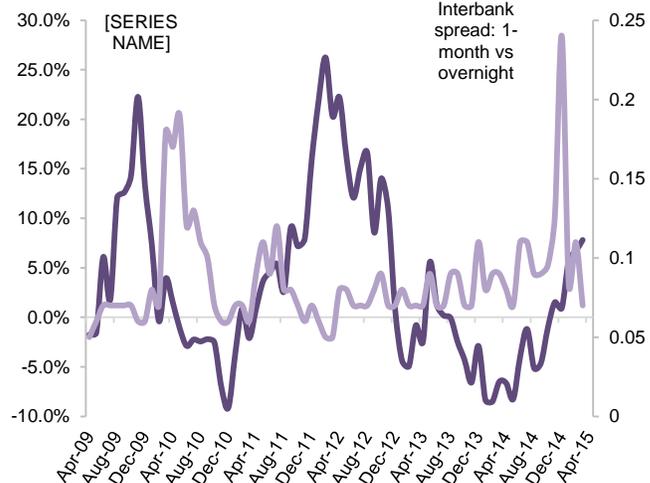
Policy interest rate and inflation rate, percent



Source: CEIC, DOSM, BNM

**Figure 16. Loans expanded faster than deposits in 2014**

Growth of deposit-minus-loan ratio (y/y) Interbank spread: 1m vs. overnight



Source: CEIC, BNM, World Bank staff calculations

## Credit growth to businesses picked up

**20. Key banking sector health indicators remain sound and deposits picked up, creating headroom for further credit growth.** Commercial deposit rates have remained unchanged since the mid-2014 policy rate hike, while the weighted average commercial bank lending rate has also been little-changed, at 5.48 percent at the end of Q1 2015. Interbank rates increased at the end of 2014 before dropping over Q1, helped by BNM's clarification concerning liquidity coverage ratio rules (Figure 16). This trend was initially accompanied by increasing loan-to-deposit ratios, but this has now stabilized and headroom for more net loan extension has been increased by higher deposit growth rates, which rose to 9.0 percent y/y, buoyed by strong demand deposit growth (10.2 percent y/y) and foreign currency deposits (32 percent y/y, though flattered by exchange rate effects). Accordingly, the loan to deposit ratio has fallen, to 86.6 percent in March. The aggregate loan book (i.e. asset) quality remains solid as measured by a low net impaired loan ratio of 1.2 percent, and the sector is well-capitalized with the Common Equity Tier 1 capital ratio at 12.5 percent and total capital ratio at 15.2 percent.

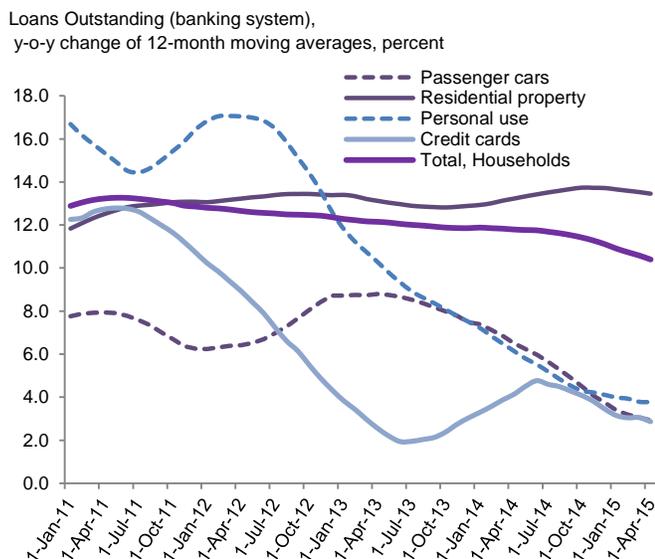
**21. Demand from businesses has supported loan growth.** Total net loan growth picked up slightly in March, to 9.2 percent y/y, up from the recent low of 8.6 percent y/y loan growth in January. The increase was driven by loans to businesses (rising over Q1 to be up 8.9 percent y/y). Having peaked at 17.6 percent y/y in December 2014, construction loan growth cooled to 12.6 percent y/y in March, but non-residential property loans accelerated somewhat, up 16.3 percent y/y (vs. 14.9 percent y/y in December). Working capital loan growth also increased, to 10.8 percent y/y in March, its strongest pace since January 2014 (Figure 18). In all, the modest expansion in bank credit extension to businesses seen over Q1 2015 is consistent with the evidence from the national accounts of buoyant investment conditions and business confidence, notably in construction and real estate.

**22. Household loan growth was flat over Q1, leaving household loans up 9.8 percent y/y in March** (Figure 17). Credit card debt picked up sharply to be up 5.0 percent y/y in March, from 1.2 percent y/y in December 2014, likely affected by the front-loading of retail spending ahead of the start in April of GST. However, credit cards account for only a very small proportion of household debt (under 5 percent). Passenger vehicle loans also picked up slightly in the first quarter, but only to a modest 3.0 percent y/y. Loan growth in the crucial residential property loan segment, accounting for approximately half of household bank debt, remained flat (up 13.1 percent y/y in March).

**23. There are welcome signs that households' debt burdens are starting to ease, but this remains a source of vulnerability.** Helped by wide-ranging prudential measures over the last two years (and partly reflected in slower loan growth noted above), coupled with solid household income growth, the household debt burden is now showing

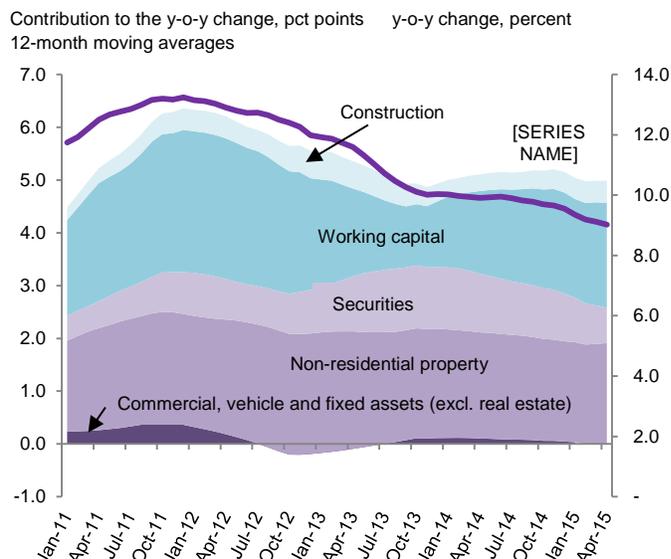
some welcome signs of stabilizing. The household debt to GDP ratio is estimated by BNM to have been 86.8 percent of GDP in 2014, marking slower growth compared to large prior increases (the ratio stood at 74.5 percent in 2010). Household loan quality and debt distress risk appear to be improving in aggregate, with BNM reporting a rise in the share of loans with debt service ratios of 60 percent or below (the Central Bank's standard for prudent lending), and the ratio of impaired household loans dropping to 1.2 percent in 2014 (almost halving since 2010). Nevertheless, household leverage remains high in Malaysia, raising the vulnerability of the economy to both domestic and external shocks and warranting continued monitoring.

**Figure 17. Household loan growth showed signs of stabilizing while credit for auto purchases has declined**



Source: BNM and World Bank staff calculations

**Figure 18. Growth in working capital loans picked up again in 2014 and early 2015**



Source: BNM and World Bank staff calculations

**24. Growth in house prices declined in late 2014 following a significant increase since 2010.** Malaysia's housing prices boomed from 2010-2013, when average prices in Kuala Lumpur increased by 49 percent (end-2010 to end-2013). Among major Asian cities, only Hong Kong saw price increases of a similar magnitude (50 percent) in this period. However, prices have since been decelerating, trimming the house price increase, as measured by the National Property Information Centre (NAPIC), to 8.0 percent y/y in Q4 2014, and down further to 4.1 percent y/y in Q1 2015 (preliminary figure). The moderation in house price growth is positive from the perspective of containing the risks of a destabilizing, speculative price bubble developing, but also highlights the need to shore up the balance sheets of the many Malaysian households exposed to a property price downturn through mortgage debt.

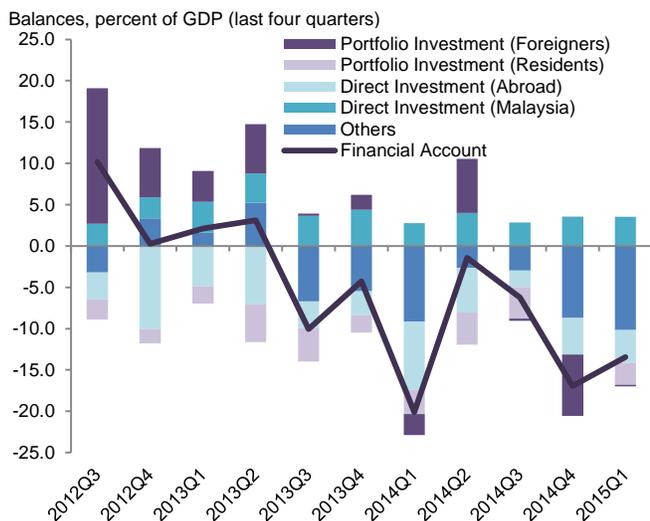
**25. Equity financing conditions have grown more challenging, amidst choppy external market conditions.** The FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBM KLCI), having declined 6.5 percent over the second half of 2014, climbed over Q1 by 3.9 percent, but has subsequently reversed, leaving the index close to flat (+0.3 percent as of May 25, 2015). This relatively weak market performance is due in part to global appetite for emerging market financial assets being subdued amidst investor concerns and portfolio reallocations ahead of US monetary policy tightening.

### Volatility in external flows subsided in early 2015

**26. Portfolio and direct investment outflows slowed from late 2014, but were offset by a sudden pick-up in other private sector investment outflows.** Portfolio outflows by non-residents surged in late 2014 to RM 20.6 billion in Q4, but slowed in Q1 '15 (RM 0.5 billion) helped by reduced concerns over imminent Fed tightening and the stabilization in global oil prices. However, domestic investors increased overseas positions in Q1, leading to net portfolio investment outflows of RM 7.9 billion (still much lower than the Q4 level of RM 20.3 billion). In the equity markets, the first quarter of 2015 saw RM 3.4 billion worth of net sales by foreign investors (compared to RM 6.9 billion for the whole of 2014). In the debt markets, foreign demand for Malaysia's longer-dated government bonds remained robust with non-resident

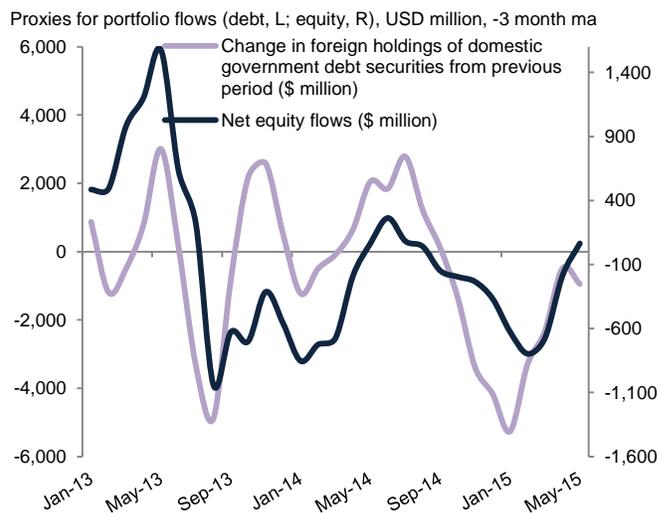
inflows into the MGS market at RM 6.1 billion in Q1. Direct investment abroad slowed significantly from Q1 2014 but remained stable in late 2014 and early 2015 even as the Government requested GLCs and GLICs to slow their investments abroad in response to the oil price decline. Overall, net direct investment registered outflows of RM 1.2 billion in Q1 (vs. RM 2.5 billion in Q4). Despite the broad stability in net direct investment and lower portfolio outflows, a sudden jump in other private investment outflows<sup>6</sup> (Q1 2015: RM 22.0 billion, Q4 2014: RM 3.5 billion, 2014: RM 21.6 billion) led to only a small reduction financial account deficit at the start of 2015. Overall, the balance of payments registered a deficit of 5.6 percent of GDP in Q1 2015 (Q4 2014: 4.3 percent).

**Figure 19. The financial account deficit remained significant...**



Source: CEIC and World Bank staff calculations

**Figure 20. ...even though equity funds flows showed modest recovery towards the end of the quarter.**



Source: CEIC, MIDF and World Bank staff calculations

**27. The ringgit continued to depreciate against the US dollar during the first quarter of 2015, but the real effective exchange rate stabilized.**

The ringgit depreciated by a further 6.1 percent in the first quarter of 2015, after depreciating by 6.5 percent against the US dollar in 2014. However, the real effective exchange rate remained more stable over the quarter, implying similar currency movements in partner countries against the USD. The recent depreciation of the ringgit has accordingly been driven mainly by dollar strength, in addition to concerns over the impact of lower global crude oil prices on the Malaysian economy, including the country's net asset position considering the significant overseas investments in the oil & gas sector by PETRONAS. Considering the real effective exchange rate, the ringgit saw lower volatility compared to neighboring countries, and the real effective depreciation against Thailand, Singapore and China since mid-2014 should be supportive of exports going forward (Figure 21). In addition, ringgit flexibility continues to act as a shock absorber to volatile external flows, including supporting stable domestic government borrowing rates and equity market performance as the exchange rate has been the price that adjusted the most when foreign investors sold debt and equity assets.

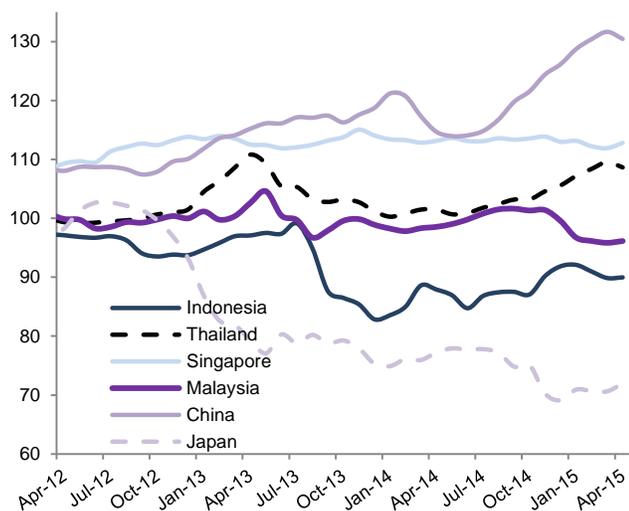
**28. Large net capital outflows since the fourth quarter led to a depletion of official reserves.**

Despite the larger current account surplus and currency depreciation, net capital outflows led to further depletion of official reserves. A surge in portfolio and investment outflows in 2014 coincided with a 14.1 percent decline in reserves. Continued widening of the financial account deficit in the first quarter of 2015 led to a further decline in reserves by 4 percent. Reserves stood at USD105.1 billion at the end of the first quarter of 2015 (Figure 22) – the lowest level since November 2010, but still sufficient to finance 8.0 months of retained imports and 1.1 times short-term external debt.

<sup>6</sup> The large outflows are largely due to higher placement of interbank deposits by Malaysian banks in financial institutions abroad. Malaysian banks also repaid maturing interbank borrowings during the quarter (BNM, 2015).

**Figure 21. Against main reference currencies, the Ringgit has remained relatively stable**

Real Effective Exchange Rate, Index, 2010=100

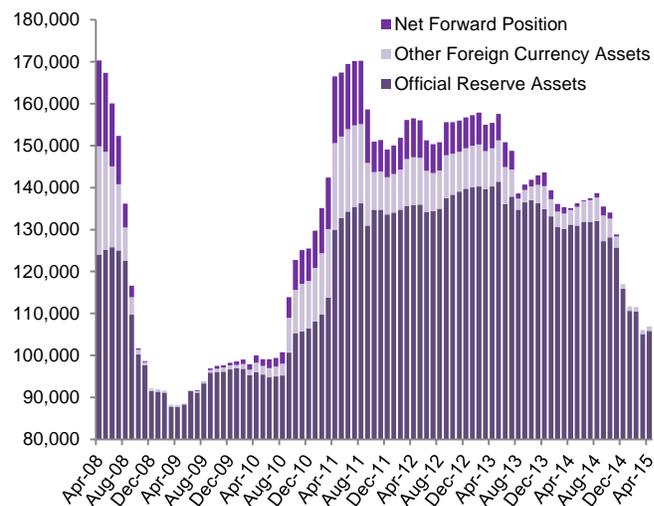


Source: Bank for International Settlements

Note: Increases in the index denote appreciation of the currency

**Figure 22. Reserves are declining, but remain above the levels prior to the Euro area crisis**

Reserves, USD millions



Source: BNM

Note: Net Forward Position represents aggregate short and long positions in forwards and futures in foreign currencies vis-à-vis the domestic currency (incl. the forward leg of currency swaps)

## Fundamentally solid outlook clouded by domestic and external uncertainties

### A near-term moderation expected due to domestic and external headwinds

**29. Amid heightened risks from the global environment and tighter fiscal conditions at home, economic growth is expected to moderate in 2015 before picking up in 2016 and 2017.** The outlook for the Malaysian economy is underpinned by three trends: (i) stabilization of crude oil prices at levels 30-40 percent below 2014 but 15 percent higher than early 2015, (ii) tighter domestic conditions from ongoing fiscal consolidation (including implementation of GST) amid underlying strong domestic demand; and (iii) uncertainties in the external environment regarding US interest rate hikes, the magnitude of China's slowdown and the recovery in advanced economies. Despite the recent stabilization, renewed downward movements in oil prices cannot be ruled out and are a key risk to Malaysia's outlook and also pose a threat to the pace of fiscal consolidation. The outlook for 2016-2017 is clouded by uncertainty in the direction of commodity prices, the strength of the global export recovery, and the pace of structural reforms to spur a new investment cycle in skills-intensive sectors.

**30. On a year-on-year basis Malaysia is expected to register real GDP growth of 4.7 percent in 2015, before normalizing to 5.0 percent in 2016 and 5.1 percent in 2017.** This is partly due to the impact of lower oil prices on investment and some slowdown in domestic demand from modestly tighter fiscal and monetary policies compared to last year. As consumers adjust to the implementation of the GST, as well as further moderation in household credit growth, private consumption growth is expected to moderate to 5.9 percent before rebounding to 6.4 percent in 2016. Fixed investment will continue to expand driven by ongoing construction projects, but at a moderate pace due to expected delays in capital expenditures in the oil and gas industry. The forecast for export growth has been upgraded slightly to 4.4 percent given the apparent supply-side improvement in the E&E sector, but the contribution of external demand is projected to return to negative territory as firms are expected to import parts and components to rebuild inventories after a seventh consecutive quarter of depletions in Q1 2015. Domestic demand is thus expected to contribute 6.0 percentage points to GDP growth in 2015 and 5.4 percentage points in 2016 with positive contributions from inventories. The World Bank forecast for 2015 is in line with median consensus estimates, which have declined over the last two quarters (Figure 23). Table 1 and Table 2 present a summary of the forecasts.

**Table 1. Slower GDP growth is expected in 2015 as private consumption cools...**

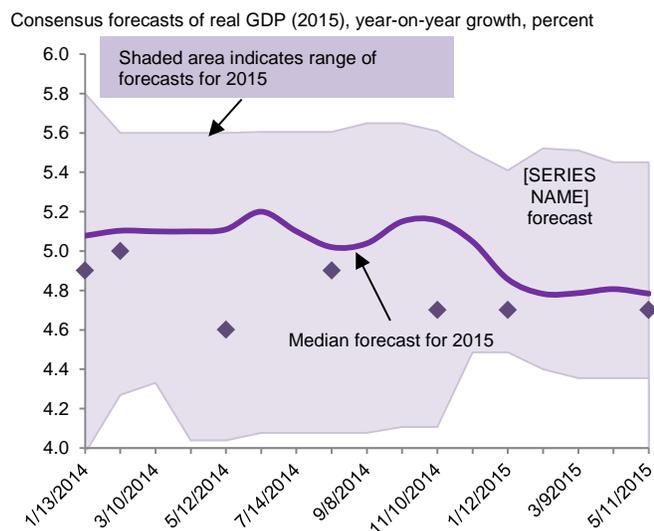
Year-on-Year Growth Rates, percent				
	2014	2015f	2016f	2017f
GDP	6.0	4.7	5.0	5.1
Domestic demand	5.3	6.6	5.9	6.0
Final consumption	6.4	5.5	5.9	6.5
Private sector	7.0	5.9	6.4	7.0
Public sector	4.4	4.0	4.2	4.5
GFCF	4.8	5.3	5.5	5.6
External demand	12.8	-13.3	-4.9	-6.5
Exports of G&S	5.1	4.4	5.5	5.5
Imports of G&S	4.2	6.9	6.7	6.7

**Table 2. ...but growth is expected to stabilize in 2016-17 as key growth drivers normalize.**

Contributions to GDP Growth, percentage points				
	2014	2015f	2016f	2017f
GDP	6.0	4.7	5.0	5.1
Domestic demand	4.9	6.0	5.4	5.6
Final consumption	4.2	3.6	3.9	4.3
Private sector	3.6	3.1	3.3	3.7
Public sector	0.6	0.5	0.6	0.6
GFCF	1.3	1.4	1.5	1.5
Change in Stocks	-0.6	1.0	0.1	-0.2
External demand	1.1	-1.2	-0.4	-0.5
Exports of G&S	3.9	3.4	4.2	4.2
Imports of G&S	-2.8	-4.6	-4.5	-4.7

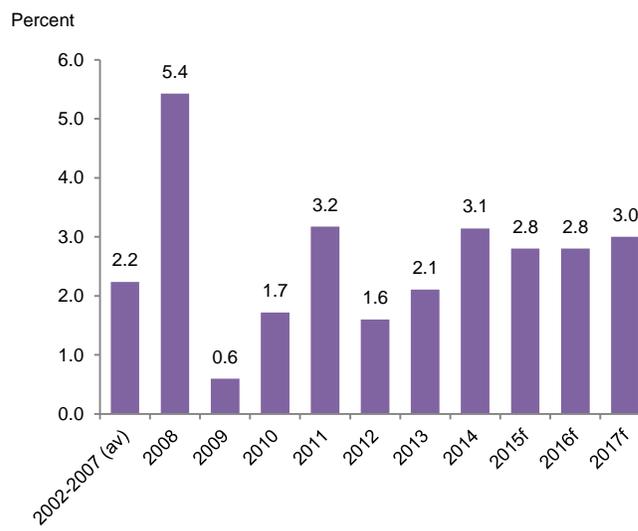
Source: CEIC, DOSM, World Bank staff calculations and projections. Note: f=forecast; domestic demand includes change in stocks.

**Figure 23. The median consensus forecasts for 2015 take into account the impact of lower oil prices**



Source: Consensus Economics, World Bank staff calculations and projections

**Figure 24. Inflation is projected to decline in 2015 as lower oil prices offset price effects from the GST**



Source: CEIC, DOSM, World Bank staff projections

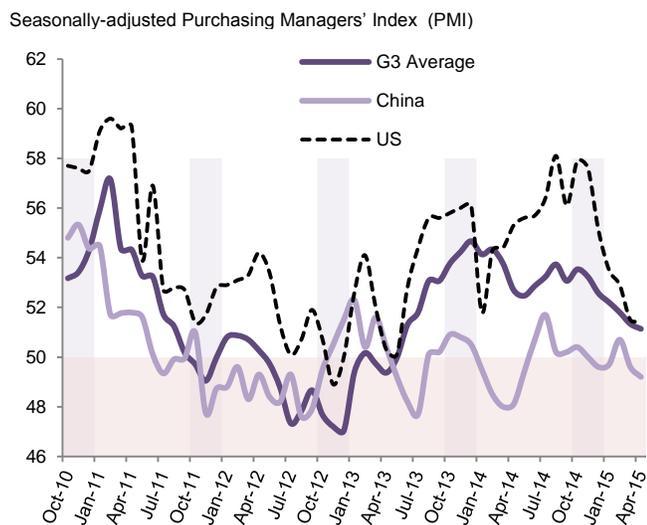
**31. Lower oil prices and adjustment to retail prices in the aftermath of the GST implementation is expected to drive inflation movements in 2015-16.** Malaysia's headline inflation rate is projected to decline from 3.1 percent in 2014 to 2.8 percent in 2015 as significantly lower oil prices compared with 2014, especially in the first three months of the year, offset price increases stemming from the introduction of GST in April. Inflation is expected to remain stable in 2016 as the offsetting GST and oil price effects are unwound (Figure 24). The 2015 forecast has been revised downwards by one percentage point given the subdued Q1 2015 numbers (as lower oil and transport prices were reflected throughout the economy) and slow pass-through of GST in April. While April inflation numbers began to tick up, reflecting GST effects, the pass-through appears to have been delayed. A more precise picture of the inflation outlook will be possible once the impact of the GST on prices becomes clearer in the second quarter.

## Increased volatility in the global macroeconomic environment poses risks to growth

**32. The global growth engine shows renewed signs of sputtering and is a source of risk to the outlook.** Purchasing Managers' Indices (PMIs) across G3 economies have remained in expansionary territory, but deteriorated on average since October 2014 – mostly led by Japan but also more recently, the United States (Figure 25). GDP growth in the

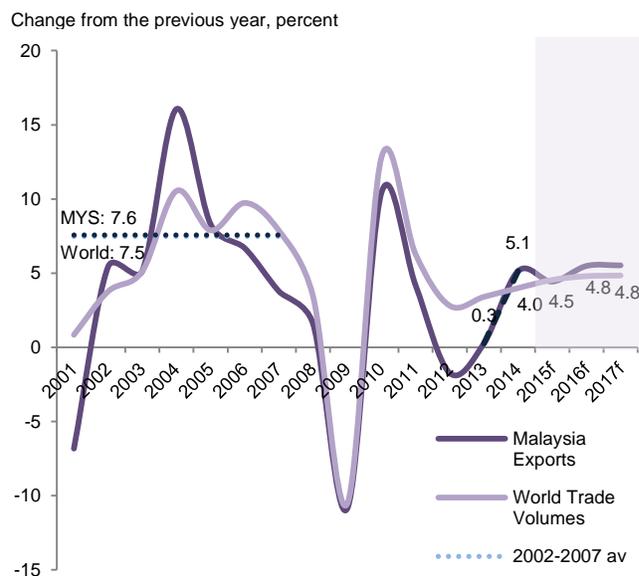
United States slowed sharply from +2.2 percent q/q saar in Q42014 to -0.7 percent q/q saar in Q1 2015, partly due to adverse weather conditions. Nonetheless, growth is expected to pick up to 3.2 percent in 2015 and 3.0 percent in 2016, higher than the average for high-income economies at 2.2 percent and 2.4 percent respectively<sup>7</sup>. Prospects for the Euro area and Japan are less optimistic, and these economies are expected to expand by 1.1 percent and 1.7 percent respectively. Meanwhile, a decline in China's PMI and a soft first quarter reinforces expectations of slower growth, despite a third round of policy easing in May. China's growth is projected to slow from 7.4 percent in 2014 to 7.1 percent in 2015 and 7.0 percent in 2016. Compared to an average growth rate of 11.6 percent in 2003-07 and 8.4 percent in 2011-13, the Chinese economy is undergoing a trend deceleration, although given the much larger base a growth rate of 7 percent now compares to one of 14 percent 7 years ago in terms of additional expenditure. Prospects in large ASEAN economies remain mixed, while among other key emerging economies only India's growth is expected to accelerate. Accordingly, the difference in the average growth rate between developing and advanced economies is expected to narrow to 2.6 pp in 2015 and 2.9 pp in 2016, compared to 4.3 pp in 2011.

**Figure 25. PMIs deteriorated across G3 economies in Q1 2015**



Source: Markit (Japan, Euro area), HSBC (China), CEIC (US)  
 Note: Simple average of PMIs for US, Euro area and Japan. Scores above 50 reflect expansion

**Figure 26. World trade volumes are not expected to return to pre-crisis levels in the medium-term**



Source: CEIC, World Bank DECPG and World Bank staff calculations  
 Note: World Bank forecasts as of January 2015

**33. The outlook for Malaysian exports is hardly buoyant but is solid relative to the weak global trade outlook given apparent supply-side gains in E&E and stable or rising volumes in hydrocarbon production.** Exports of goods and services are expected to expand by 4.4 percent this year, improving to 5.5 percent in 2016-17 (average export growth rate in 2011-2013: 1.1 percent). Most of this growth is expected to be from the manufacturing sector, especially E&E as new investments come online and exports shift to higher value-added segments, such as automotive components and parts for smartphones. The solar sub-sector should continue to gain, helped by the recent imposition by the US of anti-dumping duties between 18 and 35 percent on imported solar products from China and Taiwan. Moreover, E&E in Malaysia appears to have gained at the expense of Singapore and Thailand as the former economy restructures and the latter overcomes political turmoil. Nonetheless, these developments largely depend on the appetite for Malaysian exports overseas, especially household consumption in the United States. Renewed weakness in the global economy would dampen export demand, posing a significant downside risk. Moreover, agricultural commodity exports may continue to drag down volume growth, while values may decline further as the price of oil and other commodities is not expected to pick up meaningfully in the near term and LNG prices are expected to decline further in 2015 given the lag in oil prices. Overall, Malaysia's exports are expected to converge to the global trade average by this year (Figure 26). Upsides to this forecast would largely depend on the

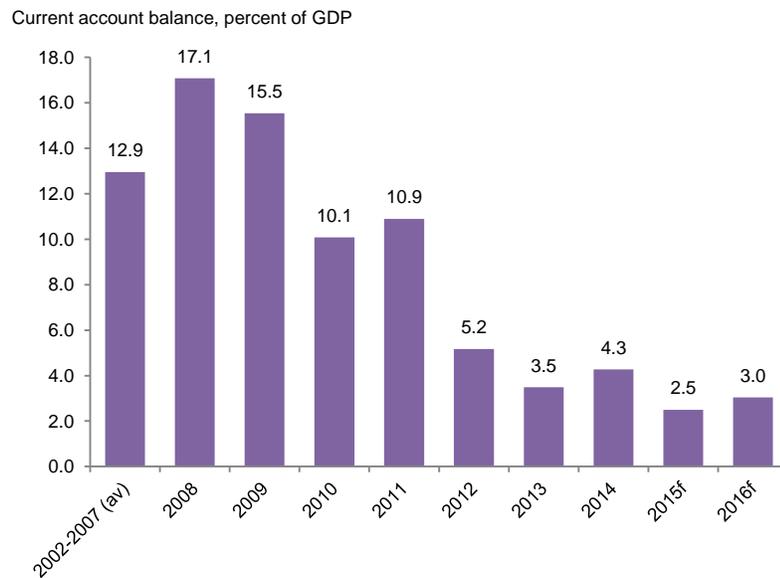
<sup>7</sup> Unless noted otherwise, all GDP forecasts are from the January 2015 Global Economic Prospects (World Bank 2015a).

trajectory of advanced economies and on the pace with which new export-oriented investments in mining, E&E and services start to come online.

**34. The current account is expected to remain in a small surplus in 2015 despite BoP revisions and commodity price pressures.** The current account surplus is expected to narrow from 4.3 percent in 2014 to 2.5 percent of GDP in 2015 before picking up slightly to 3.0 percent in 2016 (Figure 27). Previously, the current account surplus was estimated at 4.6 percent of GDP in 2014 and projected to decline to 3.1 percent in 2015 and 3.4 percent in 2016. These changes are largely due to the exclusion of goods for processing from exports, which reduces the size of the net goods and services balance and statistical revisions to primary income account data as well as the higher nominal GDP denominator resulting from the rebasing of national accounts to 2010 prices (see

**35. Box 1).** Besides the impact of these revisions, the current account surplus is expected to take a hit in Q2 '15 as LNG prices decline further due to pass-through effects from the five-month lag to oil prices. In fact, LNG exports contracted by 40.1 percent y/y in April largely due to a price decline of 29.4 percent. The possibility of an upside based on gas prices being locked to pre-determined price floors/ceilings in long-term contracts therefore appears unlikely. Moreover, the renewed weakness in exports in the April data, strong investment pipeline and expected rebuilding of inventories will continue to exercise pressures on the current account in 2015-2016, especially as large-scale investment projects under the RAPID program ramp up, the construction of new MRT lines, and the Kuala Lumpur-Singapore high-speed rail begins. Policymakers have so far signaled their commitment to these projects despite the weaker exchange rate.

**Figure 27. The current account is expected to remain in a small surplus.**



Source: CEIC, DOSM, and World Bank staff projections

## Domestic demand to remain the key driver of growth

**36. Despite a weaker than expected performance in 2014, fixed investment should continue to make an important contribution to growth.** GFCF is expected to expand by 5.3 percent in 2015, further picking up to 5.5-5.6 percent in 2016-17. Private investment will be a driver of growth, particularly the construction sector, which remains supported by demand driven by robust gains in household incomes. Given that commitments to planned infrastructure investments and development expenditure overall have not wavered so far, public investment is expected to resume a growth trajectory, particularly as construction of new MRT lines, extension of the LRT and other infrastructure investments related to the RAPID refinery ramp up in 2H2015. The 2015 forecast of GFCF growth has been downgraded from a year ago (when it was 7.0 percent) due to the unfavorable exchange rate, which will exert downward pressure on machinery investment, and lower oil prices that will likely lead to delays in capital expenditures in the oil and gas sector.

