



Environmentally Sustainable Transport

Brunei Darussalam
4th Regional EST Forum
February 2009



Presentation Focus

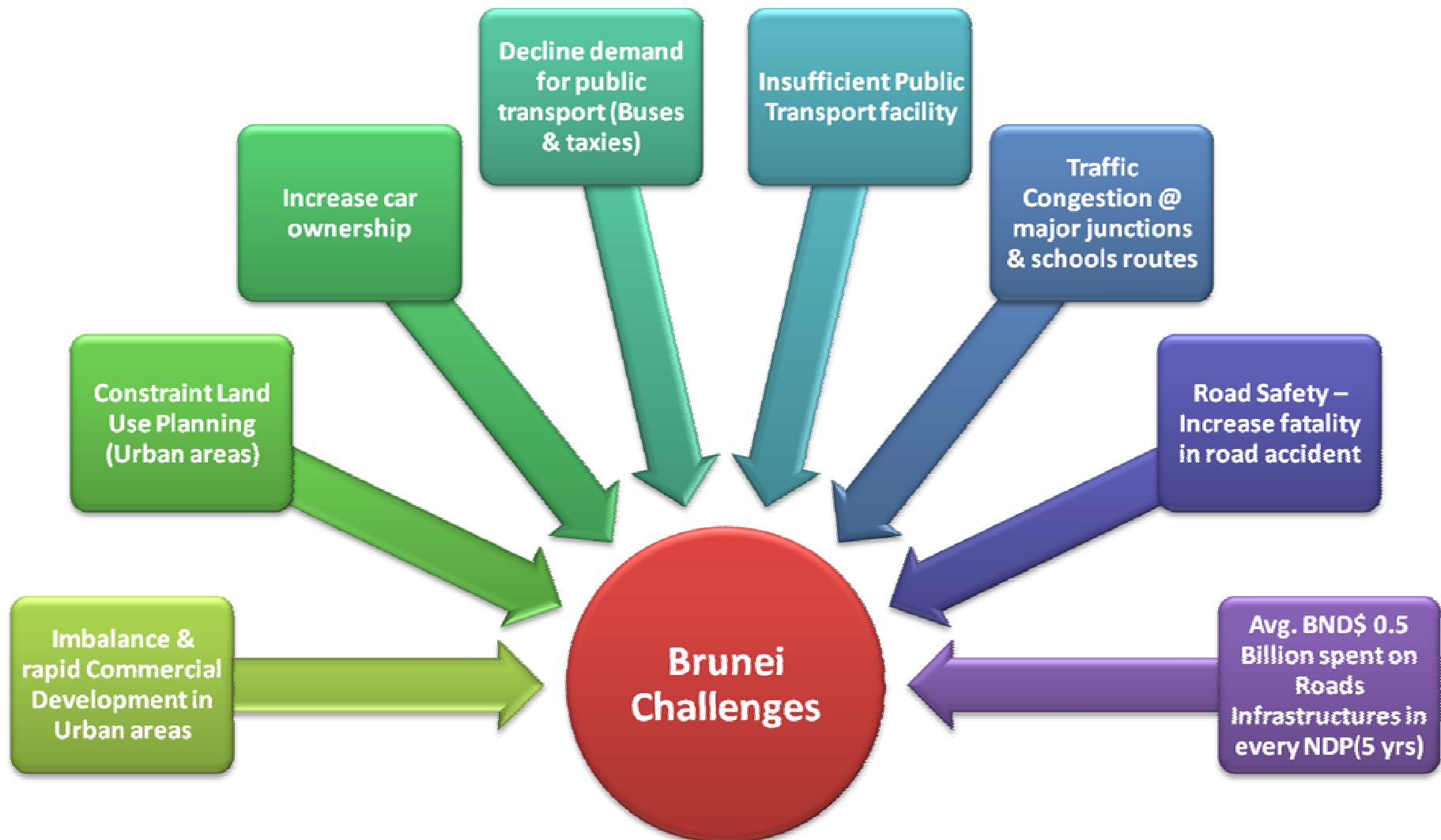
EST Presentation Structure

- Country's Progress
- Significant Achievement
- Policy and Institutional Gaps
- Future Strategies

