

# **FUEL ECONOMY**

## **AUTOMOBILE INDUSTRY PERSPECTIVE**

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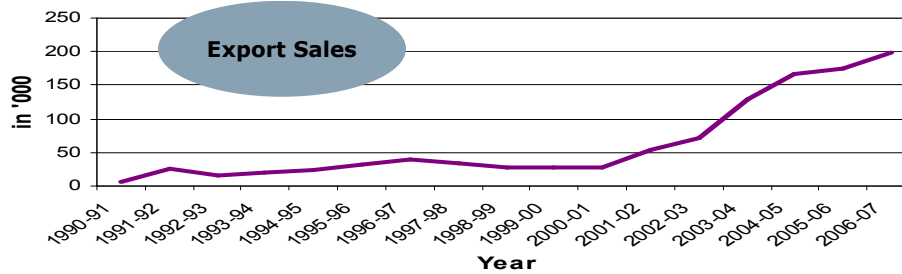
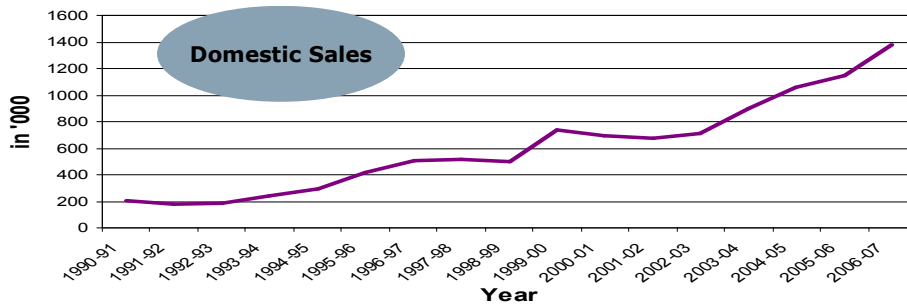
**SETTING FUEL EFFICIENCY STANDARDS AND LABELING**  
**OF**  
**TRANSPORT VEHICLES**  
**6<sup>TH</sup>, 7<sup>TH</sup> DECEMBER 2007**

### **CONTENTS**



- Background of Auto Industry**
- Fuel Economy – The Way of Life for India**
- Industry Initiative**
- Approach for Achieving reductions in Consumption**

## AUTOMOBILE SALES - GROWTH



## AUTOMOBILE INDUSTRY TODAY



- ❑ Automobile industry turnover in 2006-07 was ~ Rs 143.43 thousand crores (or USD 33.4 billion).
- ❑ Contribution to Economy – 5.5% of GDP.
- ❑ Domestic sales growing at a CAGR of ~ 14% over last five years.
- ❑ Exports growing at a CAGR of ~ 40% over last five years.
- ❑ **10.5 million employment (direct & indirect).**
- ❑ New investments announced around – Rs 67 thousand crores (or 15 billion USD).

## VEHICLE PRODUCTION IN INDIA IS LOW



Figures In '000

	Cars			Commercial Vehicles		
	2001	2006	CAGR %	2001	2006	CAGR %
US	4,879.12	4,366.22	-2.2	6,545.57	6,897.77	1.1
Europe	17,423.25	18,073.78	0.7	2,678.09	3,225.12	3.8
Germany	5,301.19	5,398.51	0.4	390.49	421.11	1.5
Japan	8,117.56	9,756.51	3.7	1,659.63	1,727.72	0.8
South Korea	2,471.44	3,489.14	7.1	474.88	350.97	-5.9
<b>China</b>	<b>703.52</b>	<b>5,233.13</b>		<b>1,630.92</b>	<b>1,955.56</b>	
<b>India</b>	<b>548.41</b>	<b>1,473.00</b>		<b>160.05</b>	<b>546.81</b>	

Source: OICA

From almost similar level, China now produce 3.5 times more cars. It produces 3.5 time more commercial vehicles also.