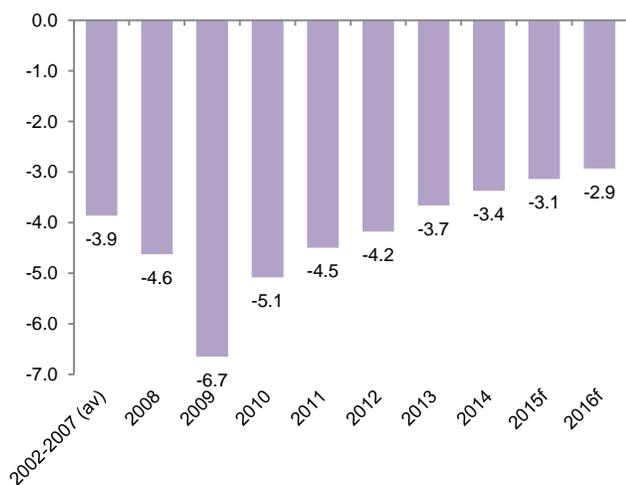
**37. The near-term outlook for private consumption is uncertain in light of the introduction of the GST.** Following a strong first quarter, payback is expected in private consumption for the rest of the year as the impact of the GST and further credit moderation becomes fully manifest, but there is significant uncertainty around the magnitude of these effects. Overall, private consumption is expected to expand by 5.9 percent in 2015 and contribute 3.1 percentage points to growth. As consumers adjust to new price realities into 2016 and as wage growth remains firm, private consumption should rebound to 6.4 percent in 2016. Muted prospects for agricultural commodity prices should continue to limit purchasing power of smallholder households that have high marginal propensity to consume, while household credit growth should continue to moderate in response to the lagged effect of the tightening in macro-prudential regulations. Strong labor markets and BR1M cash transfers partly mitigate these effects, and monetary policy is likely to remain supportive, limiting the deceleration of credit growth.

## Fiscal reforms have increased resilience, but significant challenges remain

**38. The implementation of GST and fuel subsidy cuts helped Malaysia weather the oil price shock, but Malaysia's fiscal space remains constrained in the medium-term.** In the recently-announced 11<sup>th</sup> Malaysia Plan, the Government targets a deficit of 0.6 percent of GDP by 2020, implying a pace of consolidation of about 0.5 percentage points per year starting in 2016. While a partial recovery of oil prices in 2015 will help achieve and even exceed this year's deficit reduction target, going forward efforts will have to be stepped up as oil prices are not projected to reach USD75 a barrel until 2021 (World Bank 2015a) and oil production is not expected to increase further as new fields only replace aging ones. This 'new normal' of lower crude oil prices will constrain oil-related revenues in 2016-20. Even under the lower oil price assumptions of the revised 2015 budget, over a fifth of revenues remain oil-related, including a large yearly dividend from national oil company PETRONAS that remains only loosely linked to the company's profits. As oil prices stabilize at lower levels compared to the previous five years, PETRONAS is likely to slash the size of its dividend in 2016-2017, posing a challenge to the Government's consolidation efforts and highlighting the need to focus on continued expenditure consolidation and boosting of non-oil revenues.

**Figure 28. The federal balance is expected to improve**

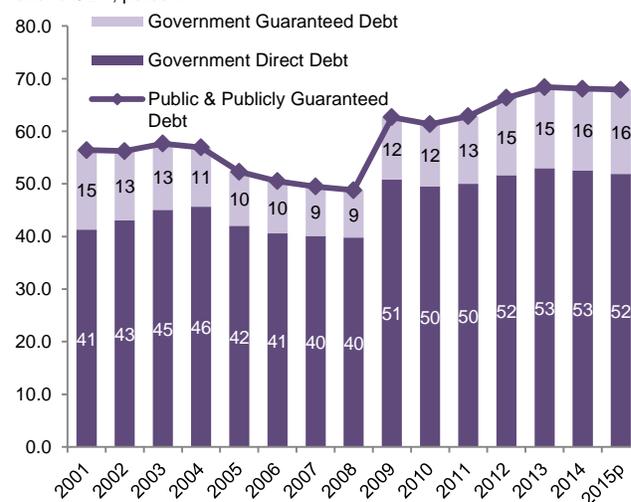
Balance of the Federal Government, percent of GDP



Source: CEIC, MoF, and World Bank staff calculations and projections

**Figure 29. Debt levels are expected to stabilize**

Ratio to GDP, percent



Source: CEIC, MoF, World Bank staff projections

**39. Further gains in fiscal consolidation will have to come largely from a tighter rein on operating expenditures.**

Meeting fiscal targets will heavily depend on the Government's intention to rein in operational expenditure, for example reducing overspending on emoluments (5 percent in 2014). The recently-announced freeze in public sector hiring can enhance fiscal sustainability if enforced, but a more strategic approach to civil service management may be even more effective. Significant upside to tax revenues other than GST is unlikely considering lower oil prices and additional personal and corporate income tax cut coming online. The revenue-to-GDP ratio is thus projected to decline further to 18.7 percent in 2015. Looking forward, revenue gains from the GST are possible, including through

reviewing exempted and zero-rated items or adjusting the rate (see Special Issue Note A). The government could also consider following the elimination of fuel subsidies with a fuel tax (including applying GST to RON 95 and diesel). This would not only generate significant revenues but also promote use of public transport and a cleaner environment (see Chapter 3).

**40. Debt levels are expected to stabilize amid slower consolidation.** The ratio of federal government debt to GDP is expected to decline slightly to 52 percent in 2015, while contingent liabilities are also expected to remain at 16 percent of GDP (Figure 29). Long-term fiscal sustainability will require continuing on the path of consolidation, while carefully monitoring and managing contingent liabilities and other sources of fiscal risk.<sup>8</sup> In particular, the likelihood of the Government stepping in to pay back the bonds it guaranteed to MRT appears high, requiring adequate provisioning for debt service and exploring additional revenue sources for large transport projects such as MRT 2 and the Kuala Lumpur-Singapore High Speed Rail, as discussed further in Chapter 3.

**41. Monetary policy is likely to remain accommodative of growth though Bank Negara Malaysia remains watchful of potential financial imbalances in the economy.** Judging by the latest Monetary Policy Committee statement in May, BNM expects the domestic economy to remain on a “steady growth path” as fixed investment maintains momentum and compensates for weaker consumption on account of the GST. This stance is expected to hold, although a softer than expected second quarter and lower than expected inflationary pressures could lead BNM to cut rates at the next MPC meeting in September. Nevertheless, monetary policy levers remain limited as interest rate differentials between Malaysia and the US are expected to narrow.

## Risks to the near-term remain elevated as challenges lie ahead

**42. Malaysia faces a challenging year ahead as tighter domestic conditions and volatility in the external environment sway the balance of risks to the downside.** Domestically, the impact of fiscal consolidation (subsidy cuts and introduction of the GST) is yet to fully materialize and the full extent of the impact on domestic demand remains uncertain. The divergent growth momentum in advanced economies – especially concerns about a downturn in the Eurozone and Japan while higher US growth prompts rate hikes – coupled with weakness in other major emerging markets suggest that the global recovery will be slow-moving at best. The trend deceleration in China also poses challenges as it is accompanied by a change in the composition of demand: investment may be decelerating (and reducing demand for industrial metals for example), but consumption growth remains robust. Whether Malaysia can position itself to benefit from a larger Chinese consumer market is a key question going forward. Overall, risks to the relatively benign export growth outlook are significant.

**43. The full impact of lower oil prices may also not yet have completely materialized, and there are risks of further price declines.** With respect to investments, PETRONAS’ 14 percent growth in investments in 2014 is unlikely to be repeated for the next several years while the oil-price induced depreciation of the ringgit may also have a lagged effect on import-intensive investments. Fuel prices may decline further, especially to the extent natural gas prices mimic the trajectory of crude oil with a lag. This would suggest a further decline in prices in the order of 5-10 percent in the next five months. This could lead to increased pressures on the current account, although these should be considered in light of the continued expansion in investments, which will help sustain long-term growth. Moreover, fiscal and monetary policy space to react to a new shock is constrained by the Government’s commitment to fiscal consolidation and the weaker exchange rate in light of possible normalization of monetary policy in the US.

**44. The full impact of normalization of US monetary policy on Malaysian financial markets is also yet to be felt and simultaneous deleveraging across households and the corporate sector is a significant risk.** Malaysia has enjoyed a large presence of foreign investors in its bond market as well as access to low-cost external funding to its banks, which supported domestic credit growth. Although portfolio outflows have been contained for now, higher U.S. interest rates and an appreciating U.S. dollar, along with diverging monetary policy paths across advanced economies, could raise borrowing costs, generate financial volatility and reduce capital flows in the second half of 2015.

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<sup>8</sup> Contingent liabilities include contingent commitments under PPPs and government guarantees, among others. Non-debt liabilities include unfunded pension liabilities and non-contingent commitments under PPPs such as capital leases.



### Box 1: Updates and improvements to Malaysia's national accounts and balance of payments statistics

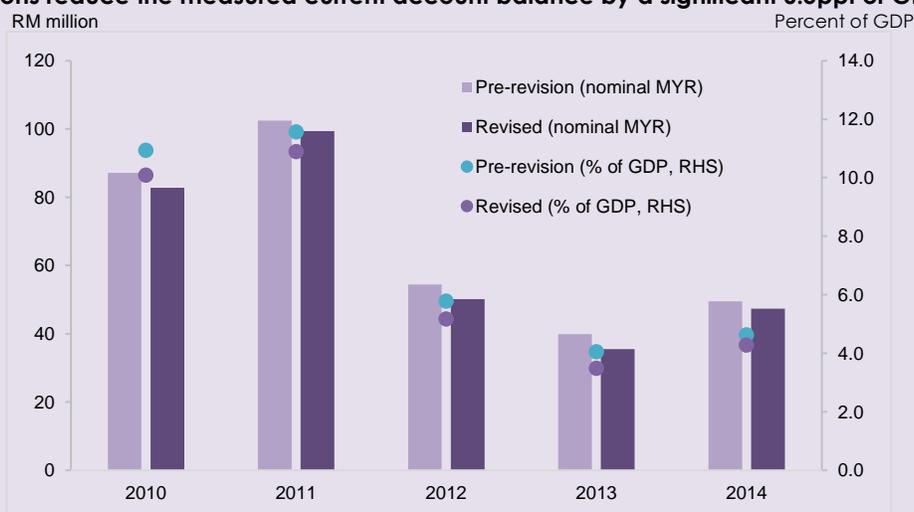
Recent data releases for the first quarter have incorporated a number of important updates and methodological improvements. Malaysia's Department of Statistics has updated the year used for the computation of national accounts statistics from 2005 to 2010. This "rebased" of GDP is in line with best practice under the latest international guidelines (System of National Accounts, SNA, 2008), and is necessary to incorporate the changing structure of the economy. In addition, a number of methodological improvements in estimating GDP have been applied.

**Table 3: Statistical revisions and methodological changes result in generally modest changes, though larger differences in the current account**

Year=2014	Old base (2005 = 100)	Rebased (2010=100)	Difference
GDP at current prices (RM million)	1,070,008	1,106,580	36,572
GNI per capita (RM)	34,123	35,334	1,211
GNI per capita (USD)	10,426	10,796	370
Fiscal deficit / GDP (%)	-3.5	-3.4	0.1
Public debt / GDP (%)	54.3	52.6	-1.8
Household debt / GDP (%)	87.9	86.8	-1.1
Federal Government debt / GDP (%)	54.5	52.7	-1.8
External debt / GDP (%)	69.9	67.5	-2.3
Current account (RM million)	49,508	47,317	-2,190
Current account balance / GDP (%)	4.6	4.3	-0.4

Source: DOSM, BNM

**Figure 30: Revisions reduce the measured current account balance by a significant 0.5ppt of GDP on average**



Source: DOSM, World Bank Staff Calculations

The updated estimates show that Malaysia's economy is about 3 percent bigger than previously estimated – not an enormous difference, but enough to affect the many key economic indicator ratios that use GDP as a yardstick. Changes in the estimated rate of economic growth in recent years are not significant (Malaysia recorded a compound average annual growth rate of 5.4 percent from 2010-2014). The share of services in the economy is a little lower and of agriculture a little higher.

Perhaps the most significant change is the improved method in the balance of payments statistics, which have been revised to incorporate more of the latest international standards (under Balance of Payments Manual, BPM, 6, which Malaysia has already largely adopted), including more careful treatment of goods for processing (GFP);

the revised method avoids double-counting in the recorded trade flows of certain processed goods, notably including electrical and electronic (E&E) products which are an important part of Malaysia's trade. The revision results in both exports and imports being lower by 5-6 percent per year. This reduces the goods trade surplus, and hence the current account balance on the order of 0.5 percentage points of GDP, a significant change.

In general, however, these changes are not large enough to prompt a reassessment of recent economic conditions or the outlook for Malaysia. This is in contrast, for example, to Nigeria, where GDP revisions released in April 2014 approximately doubled the estimated size of the economy (in the region, Thailand and Indonesia have also recently revised their national accounts). Even so, the update is a useful reminder to analysts and all stakeholders that while key economic statistics such as GDP and current account flows provide vital information, they are only "snapshots" of the complex, rapidly-changing economy; reducing errors and improving measurements is an ongoing process.

Source: Authors, DOSM, BNM.

## A. Value-added taxes: boon or bane?

**45. A value-added tax (VAT) is a tax on the value added by a firm to a product or service that it purchases from other upstream entities between its production and final sale.** It is collected through a staged process on the value added at each stage of production and distribution. First implemented by France in 1954, VAT has proliferated rapidly throughout the world partly because of its adoption by the EU and its promotion by the IMF in developing and transition economies (Ebrill et al, 2001). To date, more than 160 countries including all OECD countries (except the United States) and many developing countries have some form of a VAT scheme. In many countries, including Malaysia, the VAT is known as a Goods and Services Tax (GST).

**Table 4: More than 160 countries around the world have a GST/VAT**

Region	Number of countries with a VAT	Highest tax rate	Lowest tax rate
Europe	51	Hungary (27%)	Jersey, Channel Islands (5%)
North & Central America, Caribbean	19	Dominican Republic (18%)	Canada (5%)
Middle East and Africa	46	Madagascar/Morocco (20%)	Nigeria (5%)
Latin America	12	Uruguay (22%)	Paraguay (10%)
Oceania	8	New Zealand, Fiji, Samoa and Tonga (15%)	Niue (5%)
Asia (excl. ASEAN)	20	Uzbekistan, Tajikistan and Turkmenistan (20%)	Taiwan (5%)
ASEAN (excl. Malaysia)	7	Philippines (12%)	Thailand/Singapore (7%)

Source: Customs Malaysia website, PwC (2014), Crowe-Horwath (2014) and OECD (2014)

Note: Information is current as of 1 January, 2014. Rates refer to standard national VAT rates only.

**46. In April 2015, Malaysia became one of the last countries in ASEAN to impose a GST.** With an introductory rate of 6 percent, the GST replaces sales taxes of varying rates up to 10 percent and a service tax of 6 percent. The GST is expected to raise revenues of RM22.7 billion or 10 percent<sup>9</sup> of Malaysia's total revenues in its first nine months of implementation in 2015. The GST's significance is expected to rise over time and help to reduce the country's reliance on crude oil revenues; it is thus an important step towards Malaysia's aim of achieving a fiscal deficit of 0.6 percent of GDP in 2020.

**47. This note briefly discusses international experience with the VAT/GST<sup>10</sup> and relates it to Malaysia's experience.** The note examines the rationale for adopting GST, provides an overview of design considerations and the implications of some of those choices, and discusses the challenges in implementing the GST. Although it is early days yet for Malaysia's GST, the note concludes with some options that may enhance the scheme's effectiveness in the medium to long term.

## Why do countries adopt GST?

**48. The VAT/GST is viewed as a more efficient way to mobilize revenues for three reasons, the first of which is to avoid cascading and reduce distortions.** Compared to other indirect<sup>11</sup> or sales taxes, the GST avoids 'cascading' –i.e. where taxes are applied twice to any ingredient of the final product or service. The GST often replaces single-stage taxation systems, where the cascading effect is common because the tax generates a series of distortions from the first stage of production to the last stage of retail sales distribution (Le, 2003). This was the case with Malaysia's

<sup>9</sup> These figures refer to estimated gross revenue from the GST. After discounting revenue foregone from the abolished sales and services taxes, net revenue from the GST is estimated to come in at RM1 billion in 2015.

<sup>10</sup> The terms are used interchangeably in this note.

<sup>11</sup> Consumption taxes such as VAT, sales taxes and excise duties are often categorized as indirect taxes since they are not levied directly on the person who is supposed to bear the burden of the tax. Rather, they are imposed on certain transactions, products or events (Source: OECD Glossary of Tax Terms).

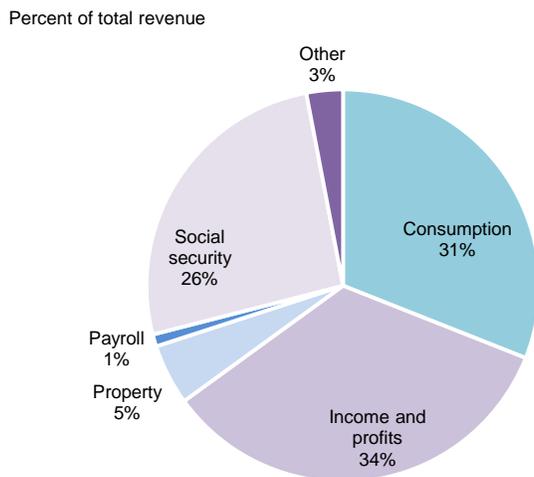
previous sales tax and service tax. These distortions encourage tax evasion and collusion among buyers and sellers, and consequently affect the potential of the tax to generate revenues. By contrast, the GST system is based on invoices that are passed from the trader to the purchaser which can be cross-checked to identify any exaggeration of tax refunds, hence discouraging evasion.

**49. Second, the GST may be less prone to leakages compared to the taxation systems that it replaces.** In single-stage sales taxation systems where the tax is only collected at one stage of the value chain, firms that manage to slip out of the tax net will affect revenue collection. By contrast, in GST, even if revenues are missed in one stage, they are collected in other stages and is thus less risky in terms of revenue leakage (Le, 2003). This effect however largely depends on the specific characteristics of the taxes that the GST replaces in a particular country and their associated compliance/administrative costs.

**50. Third, the GST could broaden the tax base and bring more firms into the tax net.** Because the GST is applied across a wide range of goods and services, its implementation expands the number of taxpayers in a country and makes it more difficult for firms to evade paying taxes. Firms along the entire supply chain also have to maintain tighter control of a trail of invoices in order to claim input tax credits, which results in a larger number of firms being registered and provides more incentives for formalization. Once firms are registered, tax authorities can cross-check GST filings with other filing and reporting on other taxes such as corporate income tax and personal income tax.

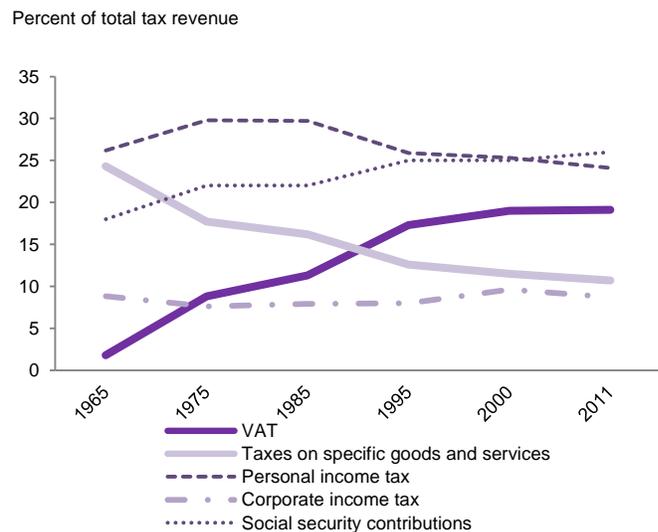
**51. While there are other mechanisms to raise revenue, the GST is seen as an important instrument towards fiscal consolidation because it is less distortionary.** The OECD views the GST as relatively growth-friendly – i.e. it does not distort savings, investment and work incentives as much as corporate or personal income taxes (OECD, 2014). Indeed, the GST has become an increasingly important source of revenue for governments. GST is the largest source of taxes on general consumption, which account for about a third of total revenue across OECD economies (Figure 31). The share of GST as a percentage of total tax revenue rose from 5 percent in 1970 to nearly 20 percent in 2011, or 6.6 percent of GDP (Figure 32). It is now the third largest source of tax revenue on average, ahead of corporate income taxes, payroll and property taxes.

**Figure 31. Consumption taxes account for a third of total revenue in OECD economies**



Source: OECD Consumption Tax Trends (2014)

**Figure 32. VAT accounts for nearly a fifth of total tax revenue in OECD economies**



Source: OECD Consumption Tax Trends (2014)

**52. Introducing a GST regime has a positive, but relatively small long-run effect on tax collections.** In a study involving 146 countries over 26 years, Keen and Lockwood (2007) conclude that the effect of introducing a VAT/GST on total revenue yield is statistically significant and modestly positive, and is correlated with a long run increase of approximately 4.5 percent in the revenue-to-GDP ratio. The gains appear to be greater in high-income and more open economies, perhaps due to the stronger capacity to implement and administer GST in these economies. The

effects of a GST in a particular country largely depend on the intricacies of the GST design. The implications of these design choices are also important in ensuring that the GST achieves its intended effects on the economy.

## Introducing the GST: choices on rates, scope and registration thresholds

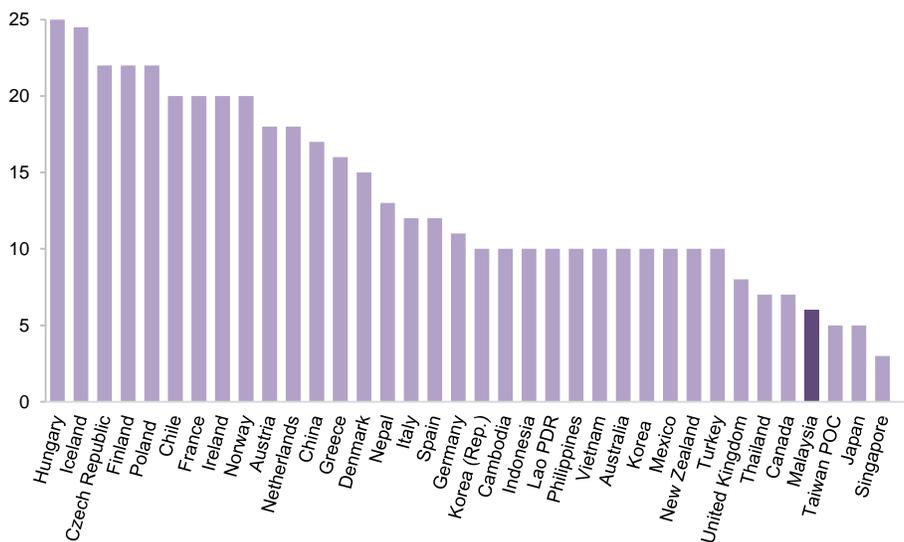
**53. The design of a GST given a particular country context is key to its successful implementation.** Some important decisions that countries have to make when it comes to designing and implementing a GST scheme are as follows:

- Origin vs. destination principle – should the tax be imposed at the point of consumption (zero-rating exports and taxing imports), or at the point of production (taxing exports and zero-rating imports)?
- How should the GST be computed – by addition, subtraction, or invoice-based credit?
- \*Standard rates and applicability thresholds – at what rate should the GST be set, and at what revenue threshold should it apply for businesses?
- \*Single rates vs. multiple rates of taxation – should there be reduced rates for certain groups, or should the same standard rate apply across the board?
- \*Scope – what products, firms and sectors should be exempted or require special tax regimes? Should goods and services be exempted outright, or be zero-rated?

The discussion below focuses on the issues marked with an asterisk, given their special relevance to Malaysia.

**54. Setting the introductory rate of the GST and its applicability threshold are important decisions that influence the acceptance of the tax and its potential to raise revenues.** Introductory rates that are too high will be politically difficult for various groups to accept, and may affect growth depending on the structure of the economy. For example, Ghana's first attempt at introducing a GST in 1991 failed partially because the introductory rate was set too high at 17.5 percent (though replacing a sales tax of 15 percent), coupled with an absence of strong political commitment to follow through with the tax. On the other hand, introductory rates that are too low may not raise sufficient revenues. Similarly, too-high thresholds exclude a large number of firms, which will narrow the tax base and affect revenue collection. By contrast, if thresholds are set at levels that are too low, small businesses (and tax authorities) would face excessive compliance costs. Low thresholds may result in higher instances of fraud and tax evasion.

**Figure 33: Malaysia's GST rate is one of the lowest at introduction compared to OECD and other Asian countries**



Source: OECD Tax Database and Malaysia GST website.

**55. There is no one-size-fits-all threshold or recommended rate, but Malaysia's introductory rate of 6 percent is on the lower end of the spectrum.** Compared to OECD and other Asian countries, Malaysia's GST rate is relatively low at 6 percent (Figure 33). Even China, which introduced a VAT in 1994 when it was still a low-income economy, started off at 17 percent. Malaysia may consider raising the GST over time (while also decreasing the administrative cost of the system); raising the GST rate to 10 percent would yield 3.1 to 4.4 percent of GDP in revenues, compared to 1.9 to 2.6

percent that it is expected to raise from the current rate of 6 percent (IMF, 2015). Although the applicability threshold for the GST (set above an annual taxable turnover<sup>12</sup> of RM500,000) appears high compared to peer countries, simulations indicate that lowering the threshold would not have a material impact on the revenue yield and would instead increase tax administration costs (IMF, 2015).<sup>13</sup> Moreover, the authorities exceeded their target of registered firms, which further suggests that the threshold is not too high – as of 11 June 2015, 380,313 firms have registered<sup>14</sup>.

**56. Several countries adopt multiple rates and introduce exemptions to minimize the inherent regressivity of the GST.** A GST, as with any other consumption tax, is inherently regressive in its purest form. Because lower income households consume more relative to their income, they pay a larger share of their income in taxes compared to their higher income peers. Therefore, the larger burden of a comprehensive regime with no exemptions and zero-rating (except on exports) falls on the lower income households. To mitigate these effects, countries often introduce reduced rates for certain groups of society or context-specific policies to ease the burden. One popular option is to zero-rate or exempt items that constitute a larger share of the consumption basket of lower-income households. For example, Canada, Australia and New Zealand exempt most basic food items.

**57. Malaysia took several steps to minimize the regressivity of the GST.** Anticipating a one-time level increase in prices following the introduction of the GST and aware of the distributional implications of the tax, the Government implemented several measures to dampen the impact of the GST on inflation and private consumption, especially for lower-income households:

- a) **A generous list of exemptions and zero-rated items:** To alleviate the burden on lower-income households, Malaysia gazetted<sup>15</sup> a substantial list of goods and services as exempt or zero-rated from the GST. Some of these exceptions are common in other countries, such as basic food items, sales and rental of residential and agricultural properties and certain private (health, education and financial) services. The list is long compared to countries such as Australia, which only exempts/zero-rates five categories of goods and zero-rates 20, as well as Singapore, which exempts 3 and zero-rates 4 categories (see Annex 1).
- b) **Bigger cash transfers to low-income households:** The Government increased the amount of BR1M cash transfers to households earning less than RM4,000 a month<sup>16</sup> in 2015 to help them cope with the anticipated rise in the cost of living due to the GST.
- c) **Greater enforcement of the Price Control and Anti-Profiteering Act:** The Ministry of Domestic, Co-operatives and Consumerism has upped its scrutiny of excessive price increases by traders, taking stern action against those who have indiscriminately used the GST as an excuse to unreasonably increase prices, especially of essential items.

**58. By contrast, the decision to reduce individual income tax rates exacerbated the regressivity of GST 'package'.** The Government reduced personal income tax rates 1 to 3 percentage points across all chargeable income bands with effect from YA 2015. While this measure is not uncommon in countries introducing GST, considering the small share of the labor force that pays personal income taxes and the fact that income tax payers are largely in the top 1/3 of the income distribution, this measure both led to reduced revenues but also reduced the progressivity of Malaysia's tax system, which was already limited as shown in the previous edition of the Malaysia Economic Monitor (World Bank, 2014a). As part of introducing the GST, the Government also reduced corporate income tax rates from 25 percent to 24 percent with effect from the year of assessment (YA) 2016. Considering that Malaysia's corporate income tax rates are higher compared to its neighbors, this move may improve the country's competitiveness.

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<sup>12</sup> Taxable turnover is the total value of taxable supplies excluding the amount of GST.

<sup>13</sup> One issue, however, is that CIT and GST thresholds are not aligned for small and medium enterprises. This could lead to distortions as enterprises try to game the system.

<sup>14</sup> The IMF (2015) warns that firms may register simply to claim input credits, so more registrations does not necessarily translate into higher revenues.

<sup>15</sup> The list of exempt goods and services was gazetted by the Government of Malaysia on 13<sup>th</sup> October 2014. Source: No. P.U. (A) 271 Goods and Services Tax (Exempt Supply) Order 2014 dated 13 October, 2014.

<sup>16</sup> The amounts were increased as follows: RM950 for households earning RM3,000 a month (previously RM650) and RM750 for those earning between RM3,000 and RM4,000 (previously RM450); RM350 for singles earning less than RM2,000 a month (previously RM300).

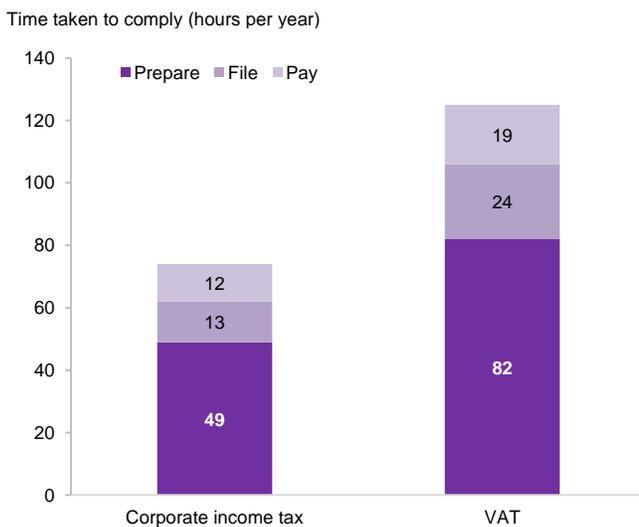
**59. International experience suggests that the most successful GST systems are simple, with one unified rate, few exemptions and zero rating exclusively on exports.** Multiple rates across different sectors and groups, in addition to exemptions and zero-rated items will erode the efficiency and potential of the GST to raise revenue, while increasing compliance and administrative costs, especially for small traders. Tait (1991) estimates that zero-rating food alone may reduce the VAT base by up to 40 percent. Exemptions also re-introduce the cascading problem that GST is meant to avoid. From a cost perspective, administrating a system with multiple rates and numerous exemptions is also extremely challenging. The administration cost of the VAT is estimated to increase by four times in a country where the GST is structured with two positive rates and multiple zero ratings (Cnossen 1994, cited in Ebrill et al., 2001). Le (2003) further warns that while various tempting rationales for exemption exist, in many cases the equity gains from these measures to reduce regressivity end up being outweighed by the efficiency costs (p. 43). In other words, Governments could more efficiently compensate for the regressive effects of GST through spending targeted at lower income groups rather than through different tax rates.

**60. Yet in certain select cases, difficult-to-tax groups or sectors of the economy may not be worth including in the tax net.** For example, the application of GST to small scale enterprises and farmers is difficult especially in developing countries where they constitute a large proportion of economic agents. Difficulties often result from the lack of education, adequate record keeping and administrative competence at the farm and firm level. In addition, revenue authorities in developing countries suffer from limited capacity to register such firms and handle their returns. As a result, farming and small enterprises in developing countries are usually either granted exemptions or covered under special alternate tax regimes. In addition, some economic sectors (e.g. financial, agriculture and housing) are commonly exempted from GST due to the administrative difficulties and/or financial costs involved in estimating the value added generated by these sectors. Le (2003) describes these difficulties in more detail.

### Post-GST introduction: inflation and compliance costs

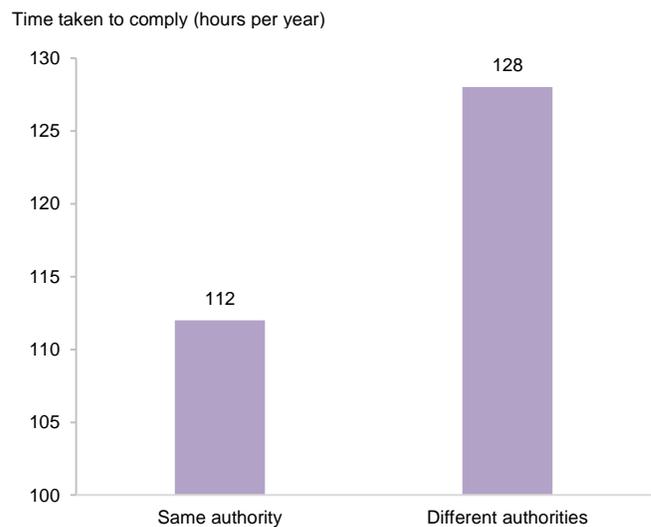
**61. One concern with introducing GST relates to the inflationary effects of the GST through second-round effects.** While there may be concerns that the initial price increase associated with GST introduction could lead to second-round effects on inflation, empirical evidence shows that GSTs have little or no effect on inflation even if a level shift in the price level is possible. In Malaysia, according to the estimates of the Central Bank, only 50 percent of the CPI basket is subject to the GST while 30 percent is zero-rated and 20 percent is exempt (BNM, 2015). Following the introduction of GST in April, the consumer price index increased only 0.9 percent. While further GST-related increases may have yet to materialize, the pace of the increase so far allays concerns of second-round effects.