Key EST Areas

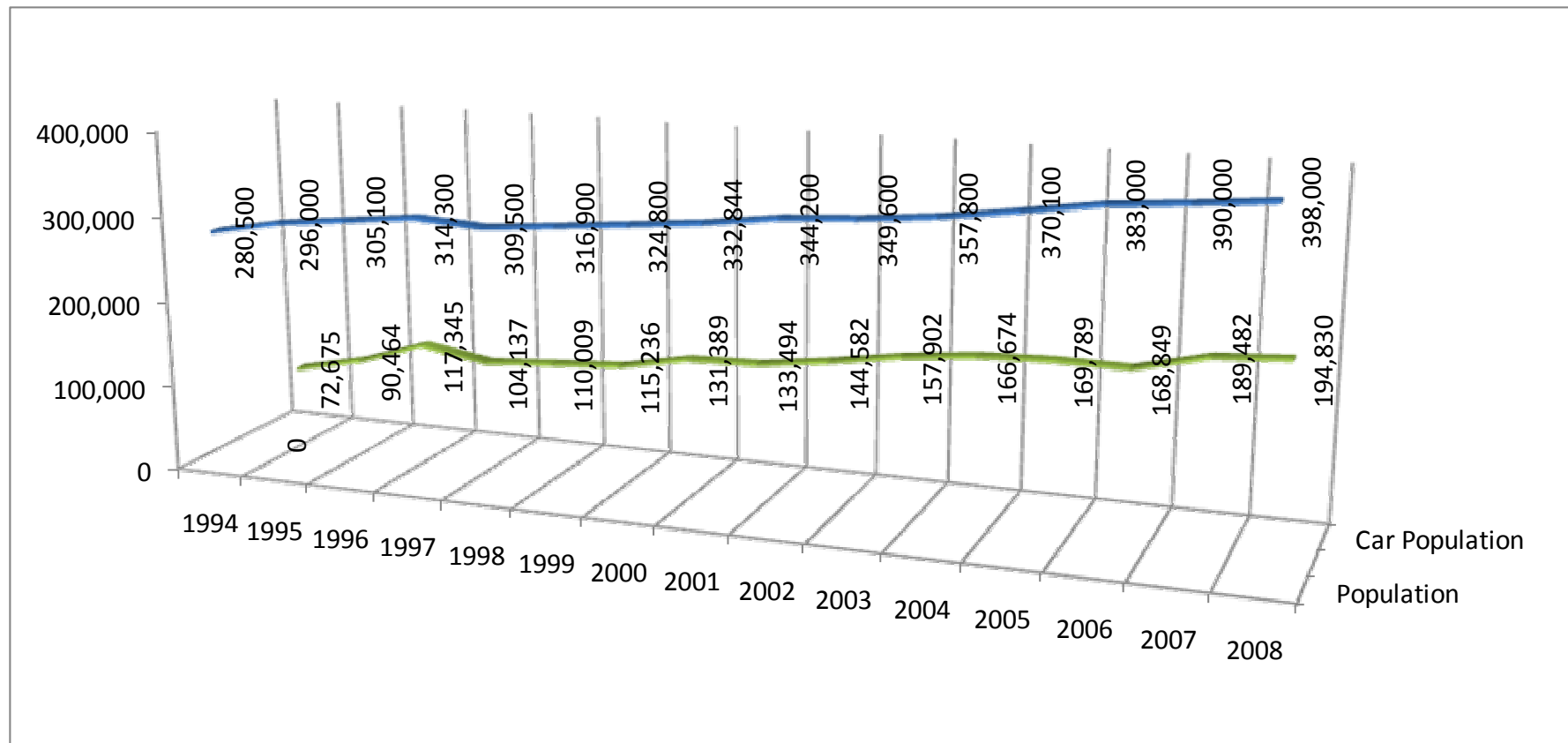
- Public Transportation Planning, Multi-Modal Integration, and Transport Demand Management
- Non-Motorised Transport (NMT)
- Land-use measures for pollution reduction in the transport sector
- Road Safety Measures and Public Health Issues related to transportation