## PASSENGER VEHICLES PENETRATION



City	Cars / 1000 people
Germany	550
France	495
Japan	490
US	475
Malaysia	253
South Korea	219
Mexico	135
Brazil	96
Thailand	51
Indonesia	16
Philippines	9
<b>India</b>	<b>7</b>
China	6

Passenger Vehicle penetration in cities is also low

City	Cars / 1000 people
Delhi	85
Chennai	51
Bangalore	41
Jaipur	40
Vadodara	36
Hyderabad	32
Mumbai	23
Kolkata	23

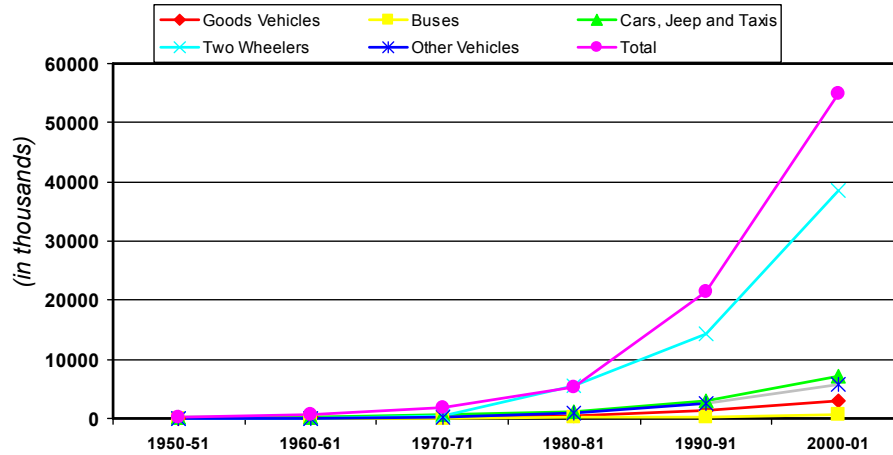
Source MoRTH 2004, Census & Analysis

Source: WARD's

## VEHICLE PARC



The vehicle parc mostly comprises of Fuel efficient 2 Wheelers



## LOW TWO WHEELERS PENETRATION



Two wheeler penetration in cities is also low

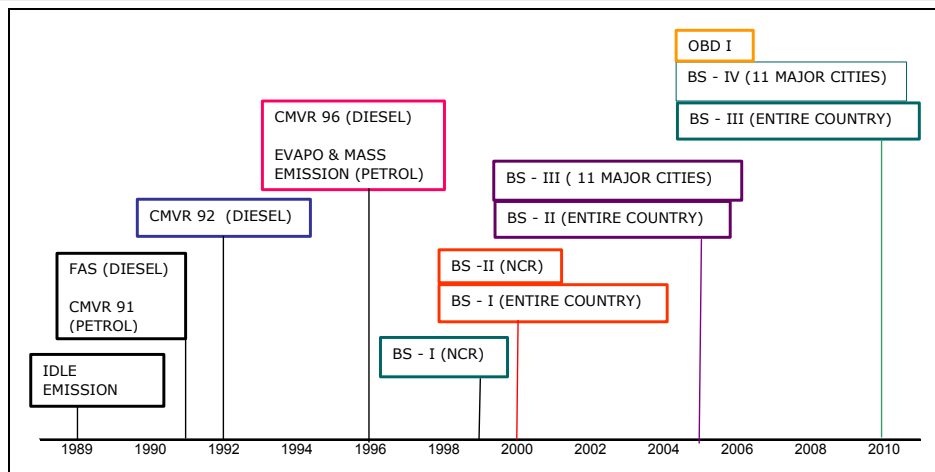
Countries	2W / 1000 people
Thailand	286
Malaysia	258
Italy	166
Japan	100
Spain	90
Indonesia	90
Switzerland	77
Germany	69
China	59
<b>India</b>	<b>43</b>
US	18

City	2W / 1000 people
Vadodara	275
Jaipur	219
Bangalore	216
Chennai	196
Delhi	173
Hyderabad	165
Mumbai	35
Kolkata	27

Source MoRTH 2004, Census & Analysis

## THE EMISSION AND SAFETY STORY

### EMISSION REGULATIONS IN INDIA

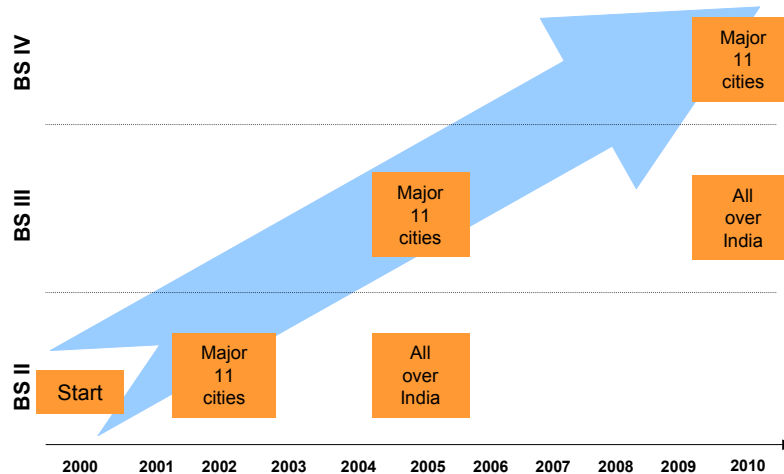


- ❑ Idle to Mass Emissions
- ❑ Shift from Indian Driving Cycle to European Driving Cycle