**Figure 34. Firms take longer on average to comply with VAT compared to corporate income tax**



Source: Paying Taxes 2010, PwC analysis

**Figure 35. Time taken to comply increases when firms must go to different tax authorities**



Source: Paying Taxes 2010, PwC analysis

**62. Another concern is that the GST may result in high compliance costs for businesses especially SMEs.** The time and monetary cost involved in filing input tax claims (and training staff to do so) may be overwhelming for businesses, especially smaller firms and traders that do not have adequate resources or skills to cope. According to a World Bank/ PricewaterhouseCoopers study (2009), firms worldwide took 40 percent more time to comply with GST than with corporate income tax on average (Figure 34). Nonetheless, the time needed to comply with GST varies depending on the complexity of administrative procedures and filing systems. On average, it took firms 12 percent less time (16 hours) to comply with GST where the same tax authority administers both indirect and corporate income taxes (Figure 35). The average time taken to comply was also lower in countries where firms receive their tax refunds in less than three months.<sup>17</sup>

### Some options for enhancing Malaysia's GST

**63. Review the list of exemptions/zero-rated goods on a periodic basis.** To ensure that the GST fulfills its potential in strengthening Malaysia's medium term fiscal position, the Government should consider instituting a mechanism that regularly reviews the list of exempt and zero-rated goods/services to determine whether the rationale for the exemption is still there or not. Various groups<sup>18</sup> have already submitted proposals to exempt goods and services in addition to those that were already gazetted last year, and pressures are likely to intensify if there is no clear signal that these exemptions are not permanent. This review should be informed by regular incidence analysis to ensure that the impact of the tax on lower income groups is being offset by progressive spending.

**64. Consider aligning GST and corporate income tax thresholds.** Companies benefit from preferential SME corporate income tax rates if they have maximum paid-up capital of RM 2.5 million and receive preferential tax on the first RM500,000 of chargeable income. The Government may consider moving to a turnover tax for SMEs – namely those with sales below the GST threshold (and thus also aligning definitions with SME Corp and GST), and imposing a single-rate CIT for other firms. This should be especially feasible given the recent reduction in CIT rates.

**65. Although Malaysia has already taken a number of steps to reduce compliance costs<sup>19</sup>, it could consider going further by enhancing coordination between GST and income tax collections.** Currently, GST is handled by the Royal Malaysian Customs, whereas the Inland Revenue Board deals separately with income tax collections. This could affect GST productivity, especially if coordination between both agencies is not reinforced (IMF, 2015). Streamlining collections under a single window – if not under a single agency – would minimize duplication and administrative costs, as well as reduce compliance costs for businesses.

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<sup>17</sup> Some countries have come up with ways to speed up refund time and thus lower administrative costs – Hungary and Turkey, for example, use the banking system to pay out refunds, whereas Bulgaria sets up virtual VAT bank accounts for exports and imports.

<sup>18</sup> One example is the Health Ministry's proposal to exempt another 3,000 medicines (in addition to the existing 4,215) and 25,000 types of medical equipment.

<sup>19</sup> Businesses that register for the GST are eligible to receive accelerated capital allowances (ACAs) on the cost of information and communication technology equipment until YA 2016 to prepare for GST implementation. In addition, expenses incurred for GST-related training in accounting and ICT are given double deductions for tax purposes for the YAs 2014 and 2015.

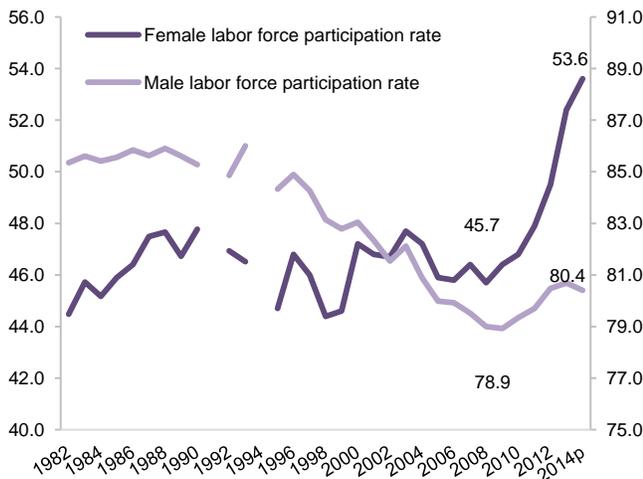
## B. Realizing the economic potential of women

### Women's labor force participation surged especially among women older than 30

**66. Women's labor force participation has increased substantially since 2008.** Labor force participation among women increased relatively rapidly in the 1980s, was volatile during the 1990s, and remained within a narrow range around 46-47 percent from 2000 to 2008. This stability reflected the higher labor market participation of women aged 25-39, as well as the lower participation by women under 25 who stayed longer in school to complete secondary and tertiary education. Since 2008, however, women's participation in the labor force has climbed nearly 8 percentage points to reach 53.6 percent<sup>20</sup> in 2014 (Figure 36).

**Figure 36. The percentage of women who started to participate in the labor force surged since 2008...**

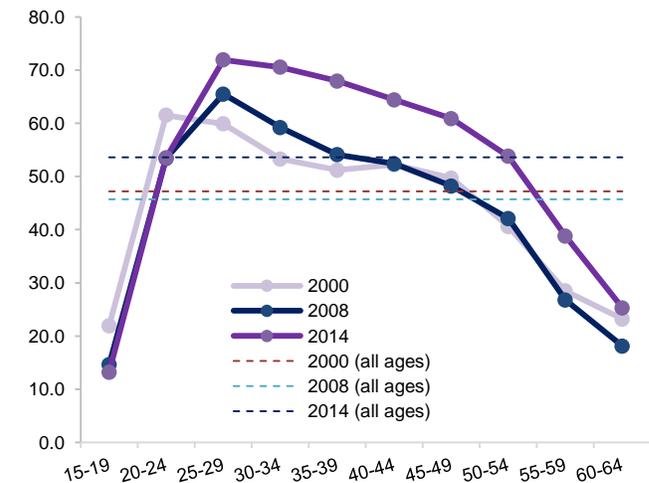
Labor force participation rates for women (LHS – primary Y-axis) and men (RHS – secondary Y-axis), percent



Source: DOSM Labor Force Survey (LFS), various years.  
Note: 2014 figures are preliminary and henceforth denoted as 2014p. The LFS was not conducted in 1991 and 1994.

**Figure 37. ...as middle-aged women are becoming more likely to stay in the labor market**

Women's labor force participation rate by age group, percent



Source: DOSM LFS, various years. World Bank staff calculations.

**67. Women in their 30s and beyond are beginning to participate more in the labor market.** The surge in women's labor force participation appears linked to a large increase in the number of women aged 30-50 years participating in the labor force (Figure 37)<sup>21</sup>. Notably, the share of women aged 35-39 in the workforce recorded the largest increase among all age categories, rising by nearly 14 percentage points from 2008 to reach 68 percent in 2014. The participation rates and patterns of women between 45 and 55 years old, which remained stagnant between 1990 and 2008, have also increased. In particular, the share of women aged 45-49 in the labor force increased by 12.4 percentage points between 2008 and 2014. This development could indicate that more women are choosing to stay in the workforce for longer and/or that more women are re-entering the workforce after rearing children.

### Higher levels of education and more services jobs were key drivers

**68. One reason for the increase is that women entering the labor market increasingly have post-secondary<sup>22</sup> education, and the share of younger women who do not participate because they are studying has stabilized at a high level.** Whereas between 2000 and 2008 the participation rate among women 15-24 declined as more women (and men) stayed longer in school before entering the labor market, participation for this age group stabilized between 2008 and 2014. Meanwhile, 55-57 percent of post-secondary enrolments for the past several years have been women and post-secondary enrolments have been rising, implying a higher share of labor market entrants had

<sup>20</sup> Preliminary findings from the 2014 Labor Force Survey, Department of Statistics Malaysia.

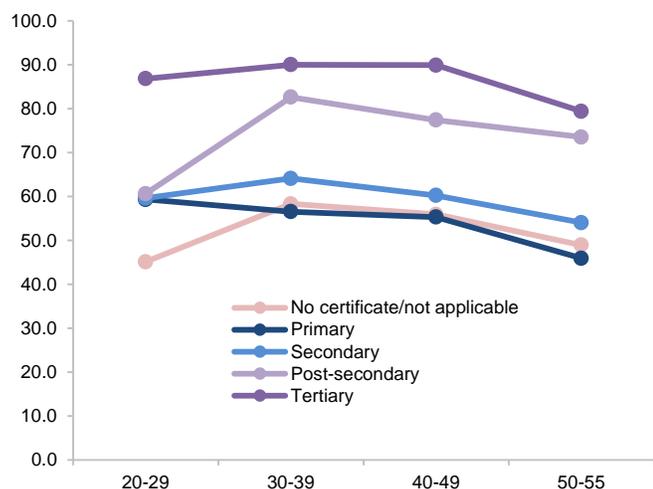
<sup>21</sup> Gains occurred across women of all ethnic groups, but Malay women recorded the largest increase in labor force participation as a number of women in their 30s and 40s joined the labor force.

<sup>22</sup> Refers to STPM (Malaysian Higher School Certificate), certificate and diploma level.

higher levels of education. Women with higher schooling qualifications are more likely to be in the labor force regardless of their age (Figure 38). The labor force participation gap among tertiary-educated Malaysian men and women is also much lower compared to other education levels (Figure 39). Therefore, with the participation rate for younger women aged 20-29 stabilizing, the entry of women who are more educated (and more likely to participate) led to increases in the participation of women older than 30, and an overall increase in participation rates.

**Figure 38. Highly educated women are more likely to participate in the labor force regardless of age...**

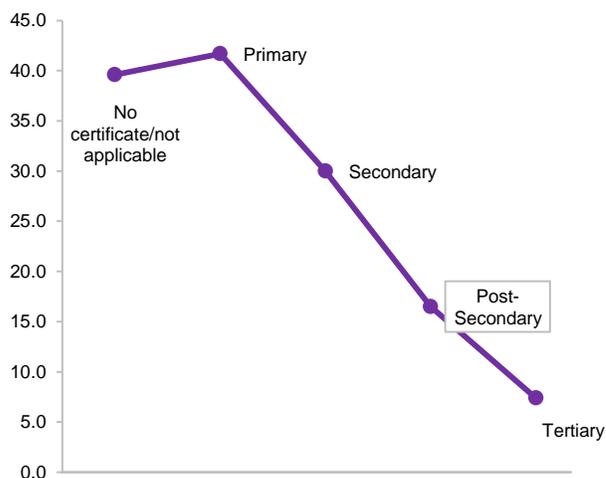
Labor force participation of women by educational level and age, percent



Source: DOSM LFS 2014p, World Bank staff calculations.

**Figure 39. ...and the gap in participation between men and women with tertiary education is low.**

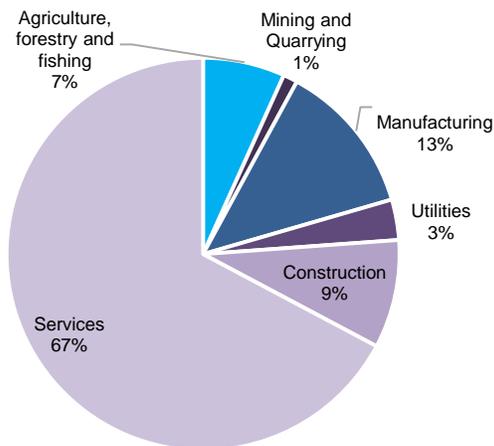
Difference in men's and women's LFP by highest level of education, percentage points



Source: DOSM LFS 2014p, World Bank staff calculations.

**Figure 40. Most jobs created between 2008 and 2014 were in the services sector...**

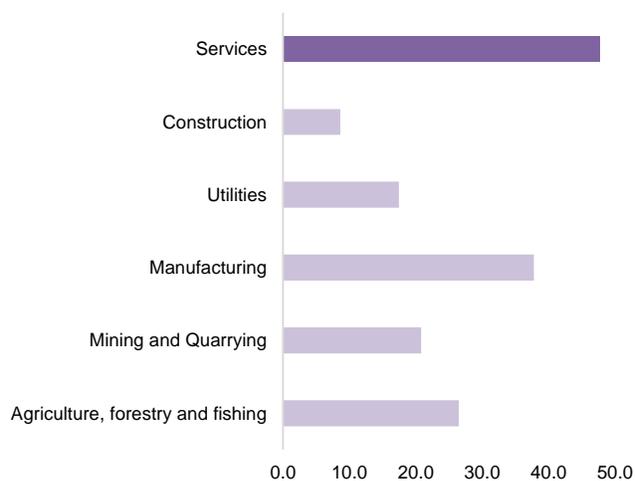
New jobs created between 2008 and 2014 by industry, percent



Source: DOSM LFS 2014p, World Bank staff calculations.

**Figure 41. ...where nearly half of the workforce are women.**

Share of women by industry, percent



Source: DOSM LFS 2014p, World Bank staff calculations.

**69. A second structural factor is that the economy has created more service jobs, which are more likely to be taken up by women.** Two-thirds of the jobs created between 2008 and 2014 were in the services sector where women comprise nearly 48 percent of the workforce (Figure 40 and Figure 41). In particular, the economy created over 1.1 million jobs in administrative and support services, health and education, where women comprise a large share of the workforce. This is in contrast to other sectors such as construction, where women comprise approximately 9 percent of the workforce and double the share of women working in manufacturing (38 percent). The flexible work

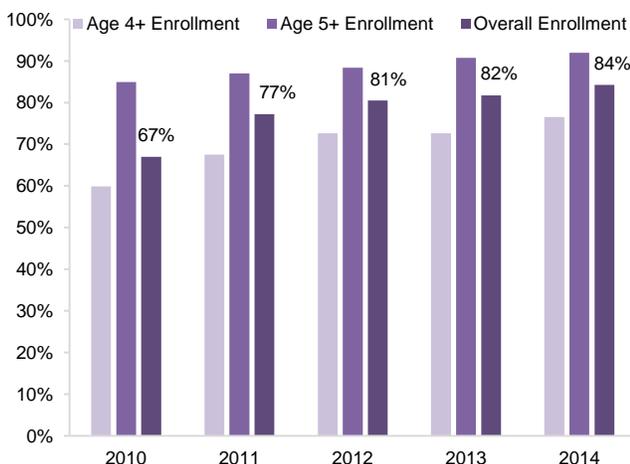
arrangements often afforded by services jobs, along with their less physically strenuous nature compared to other sectors may make them more appealing to women. Such occupational sorting is not unique to Malaysia; across OECD economies, the services sector accounts for 80 percent of employed women compared to 60 percent for men (OECD, 2012).

## Government policy has also been supportive

**70. Policies to increase pre-primary enrollments are likely to have supported the higher numbers of women entering the labor force.** A key challenge for women is the difficulty of reconciling family obligations and labor market activities (see discussion in World Bank 2012a, p. 53-54). To help ease the burden on working women and encourage more women to enter the labor force, in 2011-12 the Government began to partner with the private sector to scale up the provision of pre-primary education and child care facilities (see Table 5 for a summary of initiatives). The provision of launching grants and enhanced tax incentives to private operators contributed to a proliferation of private pre-schools, leading to an increase in enrollment rates of 4+ and 5+ year-olds in pre-primary schools by 17 percentage points over 2010 to 2014 (Figure 42). The number of newly registered childcare centers also increased by threefold in 2012-2013 from 2011, though the latter figure declined in 2014 partly due to regulatory efforts stemming from concerns over unlicensed operators (Figure 43). While the impact of these initiatives on women's labor force participation cannot be stated conclusively, they have likely enabled more Malaysian women to enter or re-enter the labor force.

**Figure 42. Enrollments in pre-school have increased...**

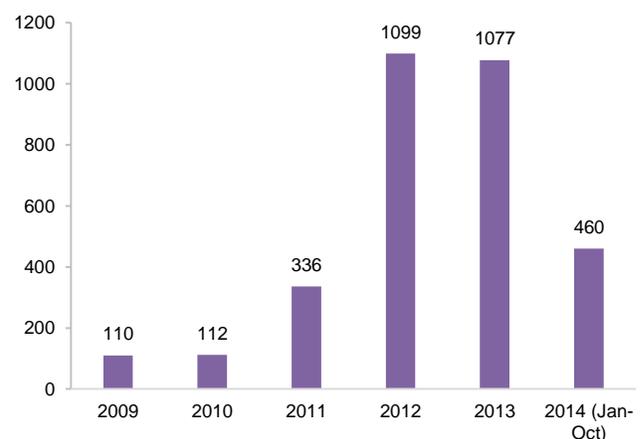
Share of 4+ and 5+ year olds enrolled in pre-school, percent



Source: Ministry of Education.

**Figure 43. ...as well as the number of childcare centers**

Number of newly registered childcare centers



Source: Ministry of Women, Family and Community Development.

Notes: The figures refer to new registrations and renewals. The registration validity period for childcare centres was extended to 5 years starting from 2009, compared to 1 year previously.

**71. Initiatives to incentivize employers to retain women at work and recruit female returnees to the labor force are also helpful.** As part of the flexWorkLife initiative managed by Talent Corporation (TalentCorp) and the Ministry of Women, Family and Community Development (MWFCD), Malaysia has offered double tax deductions<sup>23</sup> to firms that reemploy women and train them after career breaks since mid-2013. Similar incentives are also offered to companies that implement flexible work arrangements to help women reconcile family obligations and work. In March 2015, TalentCorp and MWFCD also began to offer 'Career Comeback' grants<sup>24</sup> to encourage companies to recruit female

<sup>23</sup> Double tax deductions can be claimed on the training cost of up to RM40,000 per woman.

<sup>24</sup> The 'Resourcing' grant offers co-funding of 75 percent of the cost incurred by companies that implement or enhance programmes/campaigns to recruit women returnees (up to a maximum of RM100,000); whereas the 'Retention' grant is given to companies that successfully recruit and retain female returnees for more than 6 months. Source: TalentCorp.

employees who have exited the labor force and retain these women returnees in their organizations. Apart from these financial incentives, the flexWorkLife.my portal provides guidance to employers on how to implement flexible work arrangements and facilitate diversity and inclusion in the workplace.

**Table 5: The Government has partnered with the private sector to increase pre-primary and childcare enrollments**

Initiative	Description		Beneficiaries and resources
Tax incentives for companies that provide early childhood care and education (ECCE) facilities/allowances	<ul style="list-style-type: none"> <li>• Double deductions on:                             <ul style="list-style-type: none"> <li>- Expenditure incurred for the provision and maintenance of childcare centres;</li> <li>- Childcare allowances given to employees.</li> </ul> </li> <li>• Additional benefits:                             <ul style="list-style-type: none"> <li>- Tax exemptions on statutory income for a period of five years;</li> <li>- Industrial Building Allowance at 10% annually for buildings used as kindergartens or childcare centres.</li> </ul> </li> </ul>		N/A
Launching grants and tax incentives for child care centers/pre-school operators (since 2013)	<ul style="list-style-type: none"> <li>• One-off grants ranging from RM3,000 to RM20,000 (depending on the type of pre-school centre and number of children served);</li> <li>• Tax exemptions at the statutory income level for 5 years;</li> <li>• Industrial building allowance with an annual rate of 10% for buildings used as pre-schools.</li> </ul>		To-date: 1720 private pre-school operators Total amount disbursed: RM20.66 million
Fee assistance for private pre-schools (since 2010)  *allowances for special needs children	Per Capita Income <sup>1/</sup>	Monthly Fee Assistance	To-date: 127,050 students Total amount disbursed: RM99.77 million
	Below RM500	RM75 (*RM300) <sup>2/</sup>	
	Below RM400	RM112.50 (*RM400)	
	Below RM300	RM150 (*RM500)	
Childcare Fee Assistance (since 2013)  *allowances for special needs children	Per Capita Income	Monthly Fee Assistance	To-date: 3,102 children Total amount disbursed: RM7.52 million
	Below RM700	RM150 (*RM200)	
	Below RM600	RM200 (*RM250)	
	Below RM500	RM250 (*RM300)	

Source: Ministry of Education

Notes:

1/ Refers to per capita income of father, mother or guardian, one of whom must be Malaysian.

2/ Figures in asterisks denote allowances for special needs children.

**72. Careful evaluations and cost-benefit analyses must be conducted to ascertain the effectiveness of these interventions in boosting women's labor force participation.** While the interventions described above are potentially effective, it cannot be assumed that they will have a positive and significant impact on women's labor force participation in their current form. The impact of subsidized childcare, for example, differs across countries depending on factors such as the availability and affordability of alternative childcare options. While in Colombia subsidies to childcare centers significantly increased mothers' participation in the labor force and the number of hours they worked, subsidized child care had negligible effects on childcare use and female participation in Norway as they crowded out existing informal arrangements (World Bank, 2012). It is therefore important to do a cost-benefit analysis of the different arrangements to ensure that current initiatives achieve the intended results. Similarly, the effectiveness of various tax incentives in retaining women in the workforce or reemploying women after a hiatus should be properly evaluated given the thin evidence on the impact of such schemes thus far.

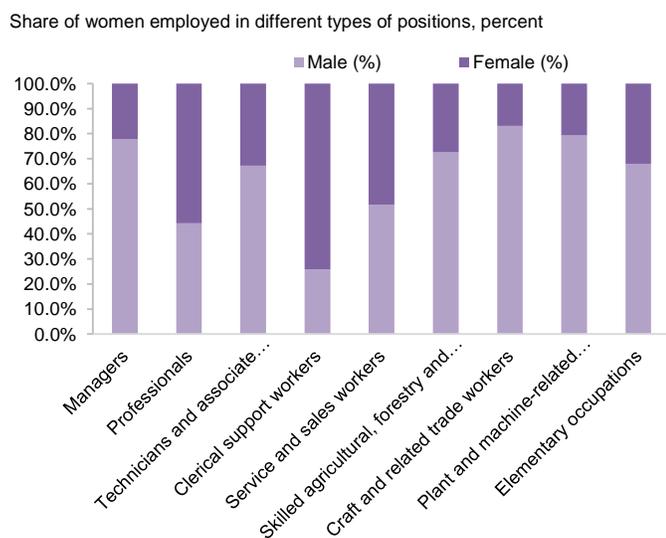
### Some challenges remain to fully unlock women's economic potential

**73. While current efforts to boost the presence of women in the workforce are in the right direction, greater attention to the role of gender norms is necessary to make lasting improvements in women's labor force participation.** According to the 2013 Labor Force Survey, 61.6 percent of female respondents excluded from the labor force declared that they did not work because they were engaged in 'housework', compared to only 2 percent of male respondents in the same category. Although this represents an improvement of 6 percentage points from the same survey in 2010, it

is evident that meaningful improvements in female labor force participation will not come from financial incentives alone, but from a deeper shift in cultural and social attitudes towards women's roles. Although norms take time to change, policies that are well-designed and implemented can help. Iceland, for example, offers parents a package of nine months of parental leave (with 80 percent of wage replacement) that requires mothers and fathers to take three months each and decide how to allocate the remainder. This policy has resulted in high paternity leave uptake among men with some promising changes in gender relations at home and in the workplace. Achieving the target of increasing female labor force participation to 59 percent by 2020 will require a similar shift towards norms of shared responsibilities for caring for the home, children or elderly.

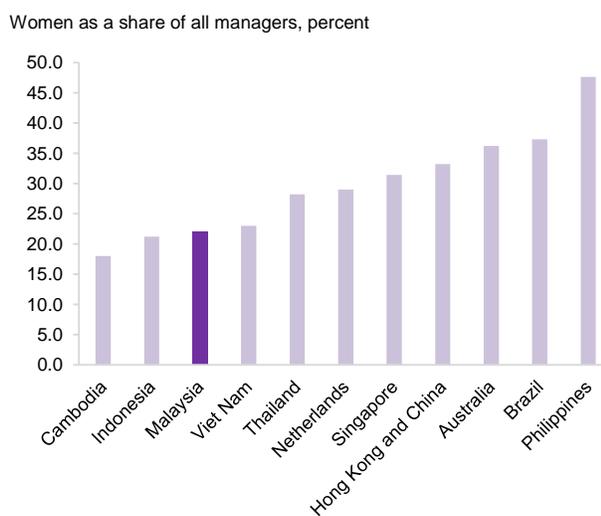
**74. Efforts to close managerial gaps and create role models should go hand in hand with a shift in norms and attitudes towards women's leadership.** Only 22 percent of all Malaysian managers are women (Figure 44) – equivalent to just 3.1 percent of the total number of women employed in the country. This figure is low compared to more developed countries such as Australia (36 percent) but also less developed ones such as the Philippines (48 percent) (Figure 45). While efforts<sup>25</sup> to increase the representation of women in decision-making roles are laudable, such initiatives will not be meaningful without deeper changes in the way that women are perceived in positions of leadership<sup>26</sup> – not only in business, but in politics and other spheres of society as well. Similarly, programs to encourage and train more women to become entrepreneurs and employers such as Azam Niaga, Women Entrepreneurial Incubator and 1Nita, while laudable in principle, are unlikely to be effective on their own without a greater effort to change norms about women's autonomy within the household. Ensuring that the education system does not reinforce gender stereotypes will help to create a supportive environment that nurtures and supports strong Malaysian women leaders from young.

**Figure 44. Women make up only about a fifth of all managers in Malaysia...**



Source: DOSM LFS, 2014p.

**Figure 45. ...a low share compared to several neighboring and other countries.**



Source: ILO Statistical Database (2014), DOSM LFS (2014p).

<sup>25</sup> The Government's target is to have 30 percent female participation on boards of publicly-listed companies by 2016 (in 2014 it was 8 percent) and is training potential candidates to fill these positions under the Strengthening Women Directors' Programme.

<sup>26</sup> Jogulu and Wood (2008) find that nearly a quarter of Malaysian female managers and more than a third of male managers do not respect the women in their respective organizations as leaders, compared with only 4 percent and 11 percent respectively in Australia.

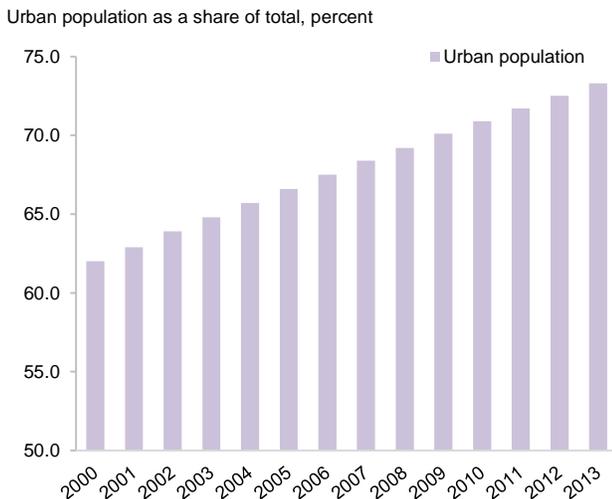
### 3. Transforming urban transport

#### Urban mobility is a key challenge to Malaysia's developed-nation ambitions

**75. Urbanization has been a key driver of Malaysia's success in economic growth and poverty reduction.** Urban areas are key drivers of growth, generating about 80 percent of global GDP, although accounting for only half of the world's population (Seto and Dhakal, 2014). Malaysia's high economic growth was similarly accompanied by rapid urbanization. In 1985, when Malaysia was becoming a middle income country, 46 percent of all Malaysians lived in cities; today, nearly three quarters do. Urbanization has continued to steadily increase since 2000, going from 62 percent then to 73 percent now (Figure 47). The movement to cities has boosted income levels through increased productivity, enabled the increasingly dominant services sector of the economy, and has been a driver of poverty reduction and income growth of the bottom 40 percent.

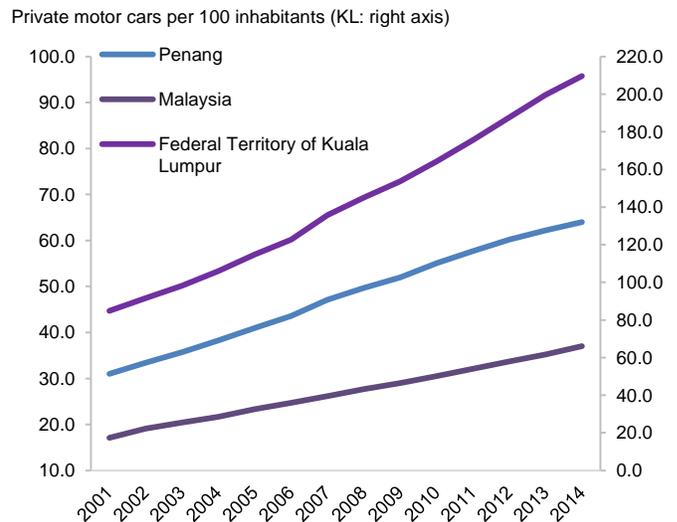
**76. Yet growing challenges in urban mobility dampen the benefits of urbanization and threaten Malaysia's ambitions of becoming a sustainable and inclusive high-income nation.** Central to realizing the benefits of urbanization is the efficient movement of people and goods. In Malaysia, increasing levels of road congestion in large and medium-sized cities alike; insufficient availability of public transit options as an alternative to car use for urban mobility needs; low levels of public satisfaction with available public transport service provision; and rapidly changing expansion of the urban fabric of cities, commonly referred to as urban sprawl, hamper movement and threatens the gains from urbanization. While Malaysia is far from alone in facing this set of issues – most middle income countries face them as well – Malaysia's exceptionally high motorization rate (Figure 47) and relatively low supply of public transport makes this a particularly urgent challenge towards meeting the country's three-pronged national goals of high-income, sustainability and inclusiveness.

**Figure 46. Malaysia's urbanization rate has been steadily climbing over the past 13 years**



Source: World Development Indicators

**Figure 47. Car ownership has increased in tandem**



Source: Social Statistics Bulletin Malaysia, DOSM  
Note: 2014 population is estimated.

**77. Meeting those challenges will require a transformation to the way in which urban transport is planned, delivered, and managed across Malaysian conurbations<sup>27</sup>.** Current trends in car ownership and use, public transport provision, urban transport planning, and land use planning in large (primary) and medium-size (secondary) cities in Malaysia, if left unchecked, have the potential to become unsustainable environmentally (through increased emissions of local pollutants and greenhouse gases), socially (through disconnected enclaves that rely primarily on private car use for access, at the expense of the portion of the population unable to afford or use cars), and economically (by losing

<sup>27</sup> A conurbation is an urban area comprising of several cities and towns that have grown and merged over time.

city competitiveness and attractiveness as cities become less livable and accessible). In view of this, planning for better connectivity within cities with well-integrated road networks and mass transit systems is not only important towards tackling Malaysia's urban mobility challenges, but also to contribute towards creating more productive, socially inclusive, resilient and cleaner cities. Business as usual where planning for private (roads) and public (rail, bus) transport is done separately and in a centralized manner will be hard-pressed to deliver on these challenges. A new approach to urban transport planning, delivery and management is therefore called for.

**78. Planning and delivery are the key bottlenecks to improving urban transport.** In Malaysia, no single government agency has the authority to plan and deliver solutions for urban mobility across all relevant dimensions, namely modes (e.g. public and private transport), and levels of government and administrative and geographical boundaries. SPAD has been given jurisdiction over land public transport only, expressly excluding private (e.g. car-based) transport planning, which at the national level is under the jurisdiction of (primarily but not only) the Ministry of Works (MoW). This means, in practice, that urban roads and trunk highways are planned and delivered with limited coordination with transit planning, despite the supply-demand interdependence between public and private transport modes.

**79. In addition, there are ample additional opportunities to further increase the appeal of taking public transport compared to driving.** While the elimination of fuel subsidies has been an important step, energy pricing reform can move further by considering a number of taxes and charges related to the transport sector in Malaysia that would address the externalities of private vehicle use (and thus discourage it) while providing funding sources for public transport. This can be most effective if implemented as part of the empowerment of metropolitan-level lead transport agencies that are funded and tasked to provide integrated planning and management of urban transport.

**80. The newly-launched 11th Malaysia Plan (11MP) emphasizes urban transport.** The 11MP (2016-2020) reinforces the importance of building an "integrated, need-based transport system" by enhancing connectivity across modes<sup>28</sup> and regions. It reinforces the target for the market share of public transport (known as the "modal share") at 40 percent in the Greater Kuala Lumpur (GKL) area<sup>29</sup>, and 20 percent in other state capitals by 2020. Achieving this target will hinge on the delivery of ongoing rail and road-based projects such as the Klang Valley Mass Rapid Transit (MRT) system, but also "first-" and "last-mile" interventions to feed into the main trunk rail lines. Although specifics have yet to be revealed, it is also notable that the 11MP mentions plans to expand the transit-oriented development (TOD) concept in urban areas. As detailed later on in this chapter, successful implementation of TOD would enhance and leverage access to quality public transport, while attracting private investments for commercial and residential purposes.

**81. To improve the delivery and management of urban transport across its cities, Malaysia may consider prioritizing reforms that:**

- a. **Establish lead transport agencies at the metropolitan (conurbation) level** to oversee strategic and operational planning; infrastructure delivery and maintenance; and service delivery. Designating lead authorities would help to overcome some of the institutional issues that mar the effective supply/delivery of urban transport systems and ensure that they adequately match demand;
- b. **Introduce measures that manage the usage of private transport in heavily congested areas**, ensuring that these are streamlined with urban public transport policies;
- c. **Identify and implement sustainable financing options for public transport**, specifically considering fuel and other use taxes, and reviewing laws and regulations that may currently limit the value captured by the responsible agencies from transit-oriented development.