3rd EST Forum Highlighted Challenges



Transport Trends (Population vs Vehicles)

Source : Land Transport Department, Ministry of Communication



FUEL SALES VOLUMES

(2000 Actual - 2009 Forecast)

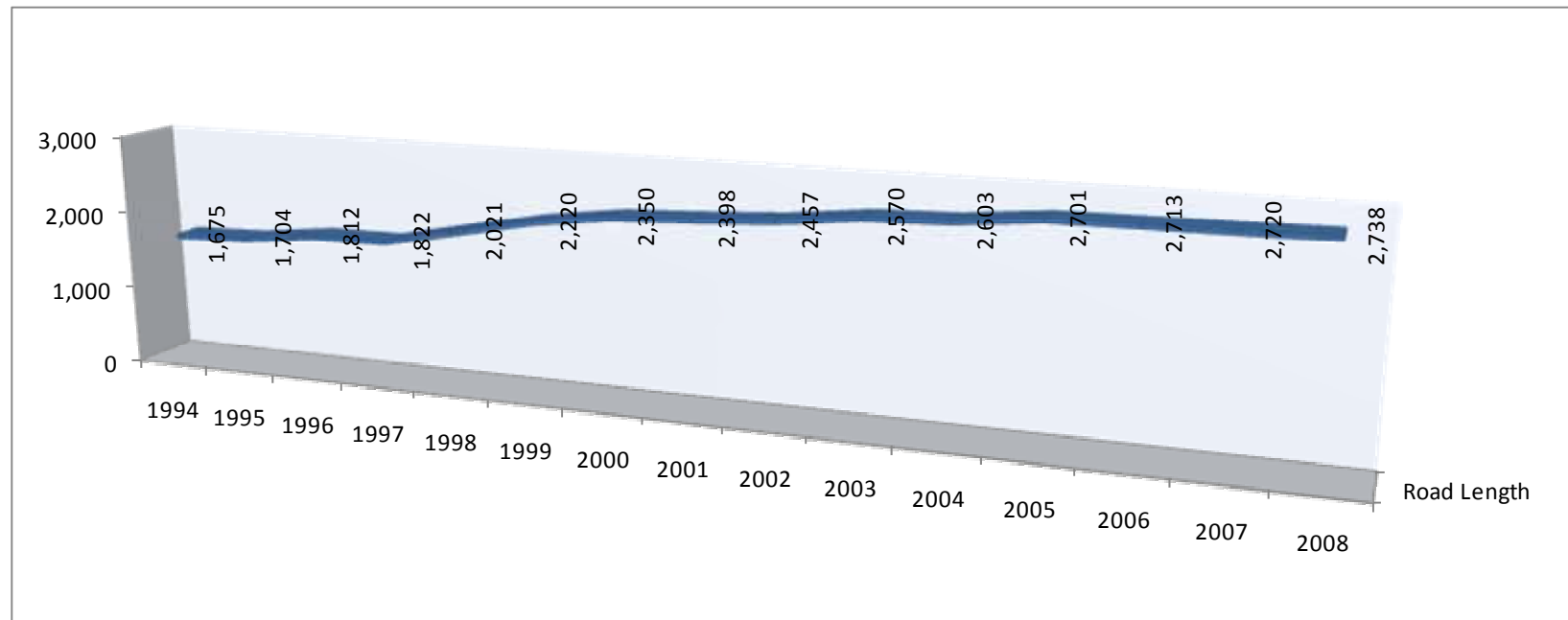


Vol (In M3 Litres)	ACTUAL									F'CAST
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
A MOGAS										
PREMIUM 97	141,798	148,161	157,184	166,276	174,354	185,402	194,852	213,170	225,350	229,702
GROWTH %	5.2	4.5	6.1	5.8	4.9	6.3	5.1	9.4	5.7	1.9
SUPER 92	62,249	56,222	51,780	45,801	41,062	35,651	30,165	26,063	22,477	24,189
GROWTH %	-12.2	-9.7	-7.9	-11.5	-10.3	-13.2	-15.4	-13.6	-13.8	7.6
REGULAR 85	51,428	53,402	57,126	56,694	56,342	55,357	53,846	52,533	51,081	50,090
GROWTH %	2.0	3.8	7.0	-0.8	-0.6	-1.7	-2.7	-2.4	-2.8	-1.9
TOTAL MOGAS	255,475	257,785	266,090	268,771	271,758	276,410	278,863	291,766	298,908	303,981
GROWTH %		0.9	3.2	1.0	1.1	1.7	0.9	4.6	2.4	1.7
B DIESEL										
INDUSTRIAL (Ex-Buk)		25,443	24,300	26,056	25,742	27,736	27,861	27,324	35,973	42,516
GROWTH %			-4.5	7.2	-1.2	7.7	0.5	-1.9	31.7	18.2
GOVERNMENT		12,184	12,230	11,567	12,318	13,001	13,769	13,051	13,746	14,471
GROWTH %			0.4	-5.4	6.5	5.5	5.9	-5.2	5.3	5.3
RETAIL		87,293	93,560	107,051	116,818	129,768	142,291	165,653	159,562	158,126
GROWTH %			7.2	14.4	9.1	11.1	9.7	16.4	-3.7	-0.9
TOTAL DIESEL	119,228	124,920	130,090	144,674	154,878	170,505	183,921	206,028	209,281	215,113
GROWTH %		4.8	4.1	11.2	7.1	10.1	7.9	12.0	1.6	2.8

Transport Trends

Road Length (carriageway KM)

Source : Public Works Department, Ministry of Development



ROAD SAFETY

(FATALITY STATISTICS FROM 2004 – 2008)



Source: Police Dept, Prime Ministers Office