## EMISSION REGULATIONS - Post 2000



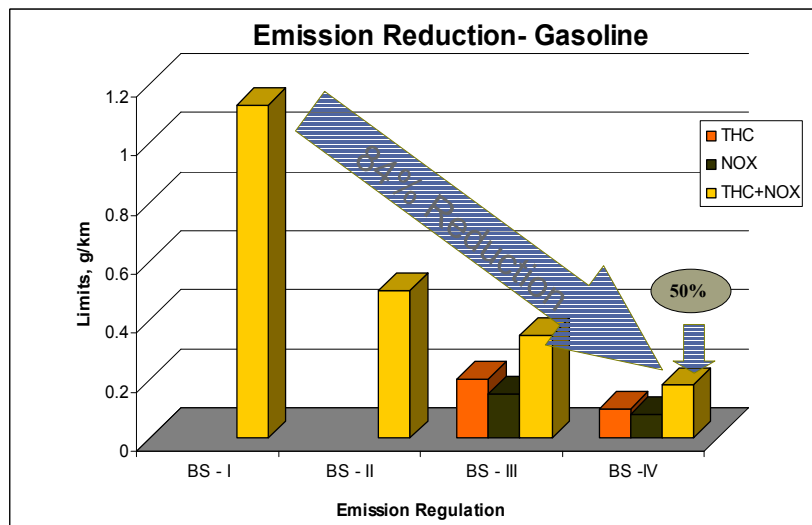
- Pre BS to Euro IV in 14 Years (Europe 22 Years)
- Following European Regulations with a gap of 5 yrs.