**82. This chapter is organized along six main sections: The first describes the status of urban transport in Malaysia**, noting it is characterized by high economic and welfare costs. **The second sets the broad policy and institutional landscape that underpins the current situation**, emphasizing the need for more integrated planning. **The third section considers in more detail two specific examples of urban transport planning and delivery**, focusing on Greater Kuala Lumpur.

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<sup>28</sup> Refers to different means of transport, e.g. buses, trains, cars, walking, etc.

<sup>29</sup> In this chapter the term Greater Kuala Lumpur is only used as shorthand for the urban region in and around the Federal Territory of Kuala Lumpur and thus does not necessarily refer to any particular boundary definition of the conurbation.

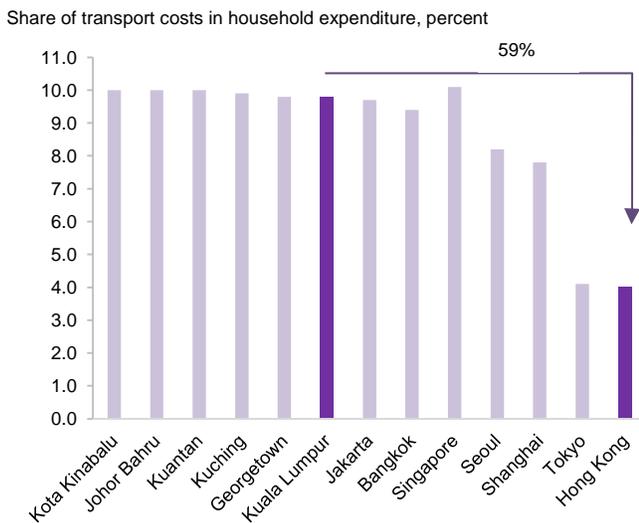
Lumpur and Greater Kota Kinabalu. **The fourth section reviews international best practice in urban transport planning and delivery, while the fifth section considers policy options for improving institutions for urban transport planning and management. The sixth and final section concludes with options for funding urban transport.**

## Extensive reliance on private transport leads to high costs

### Transport and congestion costs are high, leading to reduced well-being

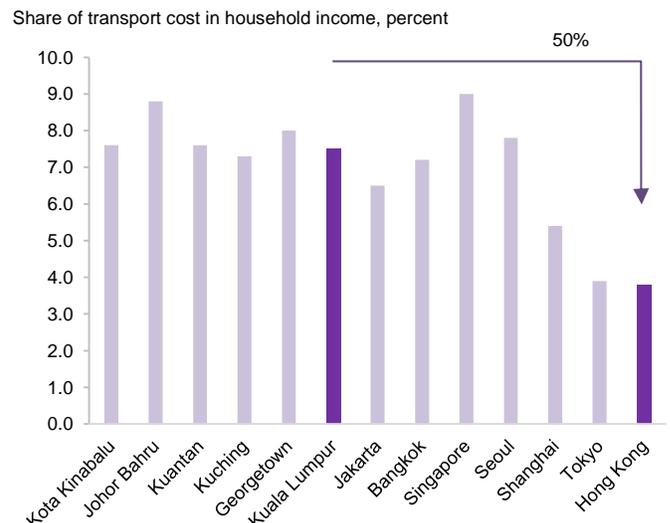
**83. Transport costs in Malaysian cities are high compared to other East Asian cities.** The share of transport expenditures in total household expenditure in Kuala Lumpur close to 10 percent, which is 59 percent higher than that in Hong Kong and Tokyo, and the share of transport costs in household income in Kuala Lumpur is 50 percent higher than that of Hong Kong and Tokyo (Figure 48 and Figure 49).

**Figure 48. Compared to other East Asian countries, Malaysian households spend a relatively large share on transport costs**



Source: Oxford Economics, 2012

**Figure 49. Transport costs are 50 percent higher in Kuala Lumpur than in Hong Kong and Tokyo**



Source: Oxford Economics, 2012

**84. Traffic congestion is especially severe in Kuala Lumpur but pervasive across Malaysian cities.** According to the Ministry of Works' Highway Planning Unit (HPU), 38 percent of federal roads in Peninsular Malaysia – many of which provide radial access into city centers – are classified as Level of Service E or F<sup>30</sup>, meaning that they are severely or extremely congested. In a World Bank survey<sup>31</sup> of Malaysian states conducted in 2014, 15 out of 15 states that responded stated the single most pressing challenge affecting the efficient movement of people (and freight) in their jurisdictions was traffic congestion. A third of all local urban roads, are “at capacity or extensively queuing”.

**85. Traffic congestion in the Greater Kuala Lumpur area alone costs Malaysia more than 1.1 percent of national GDP annually or over RM3,100 per resident.** Although rigorous estimates of the cost of congestion are beyond the scope of this chapter, a conservative attempt to quantify only a few components of economic losses due to congestion yields substantial figures between 1.1 and 2.2 percent of Malaysia's annual GDP. In general, costs of congestion include costs related to the following (World Bank 2014b):

- a) **Delays\*** – Costs related to travelers in slow-moving traffic
- b) **Reliability** – Time wasted due to changed expectation of average travel time

<sup>30</sup> Roads are classified according to Level of Service A to F. LOS A represents ‘free flow’; B and C ‘stable flow’ with slight or acceptable delays and ‘D’ approaching unstable flow with tolerable delays. ‘E’ and ‘F’ represent unstable and forced flows respectively, with intolerable delay or complete stoppage for long periods (Highway Planning Unit, Ministry of Works Malaysia).

<sup>31</sup> Survey respondents were representatives of State Planning Units (SPUs) and state-level officers of the Public Works Department (JKR).

- c) **Fuel\*** – Cost of excess fuel wasted when cars are not moving, or moving slowly due to traffic
- d) **CO2\*** – Economic cost of CO2 emissions
- e) **Road Safety\*** – Economic cost of accidents, including injuries and loss of life
- f) **Other emissions\*** – Health costs of emissions during traffic congestion
- g) **Vehicle operating cost** – cost of additional wear-and-tear (for example, due to stop-start driving)
- h) **Productivity** – economic cost of lost productivity of businesses and industries
- i) **Suppressed demand** – the economic cost of not making a trip to avoid traffic congestion

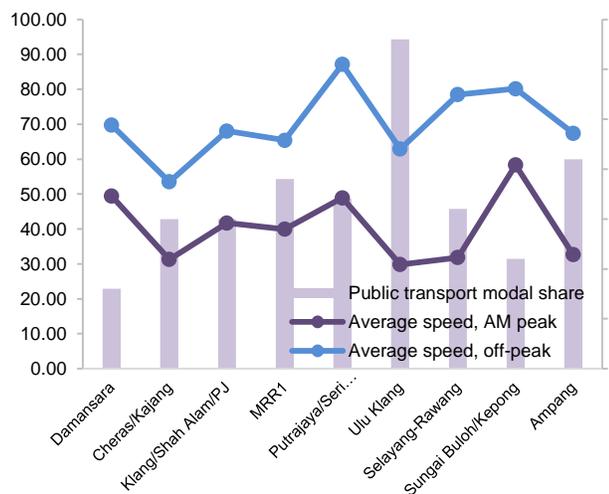
The estimates of congestion costs include only those categories marked with an asterisk above. The methodology is described in more detail in Annex I, but the basic ingredient are traffic delays measured by the crowd-sourced GPS navigator Waze as the difference in average speeds during peak and off-peak times (Figure 50), which are confirmed by another GPS-based data source (Figure 51). Key additional assumptions include:

- (i) the average trip distance (10-15km);
- (ii) the number of person-trips/day (8.3-10 million);
- (iii) average hourly wage for KL households that own a car (RM40.10);
- (iv) fuel used when idling (2-3 liters per hour);
- (v) fuel price (RM2.00 per liter); and
- (vi) tax correcting for environmental impact of additional fuel usage (RM2.20 per liter).

The estimate of 1.1 percent of GDP comes from using the lowest numbers of all these ranges, and as noted exclude reliability, vehicle operating cost, productivity and suppressed demand costs. If these costs were to contribute a similar share of total costs in Greater KL as in Cairo, Egypt (where a more detailed World Bank study estimated the full congestion cost at 3.6 percent of GDP in 2011), the cost would reach close to two percent of national GDP. At the high-end, the estimated costs add up to 2.2 percent of GDP for the three categories of cost alone.

**Figure 50. On average, residents commute 29km/h slower in AM peak hours versus during off-peak**

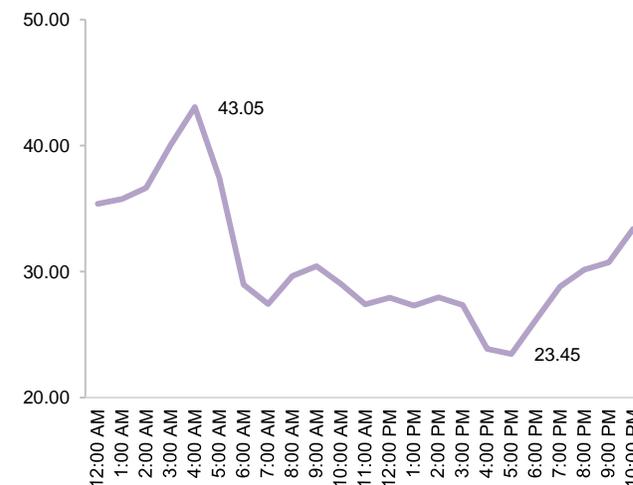
LHS: Average speed during AM peak and off-peak per corridor, km/h;  
RHS: Public transport modal share, percent



Source: Waze Live Map, World Bank staff calculations.

**Figure 51. Average speeds peak at about 5.00a.m. and plummet to nearly half the figure at 6.00p.m.**

Average daily speed in GKL throughout the day, km/h



Source: Estimates from a GPS-based data source.

**Table 6: Congestion costs Malaysia 1.1 to 2.2 percent of GDP a year**

Type of cost	Cost per year (time/liters)	Annual monetary cost (RM billion)	Cost as a % of 2014 GDP
Delays	269.9 – 487.8 million hours/year	10.8 – 19.6	1.0 – 1.8
Fuel	449.9 million liters – 1.2 billion liters	0.9 – 2.4	0.1 – 0.2
CO2 and other emissions	N/A	0.9 – 2.7	0.1 – 0.2
Total	N/A	12.7 – 24.7	1.1 – 2.2

Source: Waze Live Map, SPAD, IMF, World Bank staff calculations

**86. Time spent commuting is consistently associated with reduced levels of subjective well-being, suggesting impact on welfare is greater than what is suggested by economic estimates.** Research on individual happiness by Kahneman and Krueger (2006) suggests that commuting to work is the most unpleasant routine activity that people endure (Table 7). Similarly, Stutzer and Frey (2014) find that Germans with longer commuting time report systematically lower subjective well-being. Noor Diana (2012) surveys 660 Malaysian commuters and finds that longer commutes are significantly associated with an increase in commuting stress, leading to higher frequency of reports of ill health and commute displeasure, and affecting commuters' intention to quit their job. Additionally, a survey by Frost and Sullivan (2013) on 1,227 respondents in Malaysia found that 41 percent of respondents ranked road congestion as their number one frustration, higher than the Asia Pacific average of 35 percent and global average of 29 percent.

**Table 7: The morning commute is ranked as the activity most associated with negative emotions**

<i>Activity</i>	<i>Percentage of sample</i>	<i>Time spent (hours)</i>	<i>Net affect</i>	<i>U-Index</i>
Intimate relations	12	0.23	4.83	0.040
Socializing after work	49	1.14	4.15	0.073
Relaxing	77	2.17	3.96	0.078
Dinner	69	0.81	3.94	0.074
Lunch	67	0.57	3.91	0.078
Exercising	16	0.22	3.85	0.088
Praying/worship	23	0.45	3.78	0.105
Socializing at work	41	1.12	3.78	0.100
Watching TV	75	2.19	3.65	0.095
Phone at home	43	0.93	3.52	0.126
Napping	43	0.89	3.35	0.131
Cooking	63	1.15	3.27	0.138
Shopping	30	0.41	3.23	0.157
Computer (non-work)	29	0.51	3.22	0.165
Housework	49	1.12	2.99	0.161
Childcare	36	1.10	2.99	0.199
Evening commute	63	0.61	2.77	0.209
Working	100	6.89	2.68	0.211
Morning commute	68	0.47	2.09	0.287

Source: Kahneman, Krueger, Schkade, Schwarz and Stone (2004) and calculations by Kahneman and Krueger (2006).

Note: The U-index is the proportion of each person's time engaged in an activity in which the dominant emotion was negative, averaged over individuals. Sample consists of one day in the life of 909 employed women in Texas.

## Reliance on private transport is high

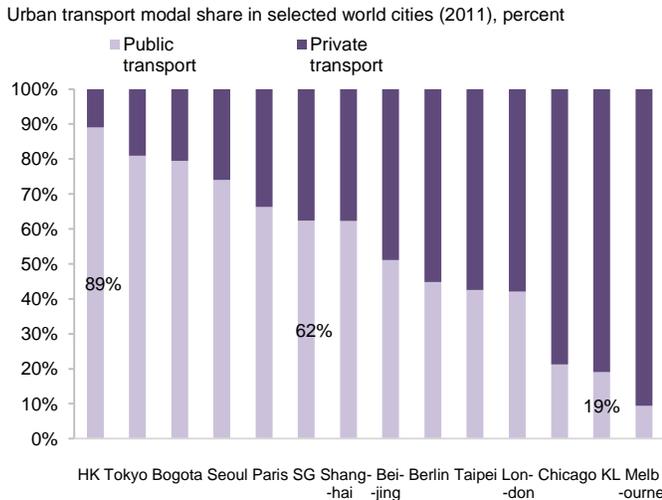
**87. Road congestion, especially in medium-sized and large conurbations, is combined—without exception—with low public transport market shares as public transportation alternatives have been limited and underutilized.** Kuala Lumpur's transit mode share declined from 35 percent in 1985 to 20 percent in 1997 and further to 12 percent in 2009 (Zegras and Gakenheimer, 2006 and EPU, 2010b) before recovering more recently to 18.1 percent in 2014<sup>32</sup> – the highest among Malaysian cities but still well below peer urban powerhouses such as Shanghai, London, Singapore and Seoul (Figure 52). Until recently, ridership had remained largely stagnant. Corresponding modal shares are 15 percent in Johor Bahru, 11 percent in Penang (with the bulk of this provided by private manufacturers wishing to facilitate employee access to their factories), 8 percent in Kota Kinabalu, and 3 percent in Kuantan. According to PEMANDU, the Klang Valley currently has a shortage of rail-based public transport coverage, with less than 20km of rail per million population as of 2010. Public transport-oriented cities such as Singapore, Hong Kong and London have more than 40km of rail per million population; in GKL this figure is closer to 20km (Figure 53).<sup>33</sup> Equally important, at present there is also a shortage of 'first' and 'last' mile connectivity into the main trunk rail lines, such as park and ride, bicycle and pedestrian access, and feeder buses.

<sup>32</sup> Source: 2014 SPAD Greater KL Land Public Transport Survey. This figure has been updated and is more current than the one cited in the print version of this report published on 12 June 2015. The definition of GKL here follows that of the ETP and comprises 10 local authorities.

<sup>33</sup> Seoul's relatively low rail density is likely associated with its high density (see Figure 57), which means that fewer kilometers of rail can serve a larger population. This hypothesis is corroborated by the high modal share of public transport in Seoul (Figure 52).

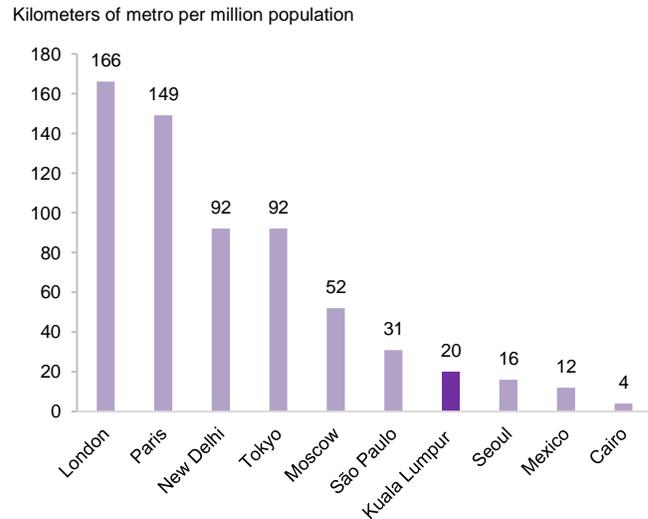
**88. Urban public transport generally underserves urban low-income neighborhoods, negatively affecting social and economic inclusion and pressuring households least able to afford private vehicles into purchasing them.** The high cost of housing near the city center and land use policies that favor sprawl have pushed many lower-income households to neighborhoods with limited connectivity, especially from public transport. This makes it hard for lower-income households to get to jobs and access public services, representing a further obstacle to their social and economic inclusion. As a consequence, many have to either buy a small car or at least a motorcycle, which then adds pressure to their weak household finances. As a result, about half of households in the bottom decile of the income distribution owned a car in 2012<sup>34</sup>.

**Figure 52. Public transport has a low modal share in Kuala Lumpur compared to other global cities...**



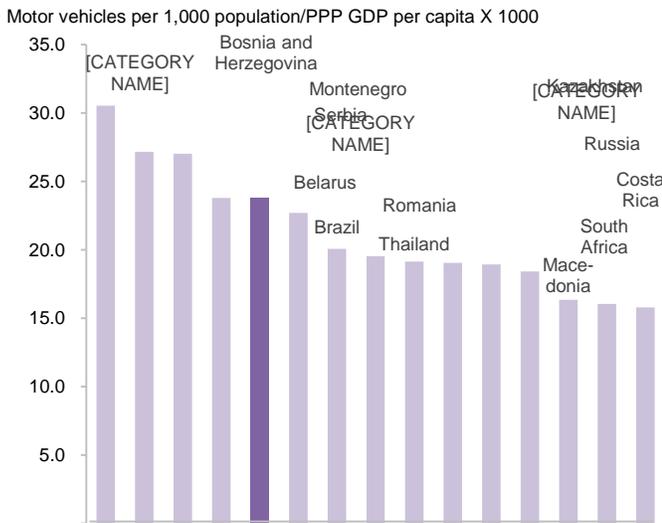
Source: Singapore LTA; UPT NKRA Performance Monitoring Survey; World Bank staff calculations.

**Figure 53. ...owing in part to a relative shortage of rail-based transport coverage in Greater KL.**



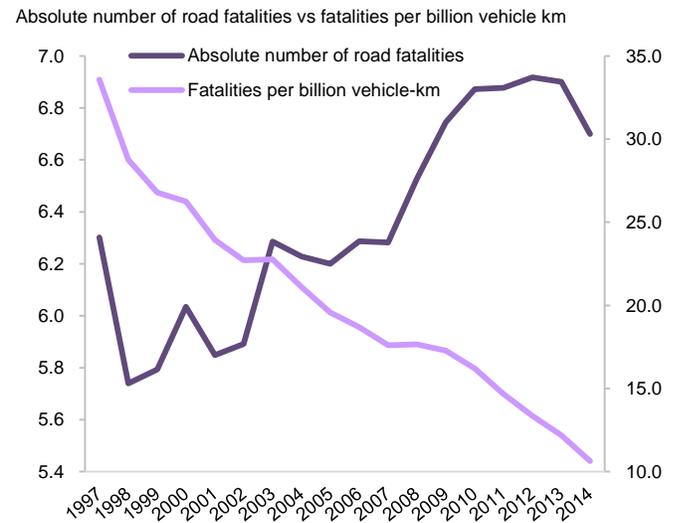
Source: World Bank 2014c, World Bank staff calculations.

**Figure 54. Among upper-middle income countries, Malaysia has the fifth highest vehicle ownership rate**



Source: World Development Indicators, IMF World Economic

**Figure 55. While the absolute number of road fatalities has increased, fatalities per km have declined**



Source: WHO, PDRM, World Bank staff calculations.

<sup>34</sup> Based on data from the 2012 Household Income Survey, DOSM.

Outlook, World Bank staff analysis.

Notes: 2011 is the latest year for which motor vehicle ownership data are available. Upper middle income is defined as countries with 2011 GNI per capita in the range of USD4,500 to 12,000. Data for Brazil are for 2008. Motor vehicles include cars, buses and freight vehicles but do not include two-wheelers.

**89. Malaysia today is among the countries in the world with the highest incidence of private vehicle ownership.** While the total population grew by about 10 percent to 28.3 million people between 2005 and 2010, the number of registered private cars increased by over 40 percent over the same period. As of 2011 (the latest year for which data are available), Malaysia was the upper middle income country with the single highest vehicle ownership rate, adjusted for income and population, outside of Eastern Europe<sup>35</sup> (see Figure 54). According to police statistics, between the years of 1997 and 2012 the number of registered vehicles nationally climbed from 8.5 million to 22.7 million, an average annual growth rate of 6.7 percent over that period. That was well over three times the rate of population growth (2.0 percent) and approximately 1.6 times the rate of growth of the economy as a whole (4.2 percent).

**90. High levels of car ownership are not an inherently undesirable outcome, but in Malaysia the high growth in vehicle volume is linked to significant congestion.** International experience has shown that car ownership and car use can be decoupled—but this has yet to be attained in Malaysia. Most Malaysian car owners use their vehicles on a daily or regular basis. Between 1997 and 2012, the number of vehicle-km driven in Malaysia grew at an average rate of 7.0 percent per year, faster than the rate of growth in vehicle registrations over the same period (6.7 percent). According to MIROS data, while the absolute number of road fatalities nationwide has steadily increased since 1998, fatalities per km driven have been consistently and rapidly decreasing (see Figure 55). Today the number of fatalities per billion vehicle-km in Malaysia is nearly 40 percent lower than Korea's, even though the number of fatalities per 100,000 population in Malaysia (24) is more than double that of Korea (10.5).

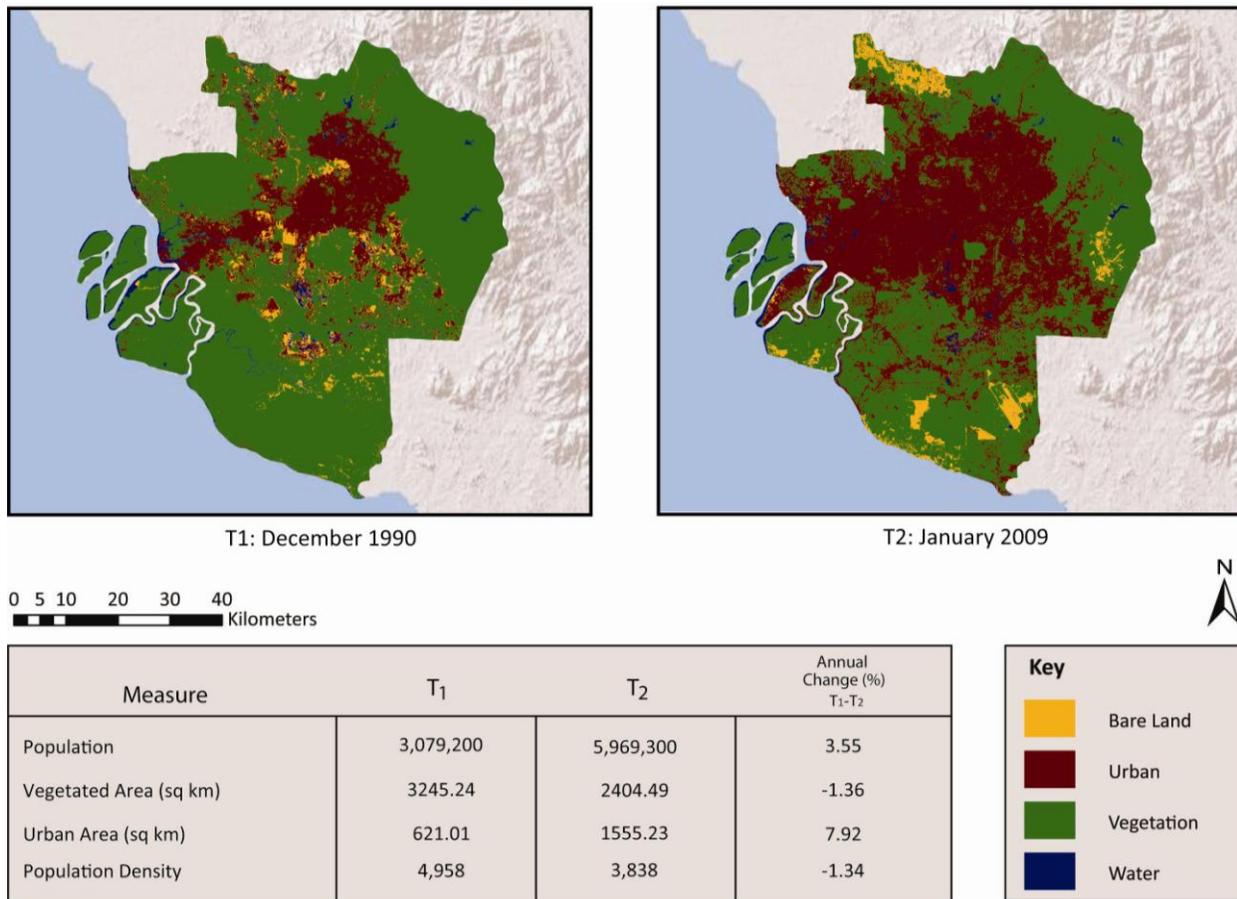
## Low density of cities increase the challenges of delivering efficient and clean urban transport

**Figure 56. The growth in the built-up area of Greater KL exceeded population growth**

Kuala Lumpur, land use changes – 1990-2009

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<sup>35</sup> Eastern European countries are special case due to their economic history, explaining their preponderance in the top 15.



Sources: Classification of urban area: World Bank analysis based on Landsat imagery; Population data: Department of Statistics, Malaysia.

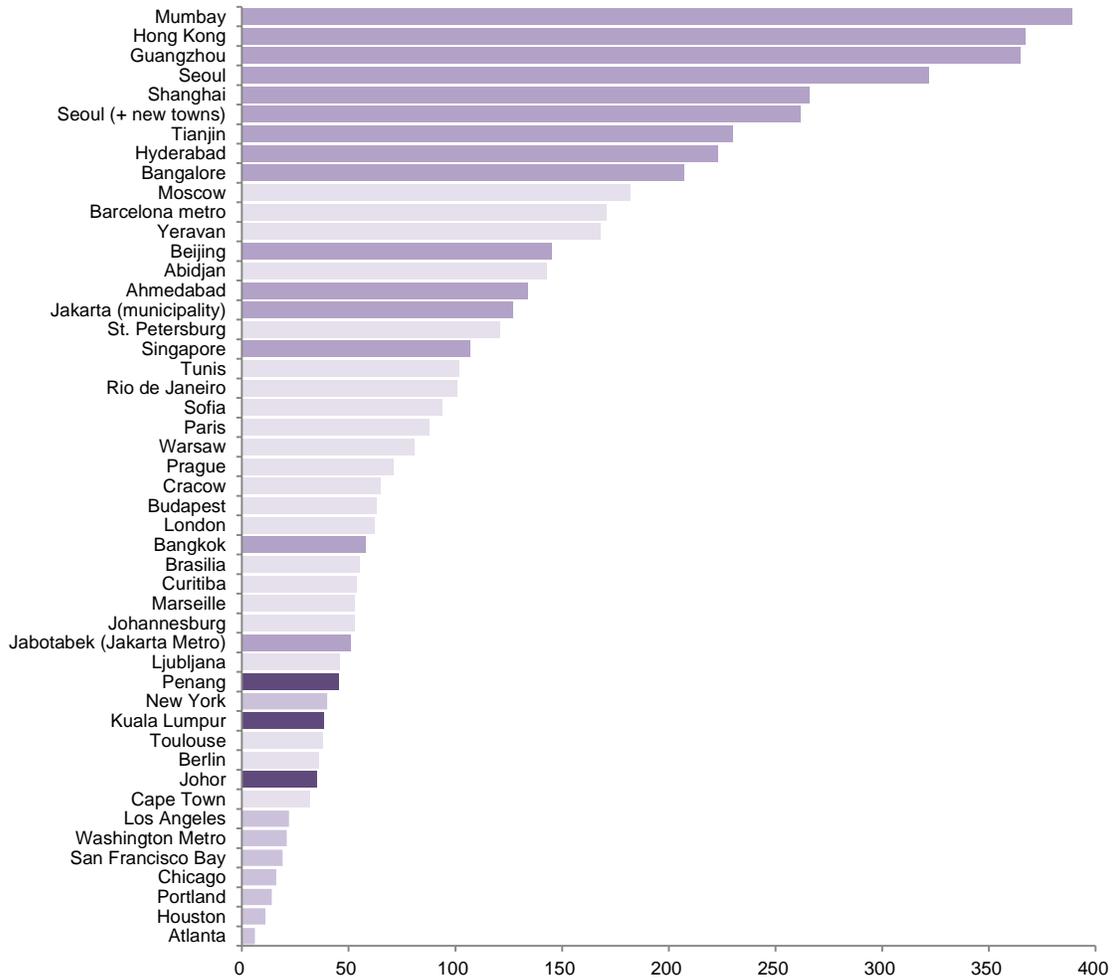
**91. An underlying driver of transport costs is the spatial expansion and urban sprawl of Malaysian cities.** The physical form of urbanization in Malaysia's three largest cities (Kuala Lumpur, Penang and Johor Bahru) is consistently one of sprawl and reduced density. Malaysia's largest urban areas have grown faster in built-up area than population in the past two decades, with resultant emergence of urban sprawl and declining densities (see Figure 56 for KL and also World Bank 2011). This expansion is also reflected in the fact that Malaysia had the fourth-largest built-up landmass in the East Asia and Pacific region as of 2010, when urban areas covered approximately 1.4 percent of the total area of the country. Malaysia's urban space grew from around 3,900 km<sup>2</sup> to 4,600 km<sup>2</sup> between 2000 and 2010, an average annual growth rate of 1.5 percent. Although Malaysian cities are not as sprawling as most American cities, they are less dense than Barcelona or other Asian cities (Figure 57)

**92. Urban sprawl has been accompanied by a fast growth of the road network.** Low density development makes delivery of convenient and efficient public transport more costly, and induce households to use private vehicles. As a result, the emergent sprawl, high private vehicle ownership, and build-up in roads come hand in hand. Whereas in 1994 there were 840 km of constructed expressways across Malaysia, by 2012 the expressway network – which is primarily concentrated in and around the GKL conurbation – had been extended to 1,660 km<sup>36</sup>, twice as large as what it was nearly 20 years earlier.

**Figure 57. Malaysian cities are not as sprawling as Atlanta, but less than ¼ as dense as Barcelona**

Population density in the built-up part of metropolitan areas, people/hectare

<sup>36</sup> Source: JKR.

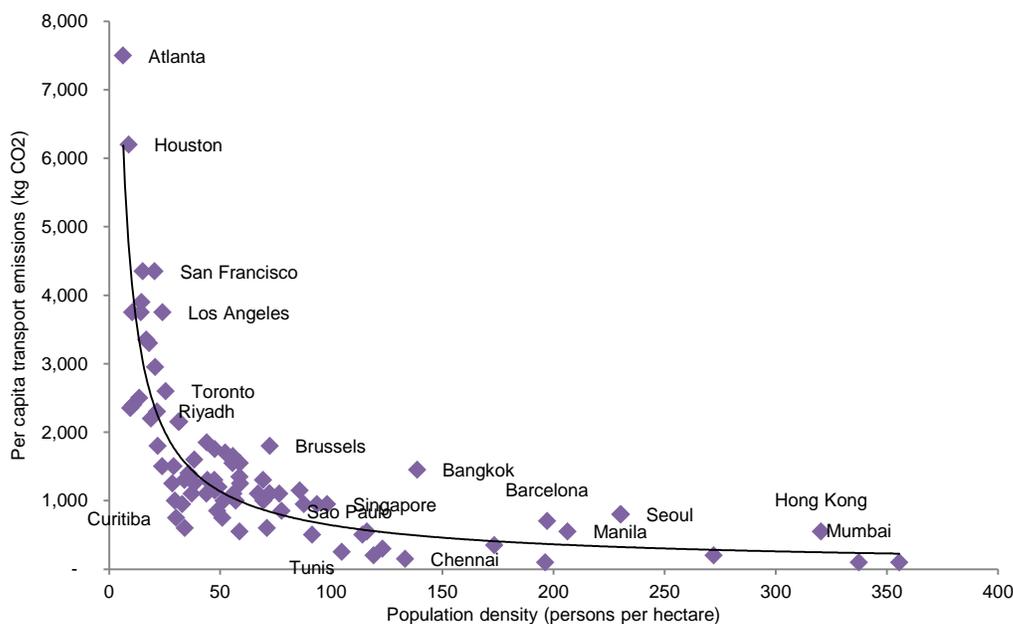


Source: Bertaud (2004) and World Bank staff calculations for Malaysian cities.