Strategies (1)

Transport

- Support private sectors in alternative fuel vehicle venture
- Increase Public Transport efficiency and coverage
- Enforcement of tighter regulatory requirement in particular related to emission
- Review of vehicle license rate (higher for a bigger engine capacity)

Energy Agency

- Studying for a move to Euro IV fuel standard

Brunei Fuel Standards Comparison



Mogas (EN 228)	Level	Euro-2	Euro- 3	Euro-4	Brunei Actual
Sulphur	ppm wt Max	500	150	50	<10
Benzene	% vol Max	5	1	1	< 5
Aromatics	% vol Max	-	42	35	<50
Olefins	% vol Max	-	18	18	n/a
Oxygen	% vol Max	2.2	2.7	2.7	Max 8
RVP	kPa Max	70	60	60	70
E100	% vol Max		46	46	50
E150	% vol Max		75	75	n/a

Diesel (EN 590)	Level	Euro-2	Euro- 3	Euro-4	Brunei Actual
Sulphur	ppm wt Max	500	350	50	<1000
Density	kg/m3	860	845	845	864
Cetane No.	Min	49	51	51	49
PAH (incl di T95)	% mass Max	0	11	11	n/a
Deg C	Max	370	360	360	362

current sulphur in diesel is currently of Euro- 1 standards i.e > 500 ppm < 1000 ppm

Strategies (2)



Road Safety

- Enhancing Driver Training via
 - Curriculum of Driving School
 - Accreditation of Driving Instructor
 - Use of dedicated driving circuit
 - Increase mandatory hours of learning
- Increase Police enforcement
- Enhancing awareness and education at Schools
- Coordinated efforts amongst relevant government agencies



Strategies (3)

Infrastructure

- Traffic Management
 - Study on Intelligent Transport System
 - Enhancement of existing Traffic Control System

Vehicle Inspection

- Lowering age requirement for mandatory vehicle inspection
- Additional placement of Vehicle Inspection equipment at all District Centres



Thank You