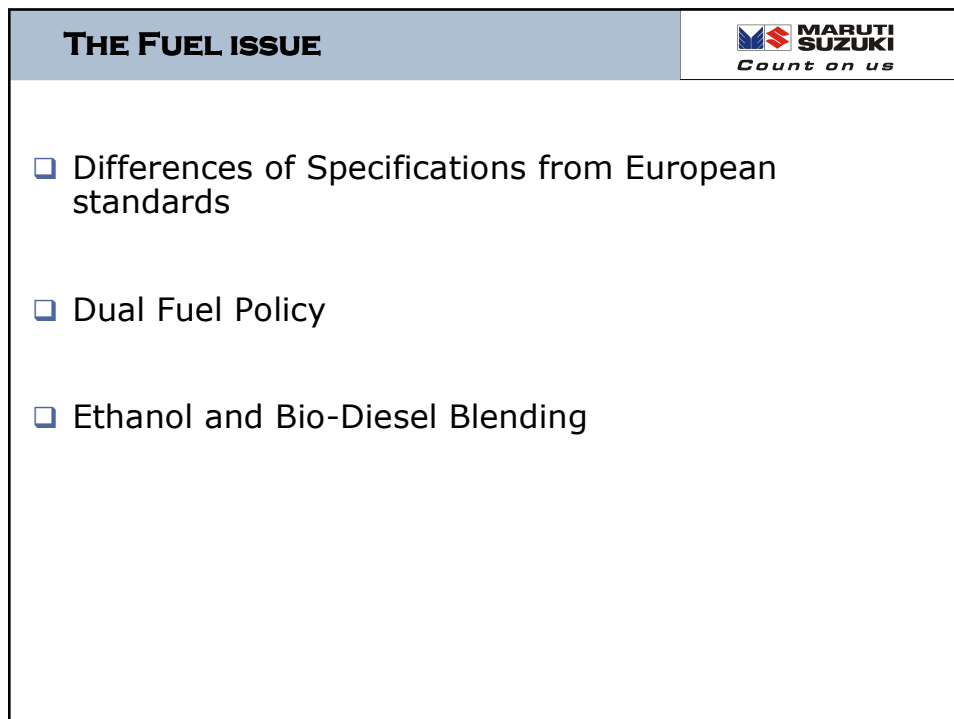
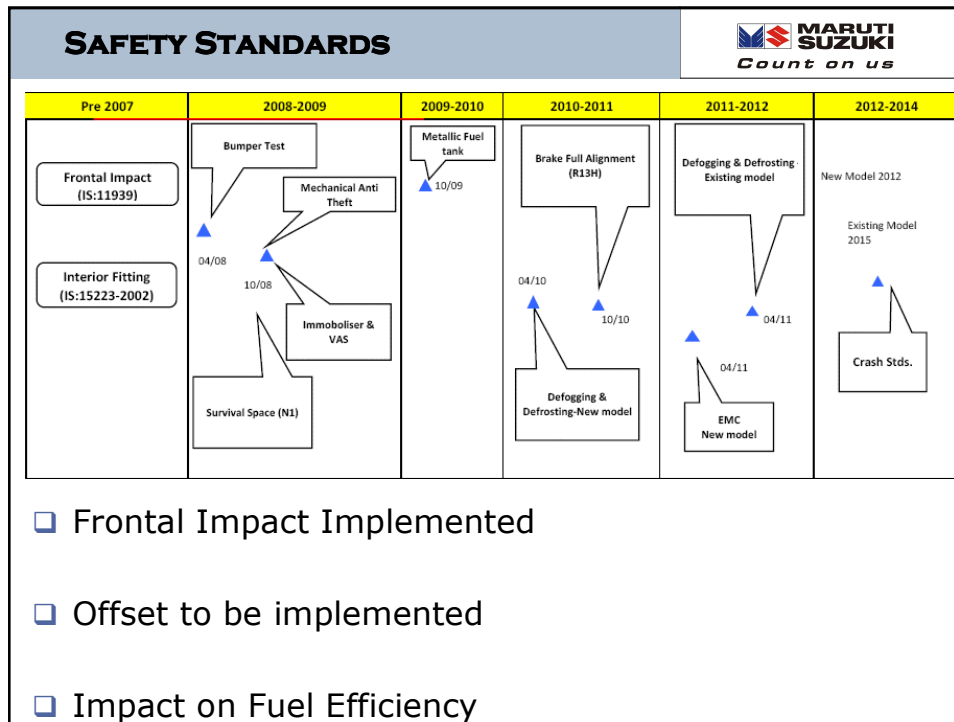


## EMISSION CHANGE – CONTENTS



- Reduction of THC + NO<sub>x</sub> by 84 % from BS I Level
- Reduction of CO by 68% from BSI Level





## THE FUEL ECONOMY PARADIGM

### HISTORICAL PERSPECTIVE

- The birth of Small car In India – Govt. Initiative
- First Fuel efficiency Norms – Constant speed Fuel consumption
- Advent of New Technologies along with low emission vehicles.

## THE ALTO STORY



Is it the  
Cheapest in its class

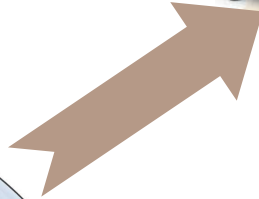
Lot of Discounts

India's  
Most Fuel Efficient

State Promoted



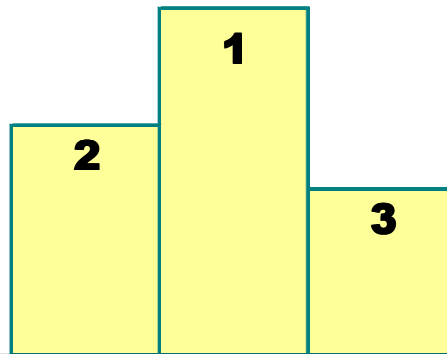
## THE JOURNEY



## THE ACHIEVEMENT



?