**93. Given low urban densities, all available evidence suggests that Malaysian cities have moderately high per capita GHG emissions.** Private vehicles are associated with around 70 percent of global energy-related greenhouse gas emissions. This also appears to be true for Malaysia, where motor vehicles account for about 70 percent of all pollutants to the atmosphere in 2010-2012 (source: Malaysia Statistical Handbook 2013, DOSM). Denser cities tend to have lower per capita energy consumption and thus lower per capita emissions (Newman and Kenworthy 1989). Within cities, per capita emissions are lower in the denser parts of the city (Hoorweg and others 2011). Available data also illustrates the relationship between transportation emissions and density, with higher density associated with lower per capita emissions (Figure 58).

**Figure 58. Per capita transport emissions decline with urban density**

Individual emissions from transport, kg per capita



Source: World Bank analysis based on Kenworthy 1998, Kenworthy and Laube 2001.

## The largest unrealized potential in the national transport context is in urban transport

**94. Overall, urban transport appears to be the weakest component of Malaysia's national transport system.** By way of comparison, both inter-city and rural transport generally outperform urban transport. In contrast, millions of Malaysians are exposed daily to urban road congestion and inadequate public transport provision. The better performance of these other components of the transport system show that it is possible for Malaysia to do better with city transport.

**95. Intercity transport performs well, as attested by Malaysia's high rankings in global logistics indices.** When it comes to the movement of freight across domestic and international supply chains, not only is Malaysia a high performer among upper middle income countries – it is the gold standard. The World Bank's 2014 Logistics Performance Index (LPI) ranks Malaysia 25<sup>th</sup> in the world in terms of the overall quality of its logistics system, including transportation and its integration with associated activities such as cargo handling, cargo storage, and customs clearance. This ranking places Malaysia ahead of every other upper middle income country in the world (see Figure 59). Similarly, the World Bank's *Trading Across Borders* indicator under its *Doing Business 2014* report, which is heavily dependent on intercity freight transportation performance, ranks Malaysia 11<sup>th</sup> in the world. Only Panama (9<sup>th</sup> in the world) among upper middle income countries scores better than Malaysia, but this can be considered a special case, as Panama's economy is highly dependent on the Panama Canal as a facilitator of cross-border trade.

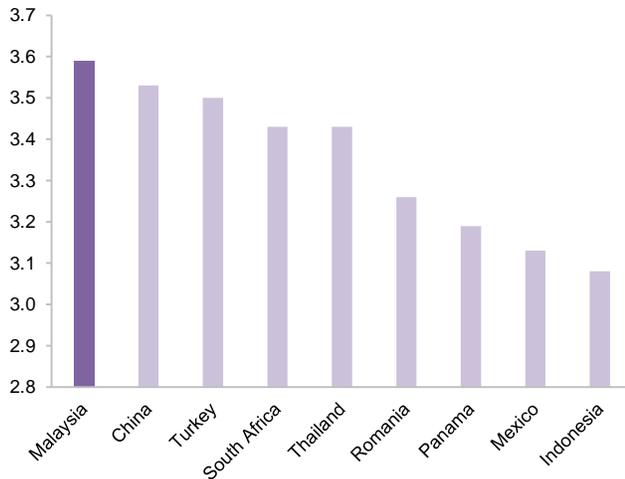
**96. While significant rural transport challenges remain, Malaysia's impressive track record of poverty reduction is a testament its effectiveness in reaching the rural poor.** From a transport perspective there remains a need to better target interventions to lingering pockets of disconnectivity, primarily in Sabah and Sarawak but also in Peninsular Malaysia. This is needed particularly to improve service delivery (e.g. rural bus service provision along low-volume, typically unprofitable routes) more so than providing infrastructure (e.g. building basic roads). Although 82 percent of Malaysia's rural population lives within 2 km of an all-weather road (Figure 60), 1.5 million rural residents do not have access to easy road transportation. Nonetheless the poverty reduction gains overall are impressive, which have undoubtedly benefited from improvements in transport connectivity to, from, and within rural areas.

### Figure 59. Malaysia earned the highest score in the World Bank's 2014 LPI among upper middle income countries

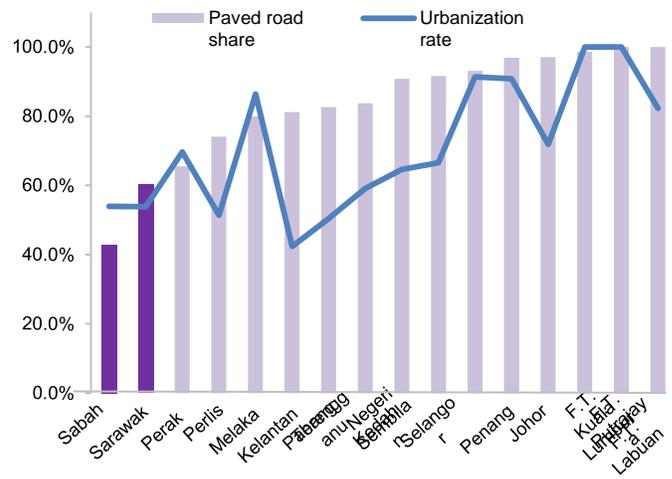
Rank on a scale of 1 to 5 (best), based on six dimensions of trade including customs performance, infrastructure quality and timeliness of shipments

### Figure 60. Poverty reduction has benefited from improvements to rural transport connectivity

Paved road share and urbanization levels by state, percent (2012)



Source: World Bank Logistics Performance Index (2014)



Source: DOSM, World Bank staff calculations  
Note: Urbanization rate (2010); paved road share (2012)

## Current policy and institutional landscape for urban transport

### The Land Public Transport Commission (SPAD)

**97. Efforts to improve the provision and quality of urban transport in Malaysian cities stepped up with the creation of SPAD in 2010.** Recognizing a need to provide unified planning, regulation/enforcement, and oversight over the land public transport sector—both within and among cities—in 2010 the Government of Malaysia (GoM) established the Land Public Transport Commission (SPAD), a Federal-level agency reporting to the Prime Minister's Department. SPAD is a national agency comparable to other Federal line ministries, with the full legal backing of Malaysia's Land Public Transport Act of 2010.

**98. Despite its short tenure to date, SPAD has developed into a technically capable, multidisciplinary planning and regulatory agency delivering on a comprehensive list of responsibilities.** Since inception SPAD has, among others:

- (i) Issued a National Land Public Transport Master Plan and a Land Public Transport Master Plan for GKL, with plans to produce similar master plans for the other main conurbations in Peninsular Malaysia;
- (ii) Implemented a number of provisions, policies, and interventions as set up by the above plans, notably the planning and delivery of mass transit projects in GKL encompassing several rail-based and road-based options;<sup>37</sup>
- (iii) Extended its Bus Transformation Plan to cities around the country such as Kangar (Perlis), Seremban (Negeri Sembilan), Kuala Terengganu (Terengganu), Ipoh (Perak) and Kuching (Sarawak).
- (iv) Established state-level Technical Committees across Peninsular Malaysia to coordinate land public transport interventions, planning, delivery, and regulation with state and local authorities; and
- (v) Taken over responsibility for licensing and regulation of numerous service delivery sectors, including truck haulage, urban transport fare setting (including for taxis and inter-city buses), and the handling of end-user feedback through a national hotline set up for this purpose.

**99. Few public agencies in charge of public transport around the world have developed this level and diversity of capabilities and responsibilities in such a short period of time.** SPAD has managed to do this in (primarily) Peninsular Malaysia within a period of only four to five years.

<sup>37</sup> Rail-based projects include the construction of the new MRT, LRT extensions and capacity expansion of existing urban monorail. Road-based projects include a new BRT line and implementing a bus sector modernization plan.

## A need for integrated planning

**100. Notwithstanding the progress made so far, the planning and delivery of urban transport in Malaysia remains highly fragmented across institutions, modes and jurisdictions.** When performed well, urban transport planning and delivery are conducted in an integrated manner: across public and private transport; across transport modes; across functions and levels of government; across geographical and administrative boundaries; and at the conurbation/city-wide level (as opposed to individual municipalities).

**101. In Malaysia, no single government agency relevant to urban transport – whether at the national, state, or city level – has the authority to deliver integration across all of these dimensions.** SPAD, its significant accomplishments notwithstanding, has only been given jurisdiction over land public transport. Its mandate expressly excludes planning of private transport, which at the national level is primarily under the jurisdiction of the Ministry of Works (MoW). In practice, this means there is limited coordination between the planning and delivery of urban roads/trunk highways and transit planning, despite the supply-demand interdependence between modes of public and private transport.

**102. The planning of urban transport infrastructure (such as highways or urban rail lines) is not based on a comprehensive picture of the demand that is likely to materialize over time, potentially leading to supply-demand mismatches.** The most meaningful way of assessing urban transport demand is to consider the range of mobility options (or lack thereof) available to travelers across modes. Since a person's decision to drive to work is also a decision not to use transit to work, travel demand across inter-dependent modes should be assessed as a whole, rather than mode by mode. Mode-specific demand assessments, while potentially less operationally complex, carry with them a higher risk of forecast error, making it more likely that infrastructure and service delivery will eventually be either under-provided (leading to congestion) or over-provided (leading to unused, wasted resources). Such mode-integrated planning can take into consideration not only how demand for a given mode (e.g. private car) will influence demand for other modes (e.g. public transit), but also how urban transport demand itself can be influenced through a variety of so-called 'demand management' policies, such as carpool privileges, parking fees, public transit accessibility improvements, fuel pricing, dynamic tolling<sup>38</sup>, and the like. Mode-specific planning typically does not control for inter-relationships of this kind which are inherently multi-modal in nature.

**103. In contrast to other global cities, federal-level agencies such as MoW and SPAD are responsible for the planning and delivery of city-level urban transport in Malaysia.** The most livable, transit-oriented cities in the world (e.g. Vancouver, Canada and London, England) deploy conurbation-level agencies rather than federal-level agencies to oversee planning and delivery of urban transport. Such "lead urban transport agencies" (e.g. TransLink in Vancouver and Transport for London or TfL in London) are defined at the conurbation level and given jurisdiction over integrated planning and delivery across the full range of dimensions specified in Paragraph 100. As such, these agencies are adequately empowered (not least financially) by federal and state-level authorities to perform a full range of duties at the conurbation level.

**104. Conurbation-level challenges should be met with conurbation-level solutions.** The complexities of cities are such that their challenges are best understood and addressed by those most intimately familiar with and geographically as close as possible, and therefore accountable to the city itself. National-level agencies are responsible for multiple cities, which increases complexity, and often operate across several levels of government. In many instances, they are also geographically removed from the cities on behalf of which they conduct planning. International experience shows this distance decreases accountability and is associated with lower levels of service.

**105. Public institutions responsible for urban transport have not kept pace with the changes in transport demand and land use patterns in Malaysia's evolving cities.** Over time, Malaysian cities have become larger, more populated and operationally more complex, with more expressways. While in the past there was less need for mass transit to be well-coordinated with land use planning and other modes of public and private transport, subsequent development has resulted in lower densities of land use and longer distances between where people live and work today. As a result, current planning and delivery practices for urban transport in Malaysian cities are no longer robust enough to handle

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<sup>38</sup> The practice of changing the level of tolls in response to changes in traffic levels: the higher the traffic volume, the higher the toll and vice versa.

their underlying complexity. There is now a greater need to integrate transport modes with the urban fabric of cities, and to plan for transit delivery in a way that can improve access and mobility while helping to shape urban form in a more controlled, sustainable way. Further, unlike two decades ago, Malaysia has unilaterally adopted the goal of reducing the carbon intensity of its economy by 40 percent in 2020 relative to 2005. Meeting this goal will require planning practices that can expressly consider the carbon intensity of policy decisions.

**106. More robust assessments and integrated planning are needed to ensure the effectiveness, economic viability and value-for-money of investments in urban transport.** A higher relative priority for reforming urban transport towards more integrated planning is further justified by the billions of ringgit so far committed to numerous planned or ongoing transit schemes, especially in GKL. Ongoing or planned rail-based investments in the GKL area alone amount to nearly RM100 billion (not including the KL-Singapore High Speed Rail), with the large bulk dedicated to the construction of the MRT (Table 8). Considering the fragmented nature of the current institutional framework related to planning and delivery of urban transport in GKL – across public and private transport – there are significant opportunities for improving the way these substantial resources are invested and leveraged.

**Table 8: Integrated planning can improve the substantial cost of investments in urban transport is well-quantified**

Project	Estimated budget	Estimated completion
LRT1 & LRT2 extensions	RM11 billion	October 2016
MRT Line 1	RM23 billion	July 2017
LRT 3	RM9 billion	2020
MRT Line 2 & MRT Line 3	RM50 billion	2021 and 2022

Source: Authors

**Box 2: How does improving urban mobility benefit women?**

**Men and women travel differently.** Women are more likely to walk or use public rather than private transport, in part due to traditional and cultural differentiations that give men priority over using the family car (Hanson and Hanson 1980; Anand and Tiwari 2006). Women also tend to make more complex trips as they have to juggle multiple roles at home and at work, and thus tend to combine household errands with commutes to work in order to save time (Balbinard and Scott 2011). In addition, safety considerations and cultural attitudes towards women’s travel may limit how freely they can move.

**These constraints in women’s transportation in turn limit where and what kind of work they do – or whether they can work at all.** Quiros, Mehndiratta and Ochoa (2014) find that even in a relatively middle-class society as Buenos Aires, Argentina, men with children travel at significantly faster speeds than their female counterparts and are hence able to cover larger distances. As a result of this gender gap in transport, the authors estimate that men have access to over 80 percent more jobs across the city when compared to their female counterparts, potentially resulting in wage differentials for men and women.

**The impact of such limitations in women’s commutes on labor force participation tend to be even more pronounced among lower-income women,** who often reside on the periphery where most available jobs are informal and low in productivity (World Bank, 2012), as well as women in rural areas. In Bangladesh, for example, better rural roads led to a 51 percent increase in female labor supply and a 49 percent increase in male labor supply (Khander, Bakht and Koolwal 2006). Taking the needs and priorities of female users into account when designing and delivering public transport systems can therefore result not only in economy-wide productivity gains, but also boost shared prosperity regardless of gender.



**To close these gender gaps in transportation, policymakers must also pay greater attention to ensure safer commutes for women.** A 2014 survey<sup>39</sup> of female commuters ranked KL as the 7<sup>th</sup> most unsafe city for women who take public transport out of 16 cities in Southeast Asia – better than Jakarta (5<sup>th</sup>) but worse than Bangkok (8<sup>th</sup>) and Manila (10<sup>th</sup>). Respondents also overwhelmingly felt that authorities would not take reports of harassment/attacks seriously. In Kuala Lumpur, authorities such as RAPIDKL and KTM have introduced women-only coaches and 'pink carriages', similar to steps taken in India, Taiwan, Indonesia, Mexico and Brazil. There is debate, however, whether these initiatives fail to address the lack of men's respect for female commuters, and their overall impact on improving women's mobility is uncertain.

**To remove these barriers to women's urban mobility, Malaysian policymakers should take gender differences into consideration when planning and delivering public transport.** For example, policymakers could improve mobility during the time of day and along the routes that are used by women and ensure that existing routes and services are supportive of women's trips. In the longer term, retail, childcare, healthcare and other services that women are more likely to use can also be co-located around transport hubs to facilitate their mobility. Finally, in order to make meaningful improvements in female commuters' safety, public transportation authorities could consider making institutional commitments (such as Transport for London's Women Action Plan), ramp up efforts to educate commuters and prosecute men who harass women during their commute.

Source: Authors

## Current policies encourage use of private vehicles to the detriment of public transit

**107. A number of policies skew demand towards the ownership and use of private vehicles at the expense of public transit** In Malaysia, policies that are beyond the purview of transport sector agencies – such as land use, car ownership, and (until very recently) fuel subsidies<sup>40</sup> – encourage commuters to opt for private cars over public transport. The fact that these policies co-exist with targets for wider usage of public transport and greener transport suggests that policies outside and within the transport sector can be better aligned.

**108. The lack of adherence to existing land use and highway plans has encouraged low-density development, while undermining the coordination between public and private transport.** Although Malaysia has a national land use plan that provides overall direction for the evolution of land use across conurbations, this plan is, in practice, seen by local

<sup>39</sup> Online survey conducted by the Thomson Reuters Foundation and YouGov, sampling up to 513 women and a minimum of 9 'experts' (women's rights activists, architects and academics with an interest in gender equality and urban planning) in each city. In total, 6,555 women and experts were surveyed. More details on the methodology and findings are available at [www.trust.org](http://www.trust.org).

<sup>40</sup> Taking advantage of falling crude oil prices, fuel subsidies were completely eliminated as of December 1, 2014.

authorities as a source of guidance only. This reduces the influence of a well-coordinated national plan on local, disaggregated decisions on land use. Similarly, while MoW has developed a master plan for highways (the Highway Network Development Plan, HNBP), it is not uncommon for tolled expressways to be implemented on the basis of unsolicited private sector proposals that may or may not be aligned with HNBP and local land use plans. The established approach to urban land use and development in Malaysia tends to be the 'opening up' of new areas of mostly rural land for new, low-density housing and industrial estates. Although several strong examples exist of the 'in-filling' of urban cores with higher density, mixed-use developments (such as KLCC, KL Sentral, and Mid-Valley), the overall trend in urban development has been to grow at the edges and led to urban sprawl. Such developments, while providing affordable housing, also make for difficult facilitation of public transport and in effect increase the need for citizens to own and use cars for urban mobility

**109. The comparatively low cost of owning and operating a car in Malaysia increases its attractiveness relative to public transit.** Malaysia's National Automotive Policy, first introduced in 2006 by MITI, supports affordable car ownership and associated vehicle sales in the domestic market. According to MITI, the auto industry account for three percent of Malaysia's GDP and employs 550,000 employees.<sup>41</sup> Partly protected by tariffs on foreign-made vehicles, and supported by wide availability of affordable credit for car purchasing, domestic manufacturers account for approximately 60 percent of Malaysia's private vehicle fleet, according to the Malaysia Institute of Road Safety Research (MIROS, 2012). Fast growth in private vehicle ownership in GKL has thus been driven by affordable fuel and vehicle costs.

## Urban transport planning and delivery in Greater KL and Greater KK

**110. While the previous sections have placed Malaysia's challenge of providing efficient urban mobility in a national context, urban transport is inherently local and therefore requires policy-making that is responsive to local users.** This section thus assesses urban transport challenges in two vastly different cities – Greater KL and Greater Kota Kinabalu (GKK) – to draw lessons for similar, comparable cities across Malaysia. While GKL represents a case where 'late intervention' solutions are needed and could thus offer lessons to large conurbations such as Penang and Johor Bahru, GKK is in need of 'early intervention' solutions and could offer lessons to medium-sized conurbations such as Kuantan and Kuching.

## Improving urban mobility in Greater Kuala Lumpur requires 'reactive' strategies

**111. GKL is the powerhouse of the Malaysian economy.** With a population of 7.5 million or around a quarter of Malaysia's population, GKL accounts for 37 percent of the nation's GDP and generates about a third of national employment. In addition to the Federal Territories of Kuala Lumpur and Putrajaya, GKL includes significant areas of Selangor and sometimes even parts of other neighboring states, depending on the definition used.

**112. Despite, or perhaps because of its economic importance, GKL faces serious urban mobility and accessibility challenges across a number of key dimensions:**

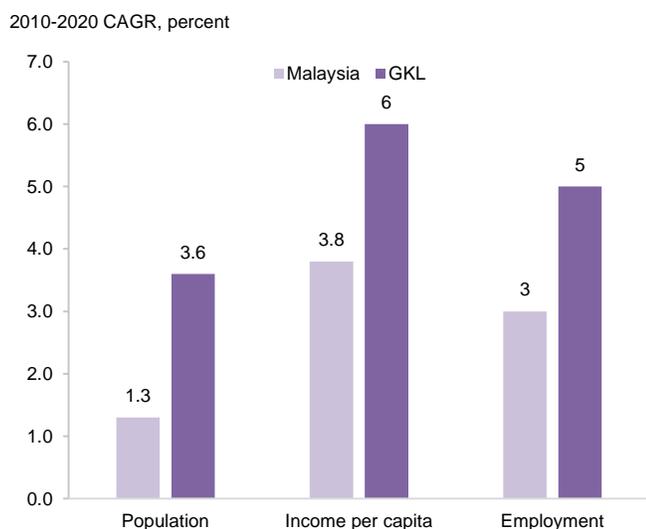
- The population of GKL is expected to grow more than twice as fast as Malaysia's population overall (Figure 61). From 7.5 million people currently, GKL's population is expected to reach 10 million people in 2020.
- Both income per capita and employment are expected to grow faster in GKL than in Malaysia as a whole (Figure 61). This suggests that GKL will remain an attractive, dynamic center of economic growth, further driving urban growth.
- Travel demand is expected to continue to grow rapidly over the medium term. From 2008 to 2012, vehicle traffic grew at 7.4 percent in Selangor. Car and motorcycle registrations in GKL expanded by 6.8 percent in 2012. Meanwhile, the capacity of radial-access expressways across MRR2 (94,000 hours per hour at peak) was breached in 2011; congestion into the CBD has deteriorated since.
- The share of commuters using public transport (18.1 percent) is low compared to other cities such as Shanghai and Seoul. One problem is the lack of adequate coverage. At 2 km per million population<sup>42</sup>, GKL's

<sup>41</sup> Ministry of International Trade and Industry (MITI), 2014. "Media Statement on National Automotive Policy".

<sup>42</sup> Source: SPAD GKL Land Public Transport Masterplan (2013).

bus lane penetration is a fraction of cities such as Seoul and London (Figure 62). The bus sector is fragmented, with competition on profitable routes coexisting with largely underserved low-volume routes.

**Figure 61. Population, income per capita and employment will grow faster in KL compared to the national average**



Source: Economist Intelligence Unit, IMF, DOSM, DBKL City Plan 2020, World Bank staff calculations

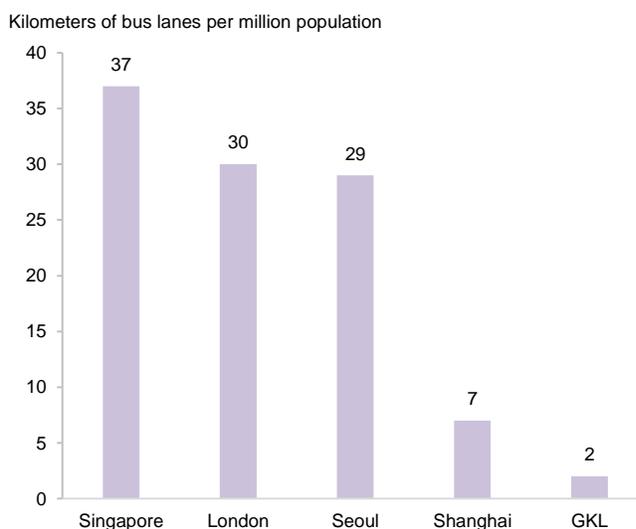
Note:

1/ GKL population encompasses the Federal Territories of Kuala Lumpur and Putrajaya, and Selangor state

2/ GKL employment figures are based on DBKL's definition

3/ For Malaysia, employment growth rate refers to 2010-2018

**Figure 62. GKL's bus lane penetration is a fraction of peer cities in the region**



Source: SPAD 2013

**113. Despite an increase in road capacity, GKL's roads and highways are heavily congested.** GKL road capacity has increased significantly over the past decade. The road length of Federal and State roads in Selangor, for example, increased by 76 percent between 2004 and 2012, in addition to the operationalization of substantial new capacity in privately-funded toll roads. Yet congestion persists: 9 out of 10 GKL sites surveyed by HPU in 2012 showed levels of service "E" or "F" (i.e., severely congested), signaling the continuing challenge of improving performance in the GKL road system. According to KL City Hall's (DBKL) City Plan 2020, daily traffic levels (70 percent of which is single occupancy) across the 21 arterial routes forming the first middle ring road (MRR1) had already exceeded available road capacity by 38 percent as of 2010.

**114. In spite of congestion, commuting by public transport can take more than three times as much time compared to travelling the same route by private transport (cars) in GKL.** From the 2014 survey by SPAD, the 'raw' door-to-door travel time for public transport (PT) is significantly higher than that of private transport mode, i.e. people are spending more time in public modes of transport than in private ones. Table 9 shows that an average trip which takes 47 minutes door-to-door by car takes about 153 minutes on bus and 105 minutes on rail, including 'first-mile' connections (from origin to bus stop or train station), waiting time and 'last-mile' connections (from the bus stop or train station to final destination). The cost of time waiting and connecting has led many people to use cars, further exacerbating road congestion. Meanwhile, those who do not have a choice except to take public transport 'pay' by spending more time to commute.

**Table 9: Time taken to commute using private transport versus bus and rail in Greater KL**

Unit: mins	Private transport	Bus	Rail
Access home to station		44	27
Waiting time		23	23
Onboard journey time	47	64	35

Access station to final destination		22	20
<b>Total</b>	<b>47</b>	<b>153</b>	<b>105</b>
Ratio	1.00	3.26	2.23

Source: SPAD 2014

**115. Several layers of inter-institutional disconnect are at the heart of the urban mobility challenges facing GKL.** The key challenges are highlighted below:

- a) **A single, standard definition of GKL should be established.** Conurbation boundaries should be established under a single definition around which all stakeholders may coalesce. This definition should be based on actual and expected commuter patterns. In GKL, however, different agencies have adopted different definitions of the conurbation for the purposes of their individual areas of purview. For example, the NPP2 definition includes the Federal Territories of KL and Putrajaya and most of Selangor state, but also the northern part of Negeri Sembilan and portions of Pahang, whereas the ETP definition is less expansive and does not include more state demarcations. Moreover, linkages between existing definitions of the conurbation and actual commuting behavior have not always been established, at least not explicitly.
- b) **Agencies should plan for urban transport based on a 'single version of the truth.'** Institutions should plan for urban transport delivery on the basis of a consistent set of data or a "single version of the truth". Nonetheless, the numerous reports, models, and guiding documents underpinning urban transport planning and delivery in GKL<sup>43</sup> are almost always based on unique, non-comparable data series, data definitions, units of measure, temporal horizons, resulting in different conclusions of what current travel demand levels are and what their future behavior is likely to be in response to a defined set of interventions (or lack thereof). This makes it difficult to unequivocally answer basic questions such as, (a) how many people enter the CBD at morning peak every day, and (b) how is this number likely to grow over time? Or, c) what is the current and expected future highway capacity in/out of the CBD?
- c) **Planning should be integrated across modes and administrative boundaries.** According to global good practice, urban transport planning should be integrated across modes and administrative boundaries, utilizing tools such as a single, multimodal model of urban transport (public and private) at the conurbation level (which would typically comprise more than one municipality). Ideally, this should be done by one or more conurbation-level institutions and in coordination with a conurbation-level land use plan. However, none of these integration layers is currently in place in GKL. Instead, (a) modes are planned and managed independently from each other (e.g. public transport by SPAD, roads and highways by local authorities and MoW, and ports and airports by the Ministry of Transport (MoT)); (b) plans do not necessarily span the entire GKL conurbation, which comprises multiple local districts and municipal councils, three states, and two Federal Territories, and are not necessarily consistent with existing land use plans, which are also local; and (c) most major infrastructure planning is conducted by federal-level agencies (e.g. SPAD, MoW, or MoT) on behalf of GKL, rather than by a conurbation-level agency(ies).

**116. The state of urban mobility in GKL indicates both the urgency and the opportunity for wider public transit adoption,** as (and if) safe, reliable and accessible public transport service capacity is deployed. This will be the key test as to whether or not SPAD's current target of reaching a public transport modal share of 30 percent across MRR2 by 2030, which would imply 16-18+ percent public transport annual demand growth rates, is attainable.

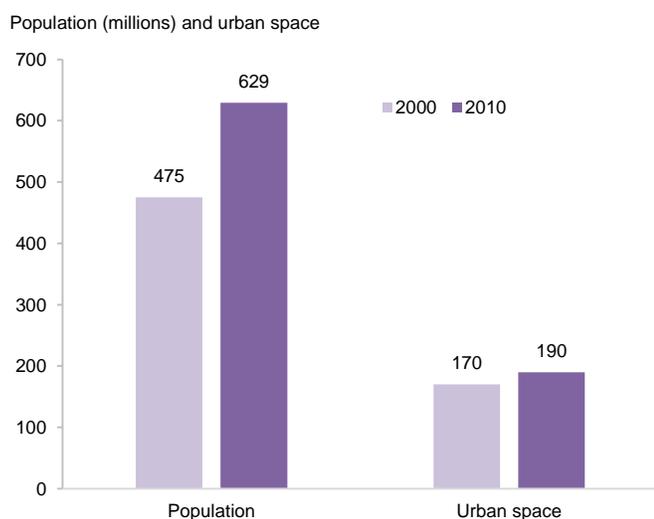
<sup>43</sup> These include inter alia, SPAD's Land Public Transport Master Plan, DBKL's City Plan 2020, LLM's multimodal demand projections and highway capacity assessment, HPU's road traffic census, and SPAD's annual GKL Land Public Transport Survey.

## Early transport interventions in Greater Kota Kinabalu would greatly benefit urban mobility

**117. Greater Kota Kinabalu (GKK) is central to Sabah's economic development and at the forefront of the State's urbanization.** While definitions vary in practice for planning purposes, if GKK is defined as comprising KK city and the contiguous districts of Penampang, Putatan, Papar, and Tuaran, the resulting conurbation is home to 948,300 people, or slightly more than half of Sabah's population. Similar to GKL, the population of GKK is expected to grow 2 percent per year from 2010-2020 versus 1.3 percent for Malaysia (Figure 61).

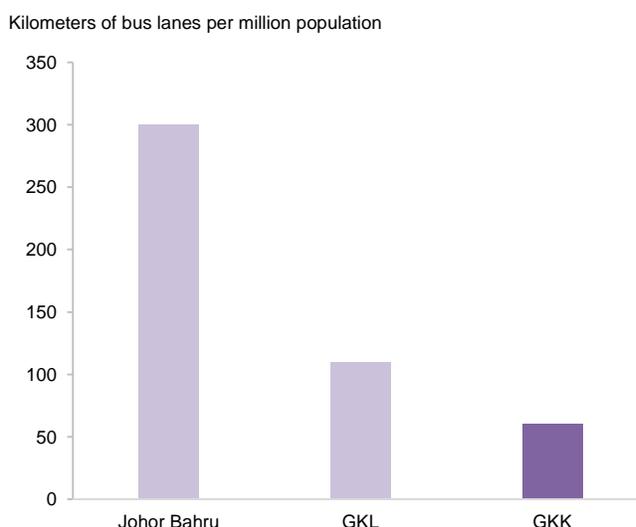
**118. Greater Kota Kinabalu is a medium-sized conurbation with a history of dense growth.** From 2000 to 2010, GKK grew to become the sixth largest urban agglomeration in Malaysia by population and seventh largest by area. Spatially, however, GKK grew slowly over this period, needing significantly fewer square meters of additional urban land per new resident compared to GKL and Johor Bahru (Figure 64).

**Figure 63. Greater Kota Kinabalu has attained dense growth over the years...**



Source: World Bank Platform for Urban Management and Analysis (PUMA) database, DOSM, World Bank staff calculations

**Figure 64. ...but the pace of its growth has been slower compared to cities such as GKL and Johor Bahru**



Source: World Bank PUMA database, DOSM, World Bank staff calculations

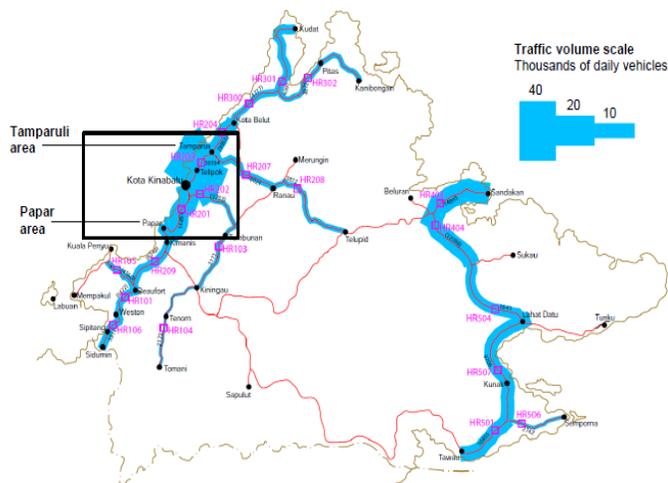
**119. Nonetheless, there are signs that GKK's relatively compact past growth may not continue into the future.** Urban population growth has caused an increase in housing demand in GKK, which is also leading to increases in urban sprawl. For example, high density housing construction has been extended to the areas of Menggatal and Telipok, located 15-20 km from Central KK. Looking ahead, the KK Local Plan 2020 identifies a minimum requirement of approximately 100,000 new dwellings by 2030 to meet the population demand, as well as renewal of sub-standard existing housing stock. To meet this housing demand and to prevent further sprawl, KK City Hall (DBKK) is aiming to encourage the development of new high density housing within existing residential areas and within 5 km of the Kota Kinabalu CBD. In addition, DBKK is aiming to encourage developers to construct high-rise buildings in order to reduce commuting distances and improve the viability of public transport.

**120. Unless carefully channelled, there is the potential for all this growth to exacerbate urban sprawl and lead to a progressive lengthening, complexity, and decentralization of trip origins and destinations, with these trips more likely to be made by car rather than by public transport.** Development control processes may do little to discourage such trends while there is limited evidence of a coordinated land use (and transport) plan for the urban area as a whole. Indeed, GKK already shows signs of congestion, partly as a result of inadequate urban transport provision. In particular, HPU traffic count data indicates that significant traffic growth has occurred to the south of GKK on the way to Papar, suggesting that areas such as the latter have become viable commuter areas for those working in KK, in addition to the Tamparuli area. Moreover, DBKK expects a sharp drop in level of service at key road access routes into the CBD by 2025, even allowing for some capacity upgrades.



**Figure 65. Sabah's road traffic is heavily focused around GKK.**

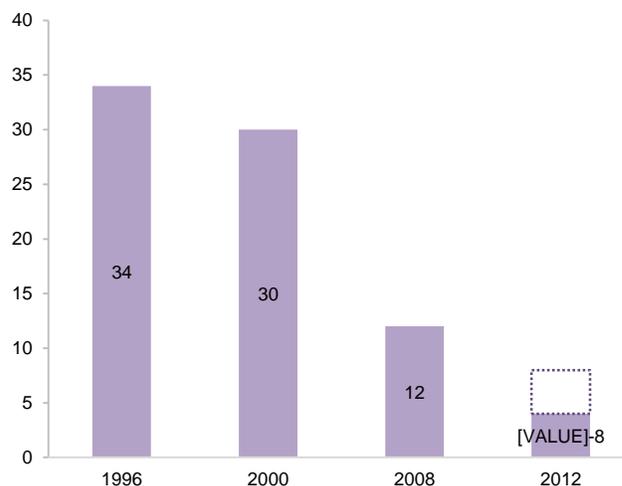
Road network traffic volume (thousands of daily vehicles)



Source: HPU, World Bank staff analysis

**Figure 66. Usage of public transport has declined drastically over the past two decades**

Public transport modal share, percent



Source: PEMANDU Corridors and Cities Lab

**121. Meanwhile, the public transport modal share is low and declining further, with an industry structure dominated by small operators.**

Available data indicate that the public transport modal share in GKK declined from 12 percent in 2008 to between 4 and 8 percent in 2012, depending on the route. This is well below the city's aspirations of a 21-25 percent modal share by 2020. The low modal share is the immediate result of limited coverage and low service levels, but the more fundamental root cause lies in gaps in planning, regulation and enforcement. Compared to Malaysia as a whole, the GKK public transport system consists predominantly of stage (city) buses and mini-bus/van services, with a much lower incidence of worker buses and express buses. There are four main stage bus<sup>44</sup> operators in GKK; the rest of the industry comprises hundreds of small operators using mini-buses and vans. As a result, stage bus supply is highly fragmented: based on data from Sabah Commercial Vehicle Licensing Board (CVLB), there are 681 stage and mini-buses licensed to operate routes in and around GKK, yet only 133 of them are licensed to companies holding more than 10 licenses.

**122. There is limited inter-agency coordination in the management of urban mobility in GKK and efforts to create a new planning authority have not been successful.**

The institutional structure for transport in Sabah, and by extension GKK, comprises multiple agencies with overlapping responsibilities and limited sharing of objectives and priorities or collaboration for program development, delivery or monitoring. While the Sabah State Ministry of Infrastructure Development is responsible for the planning and provision of public infrastructure facilities including transportation, it does not oversee public transport licensing and enforcement, which instead remain federal responsibilities. Three different agencies under the purview of the Federal Government oversee the licensing of motorized vehicles (JPJ Sabah – MoT), commercial vehicles (CVLB), and tourism vehicles (Ministry of Tourism and Culture). Meanwhile, the Sabah State Ministry of Local Government and Housing oversees the orderly development and growth of townships and urban areas through proper structured planning; DBKK, which also plays a transport planning role for KK City, reports directly to the Chief Minister's Department and overlaps responsibilities in this respect with the State Ministry of Infrastructure Development.

**123. As in the case of GKL, GKK lacks a shared analytical framework or set of tools to provide a standing basis for integrated planning, programming, and monitoring.**

Basic GKK data sets for modal share, public transport patronage, and traffic flows are either lacking or collected on an ad hoc basis in response to specific studies or needs.

<sup>44</sup> The term 'stage bus' is the vernacular used to refer to urban/city buses in Malaysian cities.

Fragmentation in data collection results in inconsistencies across agencies and multiple versions of “the truth”. GKK’s need to adopt modal share targets and induce modal shift (e.g. through a combination of supply as well as demand management interventions) can only be met through inter-agency collaboration towards modeling and assessing travel demand, travel costs, modal choice, and how these could interact and change over time and in response to various proposed interventions.

**124. While GKK faces some of the same challenges in the planning and delivery of urban mobility as GKL, there is broader room to maneuver given its classification as an “early intervention” situation, compared to “late intervention” situations more typical of large conurbations like GKL.** Both GKK and GKL share modeling weaknesses underpinning the economic appraisal of large- and small-scale infrastructure and service delivery interventions; both are exposed to multiple differing cross-agency views on data parameters critical to planning; and both feature limited built-in mechanisms to promote inter-agency collaboration. Given its development trajectory, however, GKK has much broader room to maneuver than GKL as there are much fewer locked-in outcomes to deal with or plan around in comparison to GKL, e.g. land use restrictions, locked-in infrastructure and other legacy assets, “sticky” journey patterns<sup>45</sup>, or indeed urban sprawl. As such, GKK can pursue a broader range of interventions, including non-motorized transport and changes in land use, as well as a higher reliance on long-term, rather than short-term, interventions such as institutional and capacity building solutions. In other words, GKK’s early intervention position allows it to craft and pursue proactive strategies much more intensively than GKL, where reactive strategies must now be developed as a matter of urgency.

## Lessons learned from GKL and GKK apply to a range of Malaysian cities

**125. The challenges in planning and delivering urban mobility in GKL and GKK suggest a number of lessons for other Malaysian cities of a similar size:**

- Urban metropolitan areas should have recognized formal boundaries which reflect their economic catchments, travel to work areas, and other influences on the movement of goods and people. These boundaries should influence planning processes, investment profiles, and institutional arrangements in policy and practice;
- the need for a stronger process and sequence of managing, updating, and gazetting land use plans, linking those to robust multi-modal development control arrangements and ensuring effective land use-transport integration in terms of matching transport supply and demand on a consistent basis;
- there should be a coherent approach to multi-modal transport forecasting, planning, and programming, in particular with frameworks for road networks aligned with public transport networks and a broad approach to parking and traffic management, and based on a common set of input data and planning assumptions;
- A more robust approach should be applied to setting modal share targets for towns and cities across Malaysia, especially outside GKL. This should be linked to plans and programs which include the full range of complementary measures for their achievement. The latter should accept the need, in practice as well as theory, for effective measures to shape and manage travel demand, as well as increase infrastructure supply;
- The process of public transport improvement will be driven as much by regulatory reform, industry consolidation, new approaches to financing and revenue support, and a range of operational enhancements as by major infrastructure projects, especially in smaller centers beneath the level of National Growth Conurbations;
- In particular, the previous practice on the Peninsula, still evident to some degree in Sabah and Sarawak, of issuing public transport licenses to sole or small entrepreneurs on the basis of business creation should be replaced with a proper system of route or area franchising to consolidated, professionalized companies or collectives, with appropriate levels and quality of service, financial support for socially-necessary routes, and integration of services with on-street infrastructure and facilities;
- While road construction is legitimately required in most instances, such improvements should be linked to robust forecasts of performance of the network as a whole, gazetted land use plans, agreed assumptions around the potential for modal shift to public transport, and the potential for capacity relief afforded by traffic management and restraint in city centers. Future policy should avoid speculative proposals from the private sector which

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<sup>45</sup> Refer to a ‘late intervention’ situation where there is entrenched demand for driving because there were no alternatives to using a car for a protracted period of time. These commuters tend to stick to car use even when alternatives are (belatedly) offered. In an ‘early intervention’ situation, instead of waiting to act until roads are too congested, cities may provide alternatives to drivers early on. This tends to facilitate transit and increases in non-motorized shares as congestion rises later on.

precede, rather than follow, an objective assessment of planning need and perpetuate a 'predict and provide' approach to road capacity;

- A recognition of the importance of, and proposals for more coherent and robust arrangements of data collection, storage, analysis and reporting are essential and should be coordinated and consistent across agencies. Data should offer and represent a "single version of the truth," be shared and replicated by all planning professionals who require it, and used to support common multi-modal analytical and monitoring frameworks. For example, each major urban area should have a single multi-modal transport model and an agreed set of processes and governance arrangements to use and maintain it;
- there should be a shift away from current practices whereby different agencies collect and hold different data sets, often with bespoke methodologies, assumptions, and reporting formats, and do not share, update or maintain them, undermining the basis for consistent evidence-based decision making;
- there is a need for urgent investment in staff capacity and skills at all levels, but especially if supporting reform to the structures, remits, working practices, and planning processes of agencies to produce a more coherent governance framework for transport planning, delivery, and operations at the conurbation level;
- Finally, there is a central need for reform to fragmented urban transport governance such that their remits, functions, and resources at Federal, State, and city level are brought within scope. In Peninsular Malaysia, this may have implications for the remit and functions of SPAD; in Sabah and Sarawak, the continued role of CVLB should be reviewed as part of any reforms.

## Malaysia can learn from good practices in urban transport planning and delivery to transform urban mobility

**126. While economic activity contributes to the growth of a city, the robustness of that growth is affected by how well the city manages the movement of the people and goods that make it a center of economic productivity.** As cities grow, several aspects of urban transport become increasingly important enablers of economic growth: the provisioning of road capacity, public transportation services, access to various modes of transportation and integration among them, connectivity to adjoining locales, and the overall quality of infrastructure. It thus becomes increasingly critical to invest resources in building and operating a transportation system with inclusion, sustainability, and growth factored into the design and provision of both transport infrastructure and services.

**127. As cities expand, they often become less able to proactively manage this growth and require more integrated planning.** The tendency in many if not most cities has been to address transport problems in a piecemeal manner through supply-side interventions, most often by disparately increasing road capacity and/or constructing high cost mass transit systems. This fragmented approach has done little to stem the negative aspects of urban growth. The solution lies in a more holistic approach that integrates these partial efforts, and in particular combines integrated supply side interventions with demand management. An integrated approach, however, requires a considerable amount of forethought, government support, human and financial capital, and where needed, private sector expertise and resources.

## Governments fulfil a variety of functions from planning to delivery of urban transport

**128. The level of involvement of government agencies in urban transport planning, provision, management, and delivery varies widely in practice.** Six relatively typical government roles, in increasing order of exposure to the end-user, are as follows:

- Strategic planning:** Governments develop high-level goals and policies on standards for the sector and provide long-term direction for major urban transport investment and service delivery needs;
- Regulatory oversight:** Governments manage market entry, issue permits, guarantee safety, and oversee performance of public and private transport;
- Tactical planning:** Governments determine the kind of public transport offering, i.e. the infrastructure, modality, capacity and service level that should be available, as well as the kind of private-vehicle transport facilities that would coexist with public transit and non-motorized transport options (roads, highways, parking facilities, and related systems);
- Operational infrastructure provision:** Governments design, build and maintain transport infrastructure and facilities, such as roads, bridges, parking areas, bus stops, bus terminals, depots, etc.;

- v. **Common services delivery:** Governments provide “common services” across public transport providers, e.g. passenger information systems, ticketing systems, security services, accident response services, etc.;
- vi. **Direct service delivery:** State-owned entities may also directly operate public transport services.

**129. Lead transport agencies at the conurbation level are best-positioned to coordinate and manage a range of functions related to planning and delivery of urban transport.** Managing and delivering urban transport is complex in that responsibilities cut across local, provincial, and national levels of government and span modal, functional, spatial, sectoral and hierarchical functions. A particularly effective way to deal with such complexity is to let cities lead a comprehensive approach to developing and managing urban transport. Specifically, establishing conurbation-level lead agencies responsible for coordinating and managing a range of urban transport delivery functions has emerged as global best practice. Such an entity could be an existing government agency, such as a city-level department of transport, or it could be a newly-created, standalone entity. The following section highlights some of the various forms these entities can take, depending on country/city context.

### **Establishing lead urban transport agencies at the conurbation level is key**

**130. Institutional fragmentation and weakness are primary sources of failure in many sectors.** This is especially true for the transport sector, where multiple subsectors exist (i.e., roads, rail, bus, etc.) and create a need for integrated planning and coordination. A number of cities around the world, of varying sizes and income levels, have established lead integrator entities responsible for the overall strategic planning, coordination, and delivery of urban transport within their jurisdictions (though with varying degrees of coverage). Their experiences provide a body of good practice cases and examples for other cities around the world to follow, albeit adapted to their own particular contexts and circumstances. Diverse cities from Ahmedabad, India to Vancouver, Canada have lead transport agencies of their own (Figure 67).

**Figure 67. Diverse cities around the world have established lead transport agencies**



Source: Based on Kumar and Aggarwal, 2013.

**131. There is strong quantitative evidence to support the assertion that integrated planning through conurbation-level lead transport agencies is associated with more efficient urban mobility and better-performing cities.** According to the OECD, institutional fragmentation in cities across high-income and upper-middle income countries reduces productivity; however, the presence of a metropolitan governance body mitigates this effect by nearly 50 percent (Ahrend et. al., 2014a). The OECD also finds that the existence of organizations focused on the provision of public transport for entire metropolitan areas is correlated with higher levels of public satisfaction with public transport provision and lower levels of air pollution (Ahrend et. al., 2014b). These findings relate back to the point that urban mobility challenges are best tackled by those who are most geographically proximate to the root of the problem.

**132. Agencies must not only consider multiple modes of transport but multiple subsystems such as land use planning, environment, energy efficiency, and/or services for the poor and physically disabled.** It is now a maxim that the integration between land use and transport planning is a fundamental characteristic of successful urban governance institutions (World Bank, 2011). As transport infrastructure directly impacts land use and vice versa, it is critical to optimize how land can best be utilized to shape the demand for mobility and related demand for road capacity and public transport services. This is especially pertinent in East Asia where the urban population has, on balance, grown faster than urban land. From 2000 to 2010, the total urban population of the region increased at an average annual growth rate of 3.0 percent, while urban land grew at a rate of 2.4 percent (World Bank, 2015b). Given that most of the region's population still lives in non-urban areas, more decades of urban growth are likely to follow. There is more of a need now than ever before for transport sector institutions to take land use planning into consideration when making transport infrastructure investments and/or upgrades.

**133. Bringing land use and transport planning together is one example of a lead agency being able to coordinate and accommodate the priorities across both sectors and subsystems.** In addition to land, other subsystems can

benefit from such integration to ensure that the results are cost effective, do not overlook the needs of particular segments of users (whether poor, disabled, senior, disadvantaged, etc.), and address national priorities. For example, a national government may have set environmental or emission reduction targets, which could be met through better public transport access, more fuel efficient vehicles, non-motorized options such as bicycles, and carbon taxes on fuel to reduce overall emissions, among other options. An integrator entity could thus be tasked with leading the process of bringing together the sector level and subsystem priorities to arrive at options for achieving optimal results.

### Lead agencies differ in form and function depending on the country/city context

**134. While lead integrator entities can play several roles, the specific form it takes should reflect the country or city-level context.** Lead transport agencies typically fulfil several critical roles from planning to delivery. The specific form it takes should however take into account its sociopolitical history, current philosophy, and institutional framework of governance. Kumar and Aggarwal (2013) examine cases from around the world and show that there are five principal forms that lead institutions have taken:

- a) An existing government department or municipal authority is accorded the lead function;
- b) A separate entity is established under a dedicated statute;
- c) A separate entity is created under a generic statute applicable to commercial entities, such as legislation setting out rules governing businesses;
- d) A government order establishes the entity without legislative backing; or
- e) Multiple jurisdictions reach a mutual agreement to establish an integrating entity.

**135. Each of these institutional forms poses a different set of advantages and shortcomings.** In the first form, for example, an existing government department or municipal authority may provide ready improvements in planning and coordination with minimal added complexity, as this obviates the need to establish a new agency (particularly in already institutionally-fragmented environments). On the other hand, an existing agency may lack jurisdiction over the entire conurbation, thereby limiting its potential. Establishing a separate entity with a dedicated statute gives the new entity legal backing to define, inter alia, its jurisdiction, financing mechanisms, and technical remit. However, attaining such legal status may prove a lengthy and uncertain process. Mutual, voluntary agreements between jurisdictions can often facilitate the setup process and can offer conurbation-level coverage, but the lack of a dedicated statute may reduce regulatory clout and limit access to financing. Additionally, other factors may influence the relative merits of the various forms: (i) the efficiency with which decisions are made (e.g. speed, procedural accountability, etc.); (ii) the closeness of the entity to end-users of transport systems and other stakeholders; (iii) the extent and efficacy of coordination among jurisdictions; and (iv) the level of priority that each entity can commit to the sector.

**136. Most of the widely-recognized institutional success stories in urban transport planning and delivery involve the establishment of newly created, standalone lead agencies with full legal backing.** Vancouver, Singapore, and London are all examples of this, and are responsible in practice for the planning, funding, building, and marketing of their public and private transport systems. Table 10 illustrates how five cities have established standalone lead integrator entities through dedicated statutes and full legal backing, yet under specific implementation arrangements to fit their particular needs.

**Table 10: Establishing lead agencies as separate entities under dedicated legislation is regarded as global good practice**

Lagos (LAMATA)	<p>The Lagos Metropolitan Area Transport Authority (LAMATA) was created by an act on January 13, 2002, and formally launched on December 2, 2003.</p> <p>The law establishing LAMATA was strengthened in 2007 to include planning and regulatory functions across various modes of transport.</p>
Paris (STIF)	<p>The Syndicat des Transports Parisiens (STP), a single authority in charge of public transport, created in 1959 based on a decree of September 1949.</p> <p>In 1968, its area of jurisdiction was enlarged to cover the seven departments of the Paris region,</p>

	<p>and it was granted financial autonomy.</p> <p>It changed its name to Syndicats Transportes Île-de-France (STIF) in December 2000, ratifying the addition of the Paris region to its board.</p>
London (TfL)	<p>Transport for London (TfL) is a statutory body created by the Greater London Authority (GLA) Act of 1999 by which the Mayor of London Chairs TfL.</p> <p>This Act gave the Mayor of London a general duty to develop and apply policies to promote and encourage safe, integrated, efficient, and economic transport facilities and services to, from, and within London.</p>
Vancouver (GVTA or TransLink)	<p>In July 1998, the British Columbia Provincial Legislature passed the Greater Vancouver Transportation Authority Act, under which the Greater Vancouver Transportation Authority (GVTA), or TransLink, was established.</p>
Stuttgart (VRS and VVS)	<p>The Verband Region Stuttgart (VRS) is an elected regional body created through legislation from the state of Baden-Württemberg, which allows for the creation of government structures that can unite urban regions with their suburban neighbors for the provision of public services. As a result, the territory of the VRS encompasses Stuttgart and five adjacent districts.</p>

Source: Kumar and Aggarwal (2013) and World Bank (2011).

**137. In addition to various forms of establishment, there is a range of functions and modalities that lead agencies have adopted to carry out their respective roles and responsibilities.** Table 11 shows the functional roles and responsibilities of six lead urban transport agencies.

**Table 11: Lead transport agencies fulfil a range of functions from strategic planning/policy to operations**

Lagos (LAMATA)	<p>LAMATA is primarily responsible for coordinating transport policies, programs, and actions of all transport-related agencies in the metropolitan area. LAMATA:</p> <ul style="list-style-type: none"> <li>▪ Regulates and awards concessions to bus operators along BRT routes;</li> <li>▪ Maintains a core road network through the city;</li> <li>▪ Controls parking areas; and</li> <li>▪ Plans routes, including the location of bus shelters, and pedestrian walkways and bridges.</li> </ul> <p>It is also responsible for an identified set of "declared" roads (major arterial roads used for public bus transport operations).</p>
Paris (STIF)	<p>STIF organizes, coordinates, modernize and finances public transport. STIF:</p> <ul style="list-style-type: none"> <li>▪ Formulates the urban mobility plan, determines routes for public transport; negotiates contracts with operators;</li> <li>▪ Sets operational, management and financing guidelines; and</li> <li>▪ Ensures the coherence of investment programs.</li> </ul> <p>It also sets the transport tax rate, decides on fares policy and oversees school transport, transport on demand, and regular passenger boat transport.</p>
London (TfL)	<p>TfL is responsible for strategic planning as well as public transport service planning. Common facilities are operated and managed by TfL or its subsidiaries.</p> <ul style="list-style-type: none"> <li>▪ For example, the underground system is operated by a TfL subsidiary, whereas bus services are contracted to private operators through a PPP arrangement.</li> </ul>
Seoul (MTA)	<p>The Seoul Metropolitan Government deals with area-wide policy and services, while district administrations implement these policies and provide self-contained services. As such, it:</p> <ul style="list-style-type: none"> <li>▪ Coordinates intergovernmental transportation policies;</li> <li>▪ Manages infrastructure and facility investments, including bus route planning and fare collection for all inter-municipal transportation systems; and</li> <li>▪ Resolves interregional transport problems in the Seoul metropolitan area.</li> </ul>
Vancouver (TransLink)	<p>Translink plans, funds, builds and markets an integrated transportation system for the Greater Vancouver Regional District (GVRD), now Metro Vancouver – a larger metropolitan area encompassing several adjoining cities.</p> <ul style="list-style-type: none"> <li>▪ Public transport operations are carried out by multiple subsidiaries of TransLink.</li> </ul>
Stuttgart (VRS and VVS)	<p>The VRS is responsible for long-term regional planning involving land use, infrastructure provision, and public transportation.</p> <ul style="list-style-type: none"> <li>▪ The VRS has a strong mandate for land-use planning, and has the right to approve local land use plans and the right to restrict any activities contradicting the regional plan.</li> <li>▪ The Transport and Tariff Association (VVS) more specifically coordinates and plans transport services and fares.</li> <li>▪ The VVS is responsible for ensuring that a unified fare structure exists and that all services are operated in a way that maximizes their combined potential.</li> <li>▪ A combination of private, city-owned, and subsidiaries of the national carrier Deutsche-Bahn, are responsible for providing transport services including light-rail, tramways, and bus networks within the city.</li> </ul>

Source: Kumar and Aggarwal (2013); World Bank (2011).

**138. Implicit in the above table are key institutional decisions. First, it must be decided whether the lead agency will be responsible for only strategic policy and planning for the sector or also for the provision of infrastructure and/or services, and their operations and maintenance.** An increased degree of responsibility allows for better integration and coordination, but many countries and cities tend to separate the planning and policy functions from the service provision and maintenance functions. The logic is that service planning and fare setting functions are best performed

by public entities because they can focus on public interests, while service delivery and maintenance may be better executed by commercial entities through a coordinated but competitive process. The lead entity would still have oversight responsibility to ensure that the provision of services and the maintenance is adequately carried out. In most cases, lead agencies are responsible for the strategic and policy planning, tactical planning (e.g. fare setting, infrastructure and service delivery planning), and regulatory oversight aspects of urban transport; the operational aspects are, typically, competitively bid to commercial operators (Figure 68). The Ahmedabad example is interesting, however, as it shows how a lead entity can be responsible for both the strategic planning function and management of some operational aspects of the sector.

**Figure 68. Responsibilities of lead transport agencies**

	Strategic Planning	Transport policy planning	Fare setting	Infra-structure planning	Service planning	Driver licensing/ registration	Traffic management /enforcement	Infrastructure construction/ maintenance	Public transport operations
Lagos (LAMATA)	✓	✓	✓	✓	✓	✗	✗	✗	✗
London (TfL)	✓	✓	✓	✓	✓	✗	✓	✓	✗
Paris (STIF)	✓	✓	✓	✓	✓	✗	✗	✗	✗
Vancouver (TransLink)	✓	✓	✓	✓	✓	✗	✗	✓	✗

Source: Kumar and Aggarwal (2013).

**Box 3: A lead agency with a strategic planning and operations function: Ahmedabad in Gujarat, India**

Ahmedabad is a municipality that undertakes the strategic planning function. Responsibility for preparing the comprehensive development plan for Ahmedabad city rests with the Ahmedabad Urban Development Authority (AUDA), an agency of Gujarat state. In practice, AUDA delegates the development planning for Ahmedabad city to the Ahmedabad Municipal Corporation (AMC), which acts as the lead agency. AMC prepares ten-year development plans, controls land use management and parking, and also plans and operates city buses and terminals through the Ahmedabad Municipal Transport Service. Traffic management and control and on-street parking are the responsibility of the police, which are national but with a local branch. AMC has established Ahmedabad Janmarg Limited, a special purpose vehicle, for operating BRT services.

Source: Kumar and Aggarwal (2013).

**139. A second, fundamental determination is whether the lead agency will be responsible for only public transport services, or whether its responsibilities will extend to the management of private transport (e.g. roadways) and other modes of transport (e.g. rail freight and ports) within the metropolitan area or region.** As a general rule, the more comprehensive an entity's responsibilities, the greater the likelihood of better integration and connectivity within the sector. Nonetheless, these potential benefits come at a cost – the more comprehensive the scope, the more resources, capacity, and funding will be required.

**140. Third, when assigning a lead entity its responsibilities, it is useful to consider where the city is in its stage of development.** As a city becomes more mature, a lead entity may become less involved in planning and construction roles as the management and operations responsibilities (such as management of service contracts and public transport) demand more attention. These entities are therefore not static, but rather more fluid in the roles and responsibilities they may have to leave and take on as cities develop. Experience shows that the earlier on in a city's development a lead entity can establish itself and plan through an integrative approach, the better it is for a city's urban mobility future.

**141. Establishing a lead urban transport agency is not a short-term proposition, as it takes time for these entities to become effective and fully realize their potential.** In the case of London's TfL, the process of institutional integration started back in 1933, but it was not until 2000 that TfL was finally formed. During those intermittent years, other transport agencies assumed lead roles, but it took more than 60 years for the city to bring all its modes of public transport under one umbrella entity. While the process of going from strategic planning and coordination across the

sector to realizing on-the-ground results can also take several years to complete, ultimately it is worth the time and effort to avoid the pitfalls and higher costs of patchwork development through a more integrated and coordinated approach.

**Ensuring that lead agencies can sustain themselves financially is important**

**142. When a government makes the decision to establish a lead integrator entity, it next must then provide funding for the entity to fulfill its responsibilities.** The entity might have political support, but it is ultimately the ability to set priorities and allocate funds that give the entity influence and authority. Therefore, it is extremely important that a lead institution is accorded adequate financing to carry out its role.

**143. Funding for a lead entity can come from many sources and be used for a variety of functions.** Depending on the role and responsibilities of the entity, the funding may be used only to manage the entity's day-to-day operations and administrative costs, or, if the entity is also responsible for direct operational functions, enforcement, maintenance, capital investments, and/or construction, for a broader set of responsibilities. Funding sources of successful cases have included: central and/or state government allocations; dedicated tax revenue raised at the conurbation level; debt financing; user fees (farebox, tolls); traffic and parking enforcement; targeted user taxes (such as on fuel); employee taxes; and/or real estate tax value capture (Table 12). In addition, a central and/or state government could mandate that some of the funding be used for targeted subsidies, e.g. for seniors, students, and/or disabled persons, as is the case of Stuttgart.

**144. The mechanism through which agencies are funded matters less than the sustainability and predictability of the financing mechanism, since this impacts the agencies' effectiveness.** There does not seem to be an "ideal" funding mechanism for lead agencies, with multiple sources being used in practice. What is common across the board of successful cases is the unequivocal ability of lead agencies to fund themselves in a predictable manner – through whatever the means may be, depending on local context – and to utilize these funds with autonomy, transparency, and accountability. It is this ability to sufficiently fund themselves and control their own budgets which ultimately enables lead agencies to fully carry out their responsibilities and deliver on their potential.

**Table 12: There is no 'ideal' funding mechanism, but what is key is that agencies can fund themselves**

Lagos (LAMATA)	<ul style="list-style-type: none"> <li>▪ LAMATA levies and collects <b>transport user fees, tariffs, and road taxes.</b></li> <li>▪ It also operates <b>a transport fund</b> with dedicated funding from the Lagos state budget to meet its own operating expenses and make investments.</li> </ul>
Paris (STIF)	<ul style="list-style-type: none"> <li>▪ <b>Transport tax.</b> Paid by companies and administrations located within the regional perimeter employing more than nine people. The rates are decided by an organization of transport authority (AOTU), within the ceiling fixed by the central government.</li> <li>▪ <b>Fares.</b> The STIF is in charge of setting the fares. Fares in Paris region vary on a zoning principle. Five zones exist (8 existed initially); zones 1 and 2 are in central Paris and the fare increases as one moves away from central Paris.</li> <li>▪ <b>Income from public subsidies.</b> Statutory contributions from its members, subsidies from state for school transport, fare subsidies from the Regional Council, subsidies from the <i>départements</i>, and local authorities' compensation for loss making services.</li> <li>▪ <b>Employers.</b> Public and private employers in the region must reimburse their employees 50 percent of their urban transport season tickets.</li> <li>▪ <b>Others.</b> This includes advertising, proceeds of fines, etc. The government sets the amount of police fines (for traffic and parking) and collects them. In the Paris region, 50 percent of the proceeds from fines go to STIF, 25 percent to the <i>départements</i> and the rest to the Region.</li> </ul>
London (TfL)	<ul style="list-style-type: none"> <li>▪ TfL receives <b>grants</b> from the UK Department of Transport that consist of two components: a grant to finance its investment program and a general grant to be used for operations, including its own.</li> <li>▪ In addition, TfL generates <b>funds</b> from fares, congestion fees, and advertising revenue.</li> </ul>
Seoul (MTA)	<ul style="list-style-type: none"> <li>▪ The MTA is funded by budgets from the three individual participating governments.</li> </ul>
Vancouver (TransLink)	<ul style="list-style-type: none"> <li>▪ TransLink has been authorized by respective Vancouver jurisdictions to collect a <b>fuel tax, property tax, and parking sales tax</b> for use toward transport investment and operating costs.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ TransLink also receives <b>transfers</b> from the Canadian government under various arrangements, such as a gas tax agreement.</li> <li>▪ Some funding is also generated from <b>tolls and real estate earnings</b>.</li> </ul>
Stuttgart (VRS and VVS)	<ul style="list-style-type: none"> <li>▪ A significant share of funding is generated through <b>fares</b> by city-owned operators.</li> <li>▪ <b>State and national budgets</b> also subsidize operating expenses, but these subsidies are to be used only for providing lower fares for elderly, student, and handicapped users.</li> </ul>

Source: Kumar and Aggarwal (2013); World Bank (2011).

**145. Difficulties in reaching consensus towards defining the form and function of a lead transport agency should not be construed as a barrier for its adoption.** The experience of successfully managed cities around the world has made it clear that urban transport sustainability depends on integration, and that the most effective way of attaining integration is by assigning a critical mass of public sector functions in urban transport to a single “lead” agency. Defining exactly which public sector functions should constitute this ‘critical mass’ is important, but the international experience shows that this can and should be adjusted over time based on experience and/or need.

**146.** Other lessons learned from international practice include the following:

- **Lead institutions must encompass multiple functions and modes, and cover all jurisdictions** in a metropolitan area;
- **There is no single approach to establishing an effective lead agency.** There will be differences based on existing political and administrative philosophies and legal framework. What is important is to maintain flexibility in approach and adaptability in design to allow for adjustments over time (often through trial and error) while avoiding compromising on long-term objectives;
- **It takes time for lead institutions to become effective.** Their performance and potential should be seen as evolutionary processes. Finding the right balance between expectations and possibilities evolves over time; and
- **Lead institutions must be empowered with sufficient, predictable, stable financial and technical resources** to be able to perform effectively. To be effective, they need financial independence for their own operations as well as clear decision-making authority over all public sector funds being spent on transport in the respective metropolitan area.

## Lead transport agencies can help transform the urban transport landscape in Malaysia

### The heterogeneous nature of Malaysian cities requires differentiated institutional mechanisms to improve urban transport

**147. International experience indicates that there are concrete options available to address the urgent urban transport issues facing Malaysia.** Nonetheless, which cities might benefit from some form of lead agency across their municipal or territorial boundaries depends strongly on the size, shape, geographic context and stage of urban development. The international cases discussed above typically fall into the category of mega cities, and by those standards even Greater KL – with some seven million inhabitants – is of a modest size. Other Malaysian cities are of decidedly smaller scale and in an earlier stage in their urban development, and may thus benefit from different arrangements.

**148. GKL shows all the dilemmas of a mature conurbation that should be addressed by a conurbation-level lead transport agency.** While there remains some discussion as to what exactly is the official GKL conurbation, the basic principle should be that it covers the major transportation origins and destinations that matter for the city to function well. As such, GKL is a strong candidate as the important flows cover these areas. In the broad definition GKL would involve the two Federal Territories of Kuala Lumpur and Putrajaya, and three states – significant parts of Selangor and some parts of districts in Negeri Sembilan and Pahang. If defined more narrowly, it would still cover Kuala Lumpur, Putrajaya, and some eight districts of Selangor State. Whatever the definition used, clearly the scope of development generates traffic across the various jurisdictional boundaries. As such, this presents the kind of dilemmas for which conurbation level lead agencies offer powerful mechanisms for integrating and planning across boundaries.

**149. Penang Island and Butterworth can also be said to form the beginnings of a complex conurbation, but does not yet require a conurbation-level lead agency.** Home to some 1.6 million people within a relatively compact area, Penang State<sup>46</sup> is already of a significant size and faces multiple integration challenges across municipal boundaries to Kulim and even beyond state boundaries to Perak and Kedah. Nonetheless, Penang does not seem to have yet reached a scale or density that would warrant a lead agency at the conurbation level (though perhaps at the State level or even the multi-state regional level). That said, demand for transportation infrastructure and services may be said to be multi-jurisdictional between the island and the mainland, and there are gaps in the provision of public transport services, as well as increasingly significant traffic congestion. Although the state has launched an ambitious Penang Transport Masterplan that addresses these challenges through measures such as increasing road capacity and constructing an LRT, the basic principles of integrated planning across modes and administrative boundaries should apply.