## J D POWER APPEAL STUDY - 2006



### Why People buy

	Entry Level	Compact Car	Entry Mid Size
Top Rank	Low Price 22%	<b>Good FE 17%</b>	<b>Good FE 13%</b>
Rank 2	<b>Good FE 14%</b>	Comfort 8%	Comfort 10%

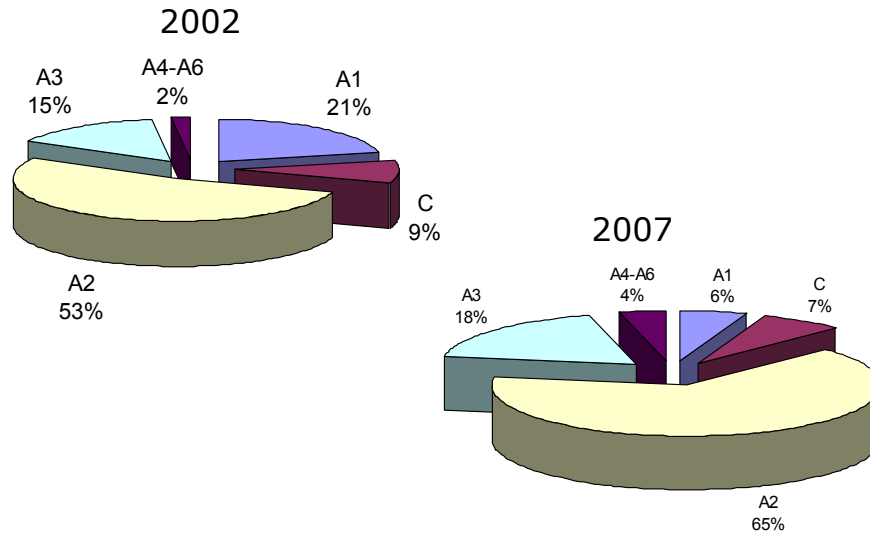
### Why People Don't buy

	Entry Level	Compact Car	Entry Mid Size	Midsized	Premium Midsized
Price too High	56%	31 %	33%	27%	21%
Poor FE	16%	20%	17%	19%	13%

## SEGMENTATION



### □ Changing Preferences – Growth of A2 Segment



“Customers Regulate the Standards”

“But is Better good enough”

## CO2 EQUATION



2006 – Europe – Fleet Average CO<sub>2</sub> - 160 g/km  
2008 – Target - 140g/km

2006 – India - Fleet Average CO<sub>2</sub> - 145~150 g/km

## INDUSTRY INITIATIVE



- Voluntary targets
  - To keep Industry in shape
  - To have a measure of improvement done
  
- Industry is willing to work with any one agency
  - With rationale thinking
  
  - With broad based approach rather than single minded focus on New cars and test lab improvements alone.

## REGULATIONS ACROSS THE GLOBE

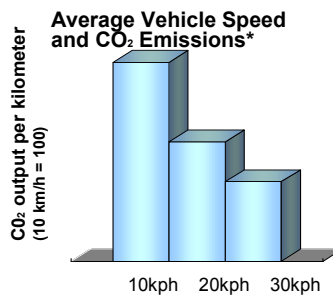


Country /Region	Type	Measure	Test Method	Approach	Implementation
US	Fuel	Mpg	US CAFÉ	Each Manufacturer to meet standards for cars & Light trucks	<u>Mandatory</u>
EU	CO2	g/km	EU NEDC	Voluntary agreement with EC for reducing passenger vehicle CO <sub>2</sub>	Voluntary
California	GHG	g/mile	US CAFÉ	Fleet Average Requirements For PCLDT 1 & LDT2 ( Two categories of vehicle)	<u>Mandatory</u>
Japan	Fuel	Km/L	Japan 10-15	Fuel economy fleet avg.target based on Weight Class for LD passenger & comm.vehicles	<u>Mandatory</u>
Australia	Fuel	L/100-km	EU NEDC	Voluntary agreement for fleet avg. fuel consumption for PCs.	Voluntary
China	Fuel	L/100-km	EU NEDC	Individual vehicle model to meet std for its weight Class ( PCs,SUV s, MPV s).	<u>Mandatory</u>
Canada	Fuel	L/100-km	US CAFÉ	Company Avg.Fuel Consumption for New Passenger Vehicle fleet	Voluntary
Taiwan / S.Korea	Fuel	Km/L	US CAFÉ	Fuel Economy standards based on vehicle Engine Size.	<u>Mandatory</u>

## THE NEED OF THE DAY...



- India needs an integrated approach to global issues
  - ..Air Quality improvement with Emission Regulation change...
  - ...Fuel Efficiency improvement to Road infrastructure and Traffic Management.



\*Source: MASAKAZU KUME -:Director General for Engineering and Safety Department, Road Transport Bureau (Japan)

**THANK YOU**

**MARUTI SUZUKI INDIA LIMITED**