**150. Kota Kinabalu can be said to show the early stages of urbanization and already forms a small, formal conurbation encompassing its surrounding districts.** Although still at an 'early intervention' stage, the increasing traffic into the city of Kota Kinabalu from districts outside the city suggests that now is the time to take measures to avoid sprawl and GKL-level congestion in GKK. Given that the entire metropolitan area of GKK falls within one state, it may be more feasible to consider a state level integrative mechanism to manage land use and transit corridors into and around the city, based on state road networks. Meanwhile, state-wide bus services could cross municipal and district boundaries to capture the relevant transport demand.

**151. Given its size and complexity, GKL emerges as the most "ready" candidate to benefit most from a conurbation level lead agency.** Other cities, such as GKK, Penang, but also Kuantan and the Iskandar region, exhibit similar cross jurisdictional flows and issues, but as of yet seemingly lack the concentration and critical mass to warrant the setting up of a conurbation level lead agency at this time.

### Effective lead agencies have jurisdiction across public and private transport modes

**152. The key question in discussing the role a lead transport agency would play in GKL is whether it would have jurisdiction across public transport/private transport modes.** As evidenced in other countries, the scope of responsibilities of a metropolitan lead agency may be limited to public transport across the conurbation. In GKL's case, this would be the role that SPAD already plays, with the critical proviso that SPAD is not a conurbation-level agency as it has a national jurisdiction over public transport in Peninsular Malaysia. The key challenge in GKL is therefore the need to integrate planning and accommodation of both public and private transport, and the interrelation between them. This would involve looking at modal shares, park and ride facilities, the role of taxis, parking fees and restrictions and, eventually, options for explicit demand management policies with electronic road pricing mechanisms.

**153. The complexity of urban challenges in GKL today and into the future justifies the full scope of a multi-modal lead agency.** A GKL lead agency might thus comprise an integrated, multi-modal planning division, complemented by specialized divisions for private transport, public transport, and traffic management. The traffic management function would enable the agency to regulate both public and private transport within the same limited road space. In the short to medium term this could address a need to give rights of way to buses or accommodate bus lanes, such as for BRT systems. In the medium to long term, this could extend to structural considerations, e.g. the design, or network architecture, of the private and public transport systems, encompassing such considerations as:

- where highway capacity should take the traffic;
- how Federal Roads would intersect with expressways and the city road network, including the impact at the neighborhood level;
- what public transport options should be made available to specific neighborhoods; and
- what (lower) road capacity needs should therefore be provided for, and implications thereof.

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<sup>46</sup> Characterized by the island of Penang, its capital Georgetown, and the close ties it has with Butterworth on the mainland, linked to it by two bridges.

**154. Transport modes do interact, and the planning and management of both together would represent a powerful tool to shape the flow of people and traffic across the conurbation.** In cities like Penang and GKK early focus may be needed on public transport as congestion is not yet the biggest issue in what we might call “early stage conurbations”. Both Penang and GKK are developing their public transport systems for the future, and in both cases a State level planning process has been contemplated or initiated. This is much in line with the level of urbanization, critical mass, density and geographic nature of their respective challenges. Public transport, in both cases bus-based, will need to accommodate the flows within each city as well as across the city boundaries. While the internal distribution needs within cities have begun to be addressed through public transport options, the main task of the road system is still to move people between and among the surrounding towns and cities. In the latter aspect, the State road system is the key asset to be managed. As such these conurbations remain best served by intermodal, state level mechanisms to ensure that both the road capacity and the bus services in and out of the city centers are adequate to meet and manage the growing demand.

**155. A break-through strategy would be for any lead agency in a state, city or conurbation to manage not only private and public transport, but also the land use planning that generates the demand for mobility in the first place.** We take note of the expansive nature of the urbanization process, that typically results in forms of urban sprawl, as developers seek to find affordable land for affordable housing further and further out, and away from the city centers where, typically, the jobs are. A number of land use factors will influence travel demand, and the mode in which that demand is met. If new housing estates are built without adequate access facilities for bus services, residents will have little choice but to take their private car or motorcycle to work. Land use, zoning, or at a more micro level, regulations as to building height, floor ratios or set-backs would affect the uses and densities, and travel patterns of areas to be serviced by urban transport. Although there are many considerations, on balance higher densities enable more efficient and hence more affordable public transport to be deployed.

**156. At the macro level, the shape of the city from its core to the surrounding communities determines the structure of the region and sets the demand for mobility.** Few cities manage proactively to influence the shape of the metropolitan area, but in some cases cities do consciously try to plan where the concentrations of work, housing, and other attractors will be. Some governments have developed satellite town strategies to create centers of concentration outside of the CBD, so as to disperse activities and relieve the traditional town centers of further growth in congestion. The creation of Putrajaya can be seen as such a satellite town strategy, moving jobs away from the center of KL, thus opening up valuable space for commercial and business development, and diverting traffic away from the KL City center. Managing the macro level land use in Malaysia is a Federal and State responsibility, which when properly executed, can provide leverage towards the development of more sustainable urban shapes. Such leverage might encourage a better distribution of critical mass in and around key cities, and better alignment with networking strategies where satellite towns are linked and densified so as to avoid uncontrolled sprawl.

## **A fully-fledged lead transport agency would be essential for Greater KL**

**157. The functions that lead agencies might exercise, and in what sequence they might develop associated roles and responsibilities, depends on specific conditions as well as the history and traditions behind them.** Some European cities have traditionally owned and operated their own bus, tram or metro systems, and some still do. Some also have divested these services and created new markets for these services to be provided by the private sector. Similarly other functions may or may not be logical to consider for a Malaysian lead agency for a conurbation or a State. These various functions are discussed below.

### *Planning*

**158. Planning—strategic, infrastructure, services, and financial planning—is at the heart of any lead agency, at any level, at the city, conurbation, or at the state level.** Clearly integrated planning across jurisdictions and across modes provides the greatest leverage over what is subsequently built and operated. The greatest risk at any level of conurbation is that agencies pursue their own optimization, which may or may not be the solution that secures the sustainable development of the city. The heart of any lead agency's mission is to manage the territorial and supply side instincts of individual agencies through informed decision making which represents and balances the interests of all stakeholders.

**159. Informed decision making begins with having the same shared data and the same shared view as to the nature of the mobility demand that needs to be accommodated.** The typical mechanism is the development of a multi-modal demand model that covers the entire conurbation. The use of such a model allows decision makers to test alternatives and decide what risks to take in providing more or less road capacity, more or less metro capacity, and how these should be combined to meet total mobility needs.

**160. All major metropolitan transport authorities, in their role as lead agency for their constituents, engage in this level of strategic planning to arrive at workable and beneficial infrastructure, services, and financing options.** The core strength of these lead agencies thus is to provide informed and comprehensive plans for the delivery of the assets and services needed to make the city work. They can make choices, but now these can be made in an integrated manner, balancing the needs of both private and public transport modes and their users, so as to both provide mobility and ensure this is balanced against livability and affordability of the system.

**161. Malaysian cities, especially GKL, would benefit from an informed planning function that covers both public and private transport across the conurbation, as would the smaller conurbations and the States.** A practical starting point would be to establish integrated planning processes and procedures for the GKL conurbation, to (a) assist and guide the evaluation of plans for expressways and further MRT and other mass transit lines; and (b) evaluate the impact of residential and commercial developments, and hence the efficacy of the existing land use plans. The size of the investments in expressways and mass transit lines and the consequences of getting it wrong are enormous, and underscores the importance of having a clearly informed set of accountable decision makers to make good decisions and manage their implementation efficiently and effectively. While this would be a critical function for GKL to develop as soon as possible, it would also apply to Penang, GKK, and the Iskandar region.

### *Fare-setting*

**162. Fare setting for both public transport and urban toll roads, as well as parking fee levels are significant policy instruments to shape the demand for mobility.** Pricing is often part of the set of instruments used by metropolitan lead agencies around the world to influence modal choice, among other things. Similarly, in a conurbation such as GKL, the balancing of the cost of travel by public transport against the cost of travel by private car can be a powerful method to change travel behavior. While in reality both public transport fares and expressway toll fees are embedded in long term contracts and fare tables, combining these policy instruments with such instruments such as parking fees and taxi fares can further help to manage mobility demand and shape that demand to attain more sustainable outcomes. This is an area where the integration of private and public modes is essential, not only to devise an integrated plan and associated policies, but to also exercise the integral authority to set these fares and toll fee levels at the conurbation level, where today they are the disparate responsibility areas of SPAD, the expressway operators, and the various municipal or District governments in each conurbation.

### *Operational planning*

**163. Operational planning is a logical extension of the strategic planning function.** Road improvement designs, for instance, need to take into account lane width, turning radiuses, access points, transfer stations – the various aspects that are required for efficient operation of public transport services. Strategic plans provide the context for determining future demand, and within this such considerations as current and future requirements for the metro, car or bus fleets. Operational planning translates the goals of strategic plans into implementable steps, e.g. estimates of numbers of buses, numbers of drivers and fuel to be purchased.

**164. Further, the combination of operational planning of bus capacity with the operational planning of road maintenance in a given year not only helps to coordinate maintenance activities, but also allows for a balanced and complete view of the budgetary requirements across a conurbation.** Even if all of the road maintenance or bus operations are outsourced, and the supplier company or agency does the actual operational planning, a lead agency acting as client still needs to do a level of operational planning to understand the cost structure and the performance levels being proposed.

**165. In Malaysia, the urgency of such operational planning emerging is particularly well exemplified by the design aspects of expressways in need to accommodate BRT systems<sup>47</sup>,** as well as in the planning of budgets for the government support of bus and metro systems.

### *Infrastructure delivery & maintenance performance*

**166. Infrastructure delivery and maintenance performance may be left to expert agencies if based on a conurbation level strategic plan.** The strategic planning for a conurbation, based on the decisions of informed stakeholders, provides the strongest leverage to ensure the required infrastructure is realized. The actual building and maintenance of roads need not and indeed would most likely would not be performed by a lead agency.

**167. The strategic plan of a conurbation with regards to infrastructure needs to be coordinated with national authorities.** There could be corridors of national importance that involve historic rights of way that would now be within the jurisdiction of a conurbation, or there could be such corridors that skirt or lead into the conurbation. In these cases, the MoW would be responsible to build the road in accordance with the alignment agreed upon through negotiations between the Ministry and the conurbation as an authority with jurisdiction over its territory. Similarly if a conurbation such as GKL wishes to have a new highway or expressway built in or through the conurbation as part of its strategic plan, the MoW may well be asked to conduct the detailed design work, tender the works and manage the construction under a budget controlled by the conurbation. In such a way the conurbation would shape its urban landscape, but the line ministry responsible for such infrastructure would execute the plan and provide advice as to how it might best fit into the overall infrastructure.

**168. At the local perspective, some lead agencies have agreed with their constituent cities that any road that falls within the boundaries of a member municipality is the responsibility of the municipality to build and maintain.** The lead agency or metropolitan transport authority would then take responsibility only for the planning, funding and delivery and maintenance of those major arterial roads, highways, metros and bridges that cross municipal boundaries.

**169. In GKL, with a large number of municipalities and geographical jurisdictions, this model may be a good entry point to the delineation of its specific functions.** GKL could consider only those strategic assets and corridors that cross jurisdictions as the responsibility of any new lead agency for the region to deliver. This approach would focus on the strategic needs and how they are to be met, while keeping each municipal transport and works department in place to support the lead agency with technical knowledge, assist in the design of integrating strategic corridors into local streets, and manage local infrastructure.

### *Service delivery*

**170. There are a range of delivery modes to consider for the service delivery of public transport, depending on the transport mode.** Given their fixed nature, use of public space, and level of investment involved, rail-based public transport systems are almost always owned by the city, the metropolitan transport authority or the central government. Actual operation of the trains can be outsourced to an operator. On the other hand, bus operations are more flexible and can be fully owned and operated by the private sector, but the conurbation should retain the control over coverage, capacity deployed, schedules, fares, and performance delivered. This is to ensure that the bus service meets the needs of the conurbation and is made available at fares and service levels that dovetail.

**171. A lead transport agency in GKL would enable the conurbation to plan, develop and establish policies and manage public transport services in accordance with uniform standards, pricing and coverage.** Similarly, the authority could determine road capacity, parking and pricing, which taken together could encourage a more sustainable path of urban development into the future.

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<sup>47</sup> BRT systems are Bus Rapid Transit systems, where buses drive on dedicated, protected lanes on the road surface, which must then be marked and profiled to segregate BRT operations from other traffic, and accommodate BRT bus stops and passenger access to the final destination areas.

## Lead agencies may be established at multiple geographic levels depending on local needs

**172. What institutional shape, form, and jurisdictional scope a lead agency takes on depends on the scale and scope of the challenge, its geographical and institutional complexity, and on what might be the most expedient entry into its development.** Lead agencies may be established at the city, conurbation, state, region or multi-state level. The notion of the lead agency is that it leads the integration of transportation functions across jurisdictional and/or modal boundaries which may be in operation at any level.

- a) At the city level there may be an existing traffic or works department that can take the lead in planning for the entire conurbation, working with the departments of the other municipalities in the conurbation to create the conditions for the establishment of an integrated transport plan across the dimensions of public transport, private transport, parking, and fee levels as discussed.
- b) At the State level an integrative body – with jurisdiction across city boundaries affected within the state – may be a useful option to plan for roads and bus services across city and district boundaries. This would be effective in providing the connected cities in an emerging conurbation such as Penang-Butterworth conurbation or the GKK conurbation with state level decision making authority across their jurisdictions and across the modes, covering roads, intercity bus services and possibly local bus services as well. A concentration of planning and decision making at the state level would bring together the efforts of current state level agencies and enhance the skill levels available to cities in the state as well, much as the State of Sabah is trying to do.
- c) In some instances it may be necessary to create a new agency—specific for a conurbation, e.g. for GKL, across State and local boundaries and Federal Territories. The new agency would be able to establish a professional, dedicated unit, with dedicated Chief Executive Officer, to perform the strategic planning functions as described, and where traditional city units have neither the requisite experience nor the legal jurisdiction to do so. In other words, and in contrast with Penang and GKK, the GKL conurbation is reaching a critical mass and a level of complexity that would justify a more dedicated, custom made structure, commensurate with its importance to the national economy.

**173. The mobilization of adequate sources and levels of financing is critical to the success of a lead authority if it is to have the leverage to deliver its plans as intended.** Experience throughout the world has shown that the ability of the lead agency to control and allocate funds, in accordance with its plans, is essential. Given the large amounts of financing needed to develop and operate transportation systems, no conurbation is likely to be able to be fully self-financing. It is important, however, once the funds are allocated to an agreed urban transport program, that the lead agency has the authority to control those allocations to meet its goals.

## Paying for urban transport

**174. Lead agencies, as extensions of government, need to mobilize and effectively manage different sources of funding.** Funding sources come from different levels of government, and some funding sources may be more appropriate than others depending on the type of project, operational need and phase of development. The main options are described below. Moreover, some forms of funding have additional benefits of encouraging public transport ridership.

### Level of government

#### *Central government*

**175. The central government will likely remain a main source of funding, especially for capital investment and public transport support.** This is the case in London and other major conurbations worldwide. Such central government funding should be scoped to meet the needs of an overall urban mobility program developed and managed by the relevant conurbation, city or state government. It is the essence of integrated planning and development that, for instance, specific road projects or metro projects would no longer be proposed or financed except as part of an integrated plan or program, developed through an informed decision making process led by the conurbation, city or state government.

### *State governments*

**176. State governments are typically less strong financially but should seek clear funding sources for their state and local conurbation programs.** State governments often act as delivery systems for central government programs. Cities and conurbations within a state can request funding for such investments as upgrading or renewal of urban roads, or for support to public transport if the city has met certain conditions, e.g. developed a demand model or traffic circulation plan, to justify its request for a given percentage of the costs to be incurred.

### *Modes of financing*

**177. In conjunction with providing the right level of funding to the lead transport agency, opportunities are ample in Malaysia to further promote the efficient use of public transport networks by increasing the appeal of taking the public transport compared to driving.** The various funding mechanisms discussed below can be used both to raise financing, but also to encourage usage of public transport.

### *Transport system user fees*

**178. User fees—revenue from the public transport farebox and toll roads—should be considered a primary source of funding.** Public infrastructure and public transport systems are expensive. In some cases operating costs can be met by user fees, but in most cases the capital costs of public transport systems cannot. Toll roads also have a mixed track record internationally as to their viability as a model where user fees finance capital costs. A large number of toll road operators end up in litigation with their respective governments over the need to raise the fees or receive additional compensation to cover lower than expected revenue. In addition to the possibility of inadequate revenue levels as part of normal business operations, there may be a perceived need to keep use fees (especially public transport fares) low for social and/or environmental reasons, including to promote usage. In such cases, while user fees may comprise a major portion of the total funding required, government subsidies may be deemed appropriate for the balance.

**179. The existing and extensive expressway system around GKL might offer an opportunity to use more dynamic pricing of toll fee levels, to encourage more use of public transport or else to spread out the road trips across the day, charging more at peak than off peak, for instance, so as to reduce congestion.** A lead agency at the conurbation or state level would be well positioned to establish a relative pricing scheme, to influence and shape the demand and at the same time increase revenue to the system. While today's expressways and metros in Malaysia do not belong to any conurbation, the lead agency models (as in Vancouver) would enable such an authority to plan for expressways or metros within the conurbation, to be built at their own initiative, with user fees set to support their specific mobility policy. Undertaking such major investments and managing such complex systems as expressways and metros are by definition non-trivial projects and represent sizable costs and levels of responsibility. It is precisely for that reason that a fully a manned, permanent, dedicated and professional authority is proposed for GKL to be established, with a clear mandate as to its responsibilities, and full accountability given within in its oversight structure.

### *Taxes on private vehicle ownership and usage*

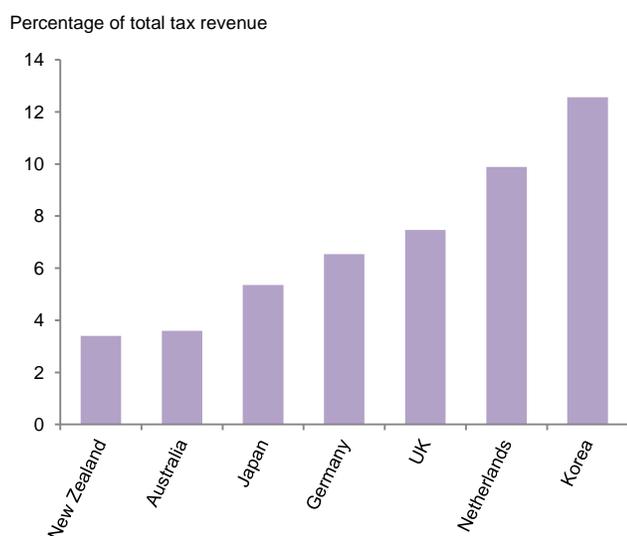
**180. Many economies impose taxes on motor-vehicle-related expenditure that raise revenues but also increase the cost of owning a motor vehicle, thus reducing the overall demand for owning and using vehicles** (Table 13). In many OECD countries, taxes on motor vehicles are also regarded as charges on social costs related to the use of motor vehicles, such as air and noise pollution, damage to publicly-funded roads, as well as urban congestion. The restructuring of tax systems to more effectively promote environmental objectives began in the early 1990s, starting with some Nordic countries, and thereafter spreading to other countries including the Netherlands, the UK, and Germany (Heine, 2012).

**Table 13: Taxes and Fees/Charges on Motor Fuels and Vehicles**

	Car Import Tax	Car Excise Duty	Luxury Car Tax	Tax on Heavy Vehicles	Fuel Tax	Congestion Charge	Road User Charge
Netherlands	√			√	√		
Germany	√	√		√	√		
UK	√	√			√	√	
New Zealand					√		√
Australia	√	√	√		√	√	
Japan	√	√			√		
Korea	√	√			√		
Singapore	√				√	√	
Thailand	√				√		
<b>Malaysia</b>	√	√					

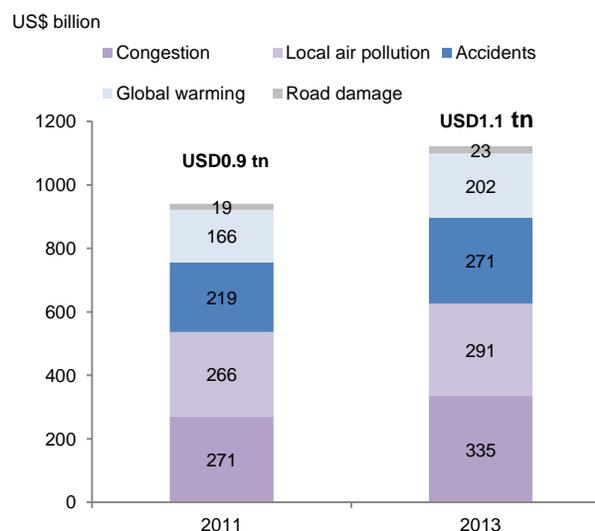


**Figure 69. Environmental-related taxes make up between 3 and 13 percent of total revenues in OECD economies**



Source: OECD database, World Bank staff calculations  
 Note: Latest available data varies across economies between 2010 and 2012.

**Figure 70. Most environmental damage caused by petroleum consumption stems from congestion and local air pollution**



Source: Coady, D., et. al. (2015).

**181. Today, environmental-related taxes, particularly on motor fuels and vehicles, constitute a substantial source of government revenue.** They range between 3-13 percent in the OECD countries (Figure 69). In a number of emerging and developing economies such as China, Vietnam and Thailand, policymakers are considering environmental tax reforms, motivated by:

- Scope to generate additional revenues to strengthen fiscal position
- Growing acceptance among policymakers that emissions-pricing instruments are far more effective at exploring a wider range of emissions-reduction opportunities than are regulatory approaches (Heine, 2012).

- Environmental concerns due to rising greenhouse gas concentrations, deteriorating urban air quality and increasing congestion of transportation systems.

The IMF recommends that motor fuel taxes should factor in the externalities stemming from congestion and accidents, as well as road damages caused by heavy trucks (Parry, 2012). According to Coady et. al. (2015), the environmental damage associated with petroleum consumption is estimated at USD1.1 trillion globally in 2013 (1.3 percent of global GDP), stemming mainly from externalities caused by congestion and local air pollution (Figure 70). To this end, a longer-term shift away from significant taxation of fuels and vehicles towards more innovative charges varying with miles driven on busy roads may also be beneficial.

**Table 14: VAT/GST Rates in the Transport Sector**

Country	Items in the transport sector		
	Tax-exempt	Zero-rated**	Standard-rated
<b>Netherlands (21%)*</b>	<ul style="list-style-type: none"> <li>Road toll charges<sup>48</sup></li> </ul>	<ul style="list-style-type: none"> <li>Public transport (6%)</li> </ul>	<ul style="list-style-type: none"> <li>Fuel</li> <li>Parking charges</li> </ul>
<b>UK (20%)</b>		<ul style="list-style-type: none"> <li>Public transport fares</li> </ul>	<ul style="list-style-type: none"> <li>Fuel</li> <li>Road toll charges</li> <li>Off-street parking charges<sup>49</sup></li> </ul>
<b>New Zealand (15%)</b>			<ul style="list-style-type: none"> <li>Fuel<sup>50</sup></li> <li>Public transport fares</li> <li>Road toll charges</li> <li>Parking charges</li> </ul>
<b>Australia (10%)</b>			<ul style="list-style-type: none"> <li>Fuel<sup>51</sup></li> <li>Public transport fares</li> <li>Road toll charges</li> <li>Parking charges in city areas</li> </ul>
<b>Japan (8%)<sup>52</sup></b>			<ul style="list-style-type: none"> <li>Fuel</li> <li>Public transport fares</li> <li>Road toll charges</li> <li>Parking charges</li> </ul>
<b>Singapore (7%)</b>			<ul style="list-style-type: none"> <li>Fuel</li> <li>Public transport fares</li> <li>Parking charges</li> </ul>
<b>Thailand (7%)</b>	<ul style="list-style-type: none"> <li>Domestic and international transportation by land</li> </ul>		<ul style="list-style-type: none"> <li>Fuel</li> <li>Road toll charges</li> <li>Parking charges</li> </ul>
<b>Malaysia (6%)</b>	<ul style="list-style-type: none"> <li><b>RON95 &amp; diesel fuels</b></li> <li><b>Public transport fares</b></li> <li><b>Road toll charges</b></li> </ul>		<ul style="list-style-type: none"> <li><b>RON97</b></li> <li><b>Charter/tour bus</b></li> <li><b>Boats, vessels, cruise liner</b></li> <li><b>Parking charges</b></li> </ul>

Source: Malaysian Customs, National Taxation Office websites, Newsflows

Notes: \*Figures in parentheses refer to current VAT/GST rate. \*\* Zero-rated unless otherwise stated.

<sup>48</sup> In the Netherlands, toll roads are operated exclusively by bodies under public law.

<sup>49</sup> On-street parking is operated by the Local Authority and is covered by statute; hence, there is no VAT.

<sup>50</sup> GST is applied on top of excise tax:

NZD0.56524/liter - National Land Transport Fund  
 NZD0.099/liter - ACC Motor Vehicle Account  
 NAD0.0066/liter - Local Authorities Fuel Tax  
 NZD0.00045/liter - Petroleum or Engine Fuels Monitoring Levy

<sup>51</sup> GST is applied on top of excise tax:

AUD0.38143/liter on unleaded petrol, ultra-low sulphur diesel, ethanol fuel and biodiesel fuels  
 AUD0.40143/liter on conventional diesel fuel  
 AUD0.125/liter on LPG used as fuel starting July 2015

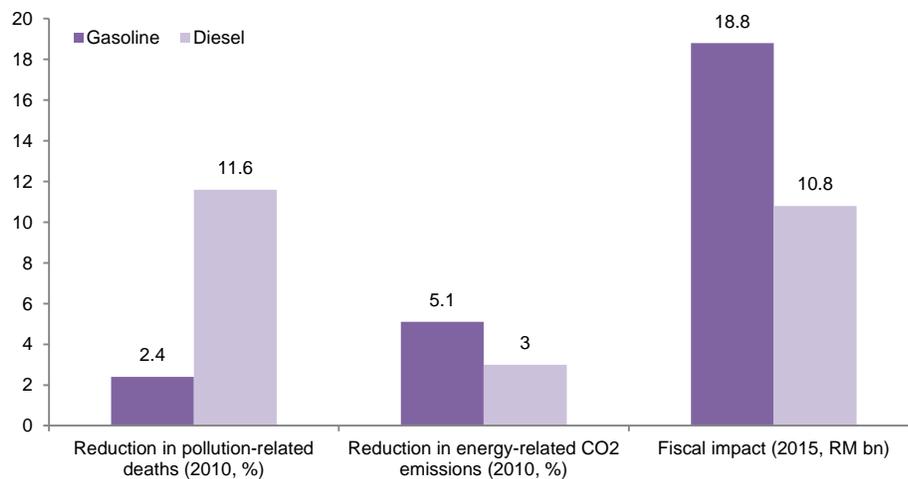
<sup>52</sup> Scheduled to be increased to 10 percent in October 2015.

**182. Many countries also use GST/VAT strategically with respect to transport.** In many countries, public transport is exempt from GST or zero-rated, while private transport-related costs such as fuel and parking charges are standard-rated (Table 14). In Malaysia, public transport is exempt from GST, but so is fuel and toll charges. In countries such as Australia, GST is applied on top of excise taxes on fuel.

**183. Comparing Malaysia's existing tax system with the environmental tax systems in selected countries suggests significant scope for policy reforms that can provide funding to transport agencies while addressing the externalities of (and thus discouraging) private transport.** Some areas include the introduction of taxes on emissions sources, the aligning of taxes with external damages, and scaling back redundant energy taxes. Of significance, corrective taxes on both gasoline and diesel<sup>53</sup>, as recommended by the IMF, are estimated to not only yield substantial reductions in pollution-related deaths and in CO2 emissions, but also result in large fiscal gains (Figure 71).

**Figure 71. Corrective taxes on gasoline and diesel not only reduce pollution-related deaths and CO2 emissions, but would also result in fiscal gains of RM10-19 billion**

Percent/ RM (bn)



Source: Methodology adopted from Parry, I., et.al. (2014). Getting Energy Prices Right: From Principle to Practice, IMF

**184. A locally-levied tax on fuel purchased within the conurbation is an even more directly linked source of revenue for local lead transport agencies.** Vancouver's lead agency has been given the authority to levy fuel purchases as an important source of revenue for their systems and roads. Considering the important evolution of Malaysia's fuel policy in recent years, this may emerge as a feasible option, especially given its strong logic: make the car user pay for the infrastructure he or she uses (not all of which is supported by tolls) and pay for the development of public transport alternatives, equally to his own benefit if he chooses to use them.

**185. Another type of usage charge increasingly adopted are road-pricing schemes.** Major cities globally have adopted road-pricing schemes that more accurately reflect the social cost of road travel, targeting particular locations and times to curb urban congestion. Box 4 provides a snapshot on global developments in congestion charging since the 1970s.

- For example, London, Stockholm and Singapore charge motorists a fee to enter the city center during the peak hours. The "congestion charging" has reduced traffic volume, increased average speeds and decreased congestion in affected areas. Estimates suggest that the schemes in London and Stockholm have reduced traffic volumes entering the city center by around 20 percent, reduced traffic delays by between 30 and 50 percent, and significantly shortened travel times (Booz Allen Hamilton, 2006).

<sup>53</sup> Estimated at USD0.62/liter (RM2.20/liter) for gasoline and USD0.65/liter (RM2.32/liter) for diesel in 2015.

- In New Zealand, global positioning system technology tracks the distance travelled by heavy vehicles for the purpose of road-user charging<sup>54</sup>.
- In Australia, the New South Wales government introduced the time-of-day tolling on the Sydney Harbor Bridge and the Sydney Harbor Tunnel. This led to lower toll costs during off-peak times and higher toll charges during peak times.

**186. The usefulness and effectiveness of congestion pricing and other modes of financing that also act as demand management tools is closely linked to having an integrated and effective lead transport agency.** Congestion pricing and other usage charges that act as both financing sources and tools for demand management are analogous to the peak/off-peak pricing of expressways described earlier. Similarly, it would require an agency with an integrated view of urban transport development to maximize the likelihood such demand management schemes are successful.

#### Box 4: Congestion pricing

Singapore's congestion price scheme started as a World Bank project in 1975 under the name Area License Scheme (ALS). The scheme required all passenger cars entering a "congestion price zone" during restricted hours to purchase a license that was displayed on the vehicle's windscreen. The congestion price zone included the downtown business and financial district as well as the commercial, hotel, and shopping districts in the center of the city. The intent of the ALS was to reduce traffic by 25 to 30 percent but traffic reductions exceeded expectations and there is evidence that the ALS reduced peak-period traffic flow as much as 50 percent.

In 1998 the ALS was replaced with the Electronic Road Pricing (ERP) system. The ERP imposes a congestion toll on vehicles passing through a road without requiring them to slow down or stop. Since ERP allows the toll to vary for different roads at different times of the day depending on the prevailing level of congestion, it is able to manage traffic demand in a more targeted and flexible way, to optimize the use of the road

Singapore's scheme has reduced congestion but its success has been linked to continuous upgrading of the public transport system to compensate for the welfare loss of commuters, highlighting the role of both demand and supply-side policies for addressing urban congestion and mobility challenges.

Year of implementation	Measure
1970s	Cordon charge in Singapore
1986-2003	Norwegian cities adopt toll rings
1995-1996	Southern California impose high-occupancy toll lanes
1996	Full electronic road pricing (ERP) in Singapore
2000	Congestion pricing for New York bridges
2002-2004	Switzerland and Austria impose truck tolls
2004	Cordon charge in London
2005	Germany tolls autobahn trucks
2006	Stockholm imposes congestion charge

Source: Goh (2002) and McCarthy (2001).

<sup>54</sup> In New Zealand, all vehicles that run on a fuel that is not subject to fuel excise duty (e.g. diesel) must have a current road user charges license. Road user charges are distance based, and can be purchased in multiples of 1,000 kilometers from the NZ Transport Agency and approved road user charges agents. The cost of a license varies, depending on the type of vehicle and its weight. The current cost for a road user charges license for light diesel vehicles (weighing 3.5 tonnes or less) is NZD58 per 1,000 kilometers.

## *Ancillary services*

**187. Public Transport operators can generate significant funds through ancillary services with advertising and small scale retail space rentals inside their facilities.** Operators can and do generate significant amounts of revenue by allowing advertising to be placed on and inside their buses and trains, and inside their stations. Retail space is often available inside stations and bus terminals, providing opportunities to deliver convenience for travelers as well as revenue for the operators. Some operators generate 10-20 percent of their revenue through these forms of ancillary services. Their designation depends on the arrangements made; if operators transfer all their revenue to the contracting lead agency under a gross cost contract, these ancillary revenues will follow the same path. If the operator is simply subsidized, then the revenues will help to offset the subsidy requirement.

## *Transit-oriented design*

**188. Transit oriented design and the related possibilities to capture the value created by linking real estate to transit systems is rapidly becoming a core strategy for lead agencies to fund their operations.** A number of cities, Hong Kong in particular, have had great success in creating and capturing value, either by linking their metro systems to adjacent real estate development or by themselves developing real estate on top of stations in a fully integrated manner. In China, the Kunming railway operator, fully owned by the city, has a dedicated real estate division to develop and market real estate. Clearly the proximity or direct link between metro and real estate adds value to both the metro system and to the real estate by making it easily and rapidly accessible in otherwise congested downtown locations. The famous Petronas Twin Towers and the impressive new development around KL Sentral are world-class examples of the value thus created. The challenge remains to capture that value and turn it into cash to support the development and operation of the metro system.

**189. A metropolitan lead agency can be the mechanism by which such value may be created and captured and the funds channeled back into the funding of the metro.** In any scenario, it would be the lead agency in a metropolitan area that would plan and design the metro system, based on a full and in depth understanding of the demand as well as the housing and commercial developments that drive that demand, and therefore be in a good position also to shape that demand. In KL today, Prasarana and MRT Corporation are the entities that will own and operate the urban rail systems, and will thus be in a good position to begin the process of strategically matching the massive investment in rail with the value captured. They may own parcels of land around their system stations, or the air-rights to build on top of the stations, and can enter into agreements to make linkages to adjacent buildings, as has already been done.

**190. Capturing the value can be achieved in a number of ways.** Operators or lead agencies can themselves develop real estate and rent out the space to generate monthly cash flows, and in so doing incur the risk associated with the cost of construction and the risk of occupancy. They can, alternatively, as Singapore has done, sell the land or the rights to professional developers, who bear these risks, and the cash generated can then be used to pay off the debt incurred to build the system. The value can also be captured by the city governments involved via a real estate tax. Some cities have higher tax rates for real estate within 400 meters or so of the metro access than elsewhere, and such funds can be allocated to support the urban infrastructure as well. One of the challenges that remains is to ensure that such revenues—which also can be generated through traffic enforcement, parking fees, and tickets—do not 'disappear' into the general coffers of the city, such that the stable funding of road, bus and metro systems may not be systematically supported thereby.

**191. Affordability considerations should also be included in decisions regarding TOD.** There is a concern that new projects with the highest appreciation returns, such as those that may be considered for TOD, are generally not affordable to low-income groups. Adequate land use planning and consideration of using TOD revenues towards ensuring affordable housing near public transportation assets is critical to ensure that a growing reliance on TOD does not have a negative impact on social and economic inclusion.

### Box 5: Lessons from transit-oriented development

TOD is a high-value complement to mass transit development. Compact, mixed-use, high density development around key mass transit stations can have the dual benefits of creating a ridership base that enhances the economic and financial viability of the mass transit investment and compounding the accessibility benefits a mass transit system can bring to a city's residents. The following are some lessons drawn from examples of successful TOD from around the world.

First, realizing that TOD requires coordinated efforts across multiple sectors and a series of inter-linked development phases, where attention to detail is crucial. TOD should ideally be an integral element in a city's master plan. An urban design scheme for TOD would be contextual and consider various dimensions including integration with and access to the transit station, supporting a right mix of land uses and density, and the creation of a walkable, human scale environment around it. Getting TOD right is often about getting the details right: for example, planners in Singapore often reserve direct pedestrian links to the entrances/exits of stations and guiding pedestrian circulation through sheltered walkways as critical elements of a successful TOD.

Second, successful TODs require not only the city's support of high density, mixed use development around transit, but also prioritizing the development of these areas over others in the metropolitan area. In the best scenario, this priority is reflected in an urban growth pattern that mirrors the mass transport network, as in Curitiba, with little or no development outside the system.

Third, the transit accessibility of successful TODs has to be higher than auto accessibility. Achieving this requires a number of deliberate actions: for example, Singapore's transport and land use policies promote greater convenience and lower cost for public transport than driving; London and Boston reduced the amount of parking spaces in downtown buildings to prioritize public transport.

Fourth, implementing successful TOD requires strong legal backing, sound financial planning and appropriate timing. At a technical level, it is necessary to formulate detailed development control guidelines and enforce such guidelines in a manner that is transparent and consistent, yet not perceived to be overly burdensome. The legal environment is critical and defines the role that the government plays beyond providing access to infrastructure and appropriate zoning. Financing considerations are also important. TOD offers a variety of land-value capture opportunities for recouping the financial costs of mass transit development such as through joint development at stations; tax-increment financing; and selling air rights in up-zoned areas. However, experience suggests that it is not easy to avoid conflicts of interest between financial gains for the public sector and safeguarding the interests of area residents. Timing issues are also critical: the construction schedule of the transit station and the adjacent public infrastructure needs to be carefully coordinated with market demand and therefore, the release and development of land parcels around it.

Source: Huang and Mehndiratta 2014

### *Employee tax*

**192. Another effective, targeted instrument is the employee tax, which lead agencies may be authorized to levy, paid by companies per employee, to pay for the traffic these companies generate.** This model, actively in place in France, provides a direct relationship between the tax and the benefits the employer obtains from services that bring the employee to the work place. The tax is in this case nationally mandated to benefit cities and help them cope with the costs of traffic generated by the employment base.

### *Borrowing*

**193. Lead agencies may be enabled to incur debt, directly or indirectly through a subsidiary company or special purpose vehicle (SPV) to finance an investment.** With backing of its supervising member governments, a lead agency may be empowered to borrow funds, deploy an SPV to raise funds for an investment in assets, and/or channel funds such as user fees and farebox revenue to finance investments and support the operation of the investment made.

Since public transport revenues and in many cases expressway revenues are unlikely to cover capital costs in full, repayment of such debt will most likely require support from the general revenues of the federal or state government. The benefit of such borrowing is that the full cost of procuring the asset, such as new road or metro, does not hit an agency's budget as a lump sum, but rather may be paid back over time. Malaysia is generally familiar with such financing of transportation assets, but a new lead agency with an operational mission would need to be empowered by its member governments (the participating cities and states) to do so.

**194. Operators may incur debt to finance assets based on government contracts to provide infrastructure and services.** Expressway operators, backed by government concession contracts, the revenue from their toll gates, and in many cases government guarantees of minimum levels of revenue, can finance their assets and operations directly with commercial debt. As lead agencies around the world move towards contracting bus services on a gross cost basis<sup>55</sup>, companies can finance their assets based on contracts that cover their total cost of deploying and operating their buses to fit the network and timetable the lead agency wants to see provided. As the operator carries no revenue risk, banks would be more willing to lend to the operator that would deploy the assets. Such contracts shift the burden of borrowing for capital assets onto the operating entity, but the lead agency effectively pays for the asset over time as part of the contract to provide bus services to the agency.

**195. Such gross cost contracting is now being used in Malaysia at a small scale by government, and promises to be a valuable mechanism both to ensure delivery of guaranteed services and ensure the operators can operate and sustain themselves financially.** The revenue risk is carried by government or its lead agency, which in turn receives all revenues and supplement these as needed (with Federal and/or State funding) to pay the operators the full cost of delivering and operating the asset.

**196. Claims on general revenues of state and central governments generated by transport financing schemes need to be transparently disclosed and risks adequately managed.** While there are efficiency gains from different public-private partnership financing modes that allocate risks to the parties better able to bear them, the associated liabilities need to be carefully monitored and disclosed. Where there are expected claims on future general government revenues, those should be recognized in the Government's balance sheet in the same way as regular debt. Those liabilities that are contingent such as minimum revenue guarantees or debt guarantees to agencies or operators that are expected to be financially viable (for example, if they are combining the development of transportation assets with transit-oriented development) should be disclosed in a fiscal risk statement. Such a statement would quantify the risks to the government budget, and the provisions that are made in case the guarantees need to be called.

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<sup>55</sup> Under such "gross cost contracts", the Government pays the bus companies a fixed fee per kilometer driven, based on a fixed route and schedule, with all revenues going to the Government.

## Annex I: Estimate of Congestion Costs

This annex describes the methodology used to calculate the estimated costs of congestion in Kuala Lumpur. These are not rigorous or comprehensive estimates, but illustrative of the economic importance of improving urban transport to relieve congestion. For an example of a rigorous study that estimates congestion costs comprehensively, see World Bank (2014b).

Recall that the costs of congestion include (World Bank 2014):

- a) **Delays\*** – Costs related to travelers in slow-moving traffic
- b) **Reliability** – Time wasted due to changed expectation of average travel time
- c) **Fuel\*** – Cost of excess fuel wasted when cars are not moving, or moving slowly due to traffic
- d) **CO2\*** – Economic cost of CO2 emissions
- e) **Road Safety\*** – Economic cost of accidents, including injuries and loss of life
- f) **Other emissions\*** – Health costs of emissions during traffic congestion
- g) **Vehicle operating cost** – cost of additional wear-and-tear (for example, due to stop-start driving)
- h) **Productivity** – economic cost of lost productivity of businesses and industries
- i) **Suppressed demand** – the economic cost of not making a trip to avoid traffic congestion

\*In this Economic Monitor we estimate only costs related to a) Delays; c) Fuel; d) CO2, e) road safety; f) other emissions (as a whole).

### Delays

**Delays due to traffic are measured using differences in average speeds in peak vs. off peak times as estimates of congestion.** Data on average speeds comes from 60+ road segments across GKL, mapped out and measured on Waze's live traffic map<sup>56</sup> at different times of the day. The road segments correspond to the 102 intersections in the city's eight primary transport corridors that are used measure traffic volume in the 2014 SPAD land public transport survey, and are hence likely to result in conservative estimates of average speeds in GKL. Average speeds per corridor and the corresponding volume of private vehicles are shown in Table 1. To match data from the 2014 SPAD survey, only AM peak (6.00-10.00a.m.) speeds are shown. Another GPS-based data source provides similar delay estimates at the city level in Table 2.

**Table 15: Volume of private vehicles and difference in average speeds across primary transport corridors in GKL**

	Volume of private vehicles (AM peak)	Average speed, AM peak (km/h)	Average speed, off-peak (km/h)	Difference in average speeds (km/h)
Damansara	185,925	49.44	69.77	20.33
Cheras/Kajang	421,818	31.28	53.51	22.24
Klang/Shah Alam/PJ	993,997	41.72	68.03	26.31
MRR1	1,297,872	39.94	65.43	25.49
Putrajaya/Seri Kembangan	789,050	48.92	87.13	38.21
Ulu Klang	166,080	29.84	62.90	33.06
Selayang-Rawang	225,091	31.85	78.50	46.65
Sungai Buloh/Kepong	336,733	58.34	80.19	21.86
Ampang	279,406	32.67	67.40	34.73
<b>Total / Weighted averages</b>	<b>4,695,951</b>	<b>41.57</b>	<b>70.63</b>	<b>29.07</b>

Source: Waze Live Map, SPAD LPT survey (2014) draft. World Bank staff calculations.

<sup>56</sup> Accessed at <https://www.waze.com/livemap>. Data accessed on 21-22 May, 2015.

**Table 16: Difference in average speeds, city-wide estimates**

	Time	Average speed (km/h)
AM peak	6.00a.m. – 10.00a.m.	32.82
Off-peak	4.00a.m.	40.05
PM peak	5.00p.m. – 8.00p.m.	25.57
Fastest speed recorded (5.00 a.m.)	5.00a.m.	43.05
Slowest speed recorded	6.00p.m.	23.45
Difference (AM peak/off-peak)	N/A	7.23
Difference (PM peak/off-peak)	N/A	14.48
Difference (fastest/slowest)	N/A	19.60

Source: Smartphone GPS data from a sample of private transport providers in GKL, 2014

**The first step is to convert differences in speed into an estimate of delay in hours.** That requires an estimate of the distance of the average trip. Estimates of average trips vary widely – from 12 km (Abdullah, 1995) to about 30 km (Jaff and Kadar Hamsa, 2013, which find average daily commuting distance of 61km). We assume a conservative estimate that trips are 10km on average. Therefore, the delay on the average trip is 7.5 minutes. This is much shorter than what Jaff and Kadar Hamsa find (33 minutes). The Kuala Lumpur Structure Plan 2020 notes that in 2004 there were 8.3 million person trips made daily within the Klang Valley Region. While this number is sure to be increased in the past decade (there are 7.62 million private vehicles on the road<sup>57</sup> and each vehicle being used likely makes an average of over two trip/persons per day), we use it as a starting point<sup>58</sup>. This leads to total time wasted of 1,037,050 hours per day or 269.8 million wasted hours per year.

**The delay in hours then needs to be converted into a monetary amount by assuming a value of time.** Although there are many ways to interpret and estimate the value of time, one way is to simply look at income – in other words, the amount that one would be earning if they were not stuck in traffic. To estimate the value of time, two approaches were used using household labor income<sup>59</sup>; both yield similar results.

Under Approach 1, one takes the monthly income of a KL household with at least one car, which as of 2012 was RM 8,096. The labor force participation of men is approximately 0.81 and of women 0.53 in 2012, so assuming each household is composed of one working adult male and one working adult female, we divide the monthly income of RM 8,096 by 1.34 (0.81+0.53) = RM 6,042 per worker per month.

Under Approach 2, one uses the monthly per-capita income of KL households with at least one car, which was RM 2,662. Multiplying that by the inverse of the labor force to population ratio, the estimated nominal per capita income is RM6,064 per worker, per month.

Combining both approaches the average nominal labor income per worker, per month for households in GKL with at least one car was RM6,050 in 2012. Adjusting to 2014 by inflation gives RM6,420 per month. Converting this to an hourly figure (assuming that a working week of 40 hours, or 160 hours a month), **the average nominal labor income per person is estimated to be RM40.10 an hour.**

Multiplying this estimate by the wasted time gives **RM 10.8 billion per year or 1.0 percent of 2014 GDP.** Table 3 shows the calculation of the possible delay costs based on different assumptions of average trip length and number of trips per day. Assuming average trip length of 15km and 10 million trips/person/day, the cost climbs to 1.8 percent of GDP.

<sup>57</sup> 2014 SPAD LPT survey (draft version).

<sup>58</sup> This analysis also does not take into account that emissions, particularly of local pollutants, go up both with high speeds and low speeds.

<sup>59</sup> Includes paid employment and self-employment.

**Table 17: Possible delay costs based on different assumptions**

	Low	High
Average Speed Off Peak	70.63	70.63
Average Speed, Peak (av. Am/pm)	37.50	37.50
Average trip distance	10	15
Average delay (minutes)	7.5	11.3
Number of trips/person/day	8300	10000
Hours wasted per day ('000s)	1,038	1,876
Hours wasted per year ('000s)	269,931	487,827
Cost per hour of wasted time (RM)	40.1	40.1
Cost per year (RM million)	10,824	19,562
GDP (2014)	1,106,580	1,106,580
Cost (% of GDP)	1.0	1.8

### Fuel costs

Fuel costs are estimated similarly by multiplying the excess hours spent in traffic by an average measure of fuel usage while idling by the cost of fuel. With the additional time cars spend in slow and start-stop traffic, and assuming 1.2 persons per car and that an idling engine consumes 2-3 liters an hour, an additional 450 million liters of gasoline are consumed annually. At the non-subsidized price of RM 2/liter, **the cost of wasted fuel is RM900 million or 0.1 percent of 2014 GDP**. At the high-end (3 liters per hour and longer average trip) wasted fuel can add **up to 0.2 percent of GDP**.

	Low	High
Hours wasted per year ('000s)	269,931	487,827
Fuel consumption when idling (liters per hour)	2	3
Fuel price (RM), 2014	2	2
Compensatory Tax (RM), 2014	2.2	2.2
Persons/car	1.2	1.2
Wasted fuel (thousands of liters)	449,885	1,219,567
Fuel cost (RM million)	899.77	2,439.13
Fuel cost/GDP	0.1	0.2

### Environmental externality

Environmental externality costs are estimated using the IMF's corrective tax estimate discussed above of RM2.20 per liter, which gives a range of 0.1-0.2 percent of GDP.

	Low	High
Compensatory Tax (RM/liter), 2014	2.20	2.20
Wasted fuel (thousands of liters)	449,885	1,219,567
Environmental cost (RM million)	989.75	2,683.05
Environmental cost/GDP	0.1	0.2

Therefore, only including these three categories of costs yields a cost to the economy of 1.1 – 2.2 percent of GDP or USD 365- USD 705 per capita per year. Divided by the population of Greater KL, this comes up to about RM3,100 per resident annually. Note that emissions, particularly of local pollutants, go up both with high speeds and low speeds. Speeds of 24-40 km per hour are actually around the “sweetspot” of lower emissions across the speed spectrum. Therefore, given that the data on average speeds do not allow us to separate cars idling then speeding (which would cause maximum emissions) from cars simply moving at moderate speeds (which would cause lower emissions) or a combination, the uncertainty around the estimates of environmental externalities is especially wide.

### Box 6: Calculating the costs of congestion – the World Bank Cairo Traffic Congestion Study

The World Bank Cairo Traffic Congestion Study adopts a comprehensive and rigorous approach to estimate congestion costs. Phase I of the study collected data on the traffic count and travel time in 11 major corridors in the Greater Cairo Metropolitan Area (GCMA), which were then extrapolated to the rest of the city. Phase II went a step further by collecting additional data on vehicle volume and average speeds for an expanded network that includes local roads which are not part of 'major' corridors, as well as using GIS data to indicate the type of road and number of available lanes. Average speeds in both directions of each corridor/local road for three time periods – the morning peak (7.00a.m.-11.00a.m.), evening peak (3.00-7.00p.m.) and off-peak (5.00a.m. and 6.00a.m.).

Using this data on average speeds, as well as data on vehicle occupancy/load factors and the value of time for each mode of transport, the cost of two types of delays due to traffic congestion were estimated:

a) *Recurring delays – delays due to daily, standard congestion.*

$$\text{Recurring Travel Time Delay } (\$) = \sum_{\text{for all vehicular modes}} \text{Vehicle Occupancy} \left( \frac{\text{passenger}}{\text{vehicle}} \right) \times \text{Value of Time} \left( \frac{\$}{\text{hour/ton}} \right) \times 250 \text{ Working Days} \times \text{Length of Corridor} \text{ (km)} \times \text{Volume of Vehicles at Congested Period} \text{ (pcu)} \times \left( \frac{1}{\text{Average Congested Hour Speed} \text{ (km/hr)}} - \frac{1}{\text{Free Flow Speed} \text{ (km/hr)}} \right)$$

b) *Non-recurring delay – delays due to one-off events such as accidents.*

$$\text{Nonrecurring Travel Time Delay } (\$) = \sum_{\text{for all vehicular modes}} \text{Incident Delay Ratio} \times \text{Vehicle Occupancy} \left( \frac{\text{passenger}}{\text{vehicle}} \right) \times \text{Value of Time} \left( \frac{\$}{\text{hour/ton}} \right) \times 250 \text{ Working Days} \times \text{Length of Corridor} \text{ (km)} \times \text{Volume of Vehicles at Congested Period} \text{ (pcu)} \times \left( \frac{1}{\text{Average Congested Hour Speed} \text{ (km/hr)}} - \frac{1}{\text{Free Flow Speed} \text{ (km/hr)}} \right)$$

\*The incident delay ratio was developed for each road from a detailed examination of the freeway characteristics and volumes, as well as a methodology developed by the Texas Transportation Institute to model the effect of incidents based on the design characteristics and estimated volume patterns.

The study finds that approximately USD 8 billion is wasted every year in due to traffic congestion in GCMA, or 3.6 percent of Egypt's total GDP. Delay costs represent a third of the total congestion costs – the single largest driver. The main findings are summarized in the Table below.

Cost component	Value	Annual cost (Million USD)	Percent of total cost (%)	Annual cost per capita (USD)
Delays	2.2B hours	2,443	31	125
Reliability	1.4B hours	1,526	19	78
Fuel	1.9B liters	1,094	14	56
CO2	7.1B kilograms	63	0.8	3
Safety	0 fatalities, -3100 injuries, 34,800 property damage only	-92	-1	-5
Vehicle operating costs	N/A	371	4	19
Other emissions	44M kilograms	1,478	19	75
Agglomeration/productivity	N/A	875	10	45
Suppressed demand	N/A	204	3	10
Housing demand	N/A	10	0.2	0.5
TOTAL	N/A	7,972	100	406

Source: World Bank Cairo Congestion Study (World Bank, 2014b).

### Box 7: Comparing the costs of congestion around the world

Given that there is no standard methodology for calculating congestion costs, comparing estimates of congestion costs across cities is problematic. Although most studies examine the costs due to delays and fuel wastage, the level of detail and types of data used to estimate these costs often differ widely – not just across countries/cities, but for a single country or city. For example, Litman (2014) argues that the Texas Transportation Institute's annual Urban Mobility Report exaggerates the cost of congestion in the United States – estimated at US\$121 billion in 2013 – by using higher baseline speeds and travel time unit cost values than experts recommend. Additionally, congestion costs should be compared across cities/countries that are similar in terms of geography, demographics and other relevant variables (World Bank, 2014).

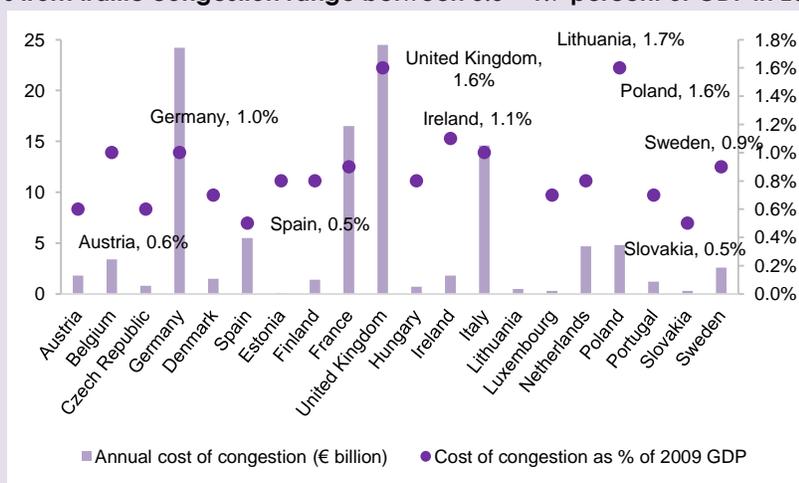
Due to the limited data available for peer cities, benchmarking the cost of congestion in Kuala Lumpur against comparable cities is therefore beyond the scope of this chapter. Nonetheless, Table 18 provides some idea of congestion costs in other cities. As in Kuala Lumpur, delays account for a large portion of congestion costs in many of these cities. Even in advanced economies in the European Union, the cost of congestion due to delays ranges between 0.5 percent and 1.7 percent of GDP in each country (Figure 72). It should be noted, however, that this data includes intercity traffic; the cost of congestion due to delays strictly within urban areas is likely to be lower.

**Table 18: Costs of congestion across cities in 2011, estimated using different methodologies**

Urban area	Cost per year (time/liters)	Annual monetary cost (USD million)	Cost per capita (USD)	Cost as a % of gross regional product
Jakarta	Fuel, VOC, delay	5,200	542	5.7
New York-Newark, NY-NJ-CT	Fuel, delay	9800	527	1.8
Beijing	Delay	4,718	472	1.6
Chicago	Fuel, delay	8,200	921	1.1
Toronto	Fuel, delay, CO2	1,282	233	0.5

Source: World Bank 2014b

**Figure 72: Delays from traffic congestion range between 0.5 – 1.7 percent of GDP in European countries**



Source: Christidis and Ibañez Rivas, 2012

Note: Data used represents real speed measurements from TomTom in-vehicle navigation systems

Source: Authors

## Annex II: Zero-Rated and Exempt Goods & Services

### MALAYSIA:

	Zero-Rated	Exempt
Goods	<ol style="list-style-type: none"> <li>1. 8 categories of poultry, meat and fish</li> <li>2. Fruits and vegetables</li> <li>3. Spices and herbs</li> <li>4. Coconut including grated coconut</li> <li>5. Certain kinds of bread and flour (2 categories)</li> <li>6. Salt, certain kinds of cooking oil, granulated sugar</li> <li>7. Paddy and certain types of rice, noodles and lentils (3 categories)</li> <li>8. Shrimp sauce, fish sauce and shrimp paste</li> <li>9. Coffee, tea and cocoa powder</li> <li>10. All types of reading materials and newspapers</li> <li>11. Medicines in the National Essential Medicines List (4,215 brands)</li> <li>12. Goods supplied from mainland Malaysia to Langkawi, Labuan and Tioman</li> <li>13. Goods, supplies and spare parts for sea voyages and flights</li> <li>14. Baby formula age 0 to 36 months</li> <li>15. Treated water for domestic use</li> <li>16. Electrical supply for the first 300 units of domestic use</li> <li>17. Supply of raw materials and components under the Approved Manufacturers Toll Scheme</li> </ol>	<ol style="list-style-type: none"> <li>18. Services relating to ships and aircraft at ports and airports</li> <li>19. International flights and voyages for passengers and cargo</li> <li>20. Insurance services for international flights and voyages for passengers and cargo</li> <li>21. The hiring of goods for use outside Malaysia</li> <li>22. Services in connection with a land situated outside Malaysia</li> <li>23. Contracts with a person who is outside Malaysia</li> <li>24. Financial services in connection with the export of goods to a place outside Malaysia</li> <li>25. Life insurance contract or family takaful contract relating to risk outside Malaysia</li> <li>26. Cultural, sports, educational, training, entertainment and other services performed outside Malaysia</li> <li>27. Telecommunication services to parties outside Malaysia</li> <li>28. Telecommunication roaming services</li> <li>29. Services relating to computer server co-location contracts with foreign parties</li> <li>30. Services for advertisements promulgated outside Malaysia</li> <li>31. Postal services for international mail</li> <li>32. Services supplied by an approved refund agent under the Tourist Refund Scheme</li> <li>33. Services relating to inbound or outbound tours by a person who belongs in Malaysia to a person who belongs in a country other than Malaysia when the services are performed.</li> <li>34. The lease of air and sea containers</li> <li>35. Inwards remittance transactions from overseas to Malaysia and global international remittances hub services</li> <li>36. Online newspaper services</li> </ol>
Services	<ol style="list-style-type: none"> <li>1. Land for residential, agricultural and general purposes (cemeteries, agricultural land and houses of worship)</li> <li>2. Residential building</li> <li>3. Investment precious metals comprising gold, silver and platinum in stipulated forms and gold, silver and platinum coins as listed</li> </ol>	<ol style="list-style-type: none"> <li>4. Selected financial services</li> <li>5. Educational services registered under the related Act or with the Ministry of Education.</li> <li>6. Child care services provided by any child care centre registered under the Child Care Centre Act 1984</li> <li>7. Healthcare services provided by any private healthcare facilities registered or licensed under the Private Healthcare Facilities and Services Act 1998</li> <li>8. The rental or lease of land or building for residential or agricultural or general purposes. Management services by a management corporation or a joint management body for low or medium low strata title housing is exempted from GST.</li> <li>9. Public transportation (land and water)</li> <li>10. Highway tolls</li> <li>11. Funeral, burial and cremation services</li> <li>12. Maintenance fees and sinking funds for all types of residential buildings that are held under strata ownership</li> </ol>

Source: <http://gstmalaysiainfo.com/gst-list-zero-rated-exempted-relief/#ZeroRate-Svc>

### AUSTRALIA

	Zero-rated (GST-free)	Exempt (Input-taxed)
Goods	<ol style="list-style-type: none"> <li>1. Most basic food</li> <li>2. Some education courses, course materials and related excursions or field trips</li> <li>3. Some medical aids and appliances</li> <li>4. Some medicines</li> <li>5. Supplies of accommodation and meals to residents of retirement villages by certain operators</li> <li>6. Cars for disabled people to use, as long as certain requirements are met</li> <li>7. Water, sewerage and drainage</li> <li>8. International transport and related matters</li> </ol>	

	<ul style="list-style-type: none"> <li>9. Precious metals</li> <li>10. Sales through duty-free shops</li> <li>11. Grants of land by government</li> <li>12. Farmland</li> <li>13. International mail</li> <li>14. Exports</li> <li>15. Some telecommunications supplies</li> <li>16. Eligible emissions units.</li> </ul>	
Supplies	<ul style="list-style-type: none"> <li>1. Some medical, health and care services</li> <li>2. Some childcare services</li> <li>3. Some religious services and charitable activities</li> <li>4. Sale of a business as a going concern</li> </ul>	<ul style="list-style-type: none"> <li>Financial supplies</li> <li>Supplies of residential rent</li> <li>Supplies of residential premises (not new)</li> <li>Certain fundraising activities</li> </ul>

Source: <https://www.ato.gov.au/Business/GST/>

## SINGAPORE

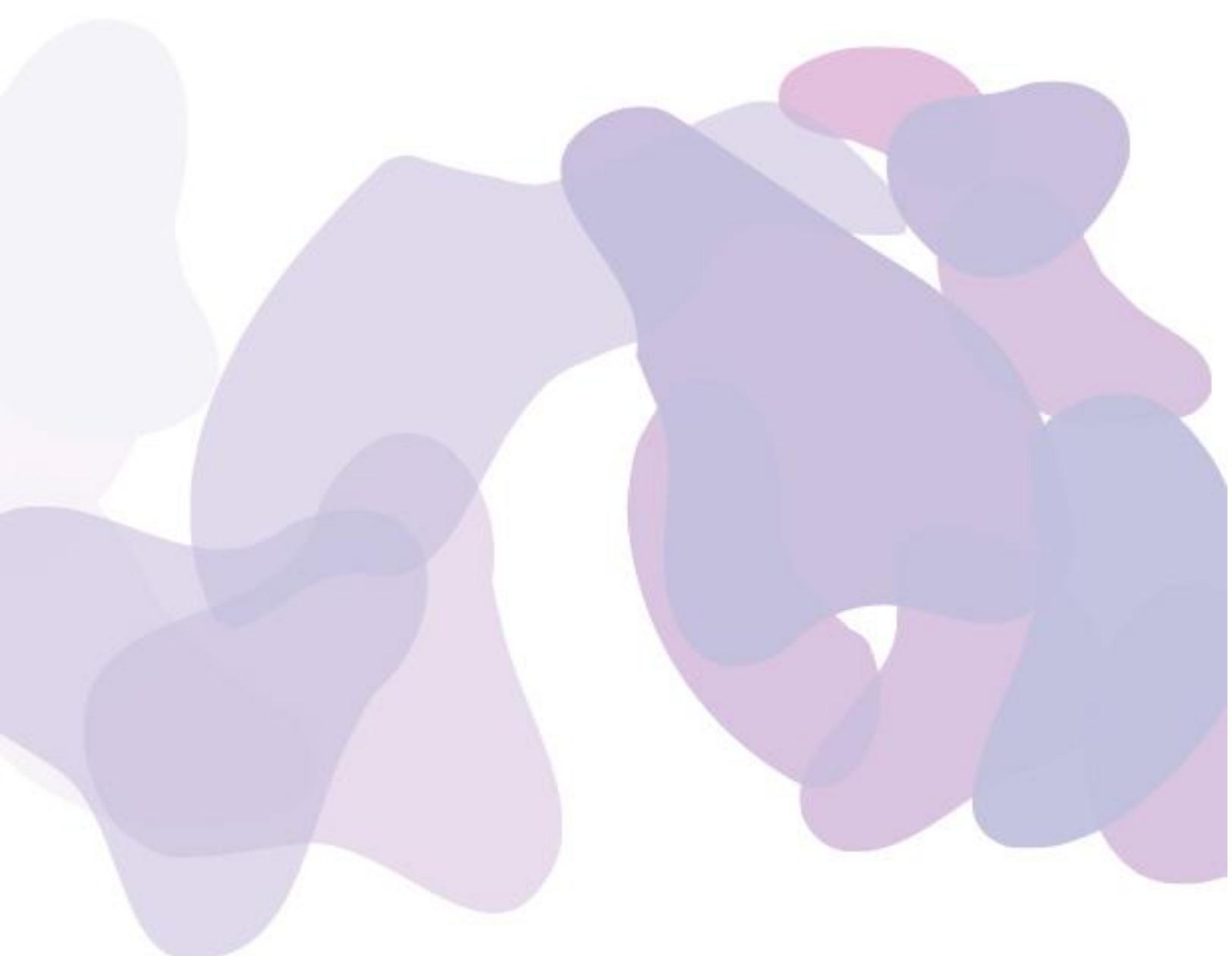
	Zero-Rated	Exempt
Goods	Export of goods	<ul style="list-style-type: none"> <li>Sale and rental of unfurnished residential property</li> <li>Importation and local supply of investment precious metals</li> </ul>
Services	<ul style="list-style-type: none"> <li>1. International services: Advertising</li> <li>2. Co-location services</li> <li>3. International transport for goods and passengers</li> <li>4. Lease or hire of transport</li> <li>5. Services performed completely overseas</li> <li>6. Services related to goods for export and goods moving outside Singapore</li> <li>7. Services related to land/buildings/goods located overseas</li> <li>8. Services supplied to overseas persons</li> <li>9. Supplies related to ships/aircraft</li> <li>10. Services related to electronic systems</li> <li>11. Services performed on goods stored in a warehouse under the Specialised Warehouse Scheme</li> <li>12. Supplies related to air and sea containers</li> <li>13. Telecommunication services</li> <li>14. Trust services</li> </ul>	<ul style="list-style-type: none"> <li>Financial services</li> </ul>

Source: <https://www.iras.gov.sg/irashome/GST/GST-registered-businesses/Learning-the-basics/Goods-and-Services-Tax--GST---What-It-Is-and-How-It-Works/>. Updated May 2015

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