

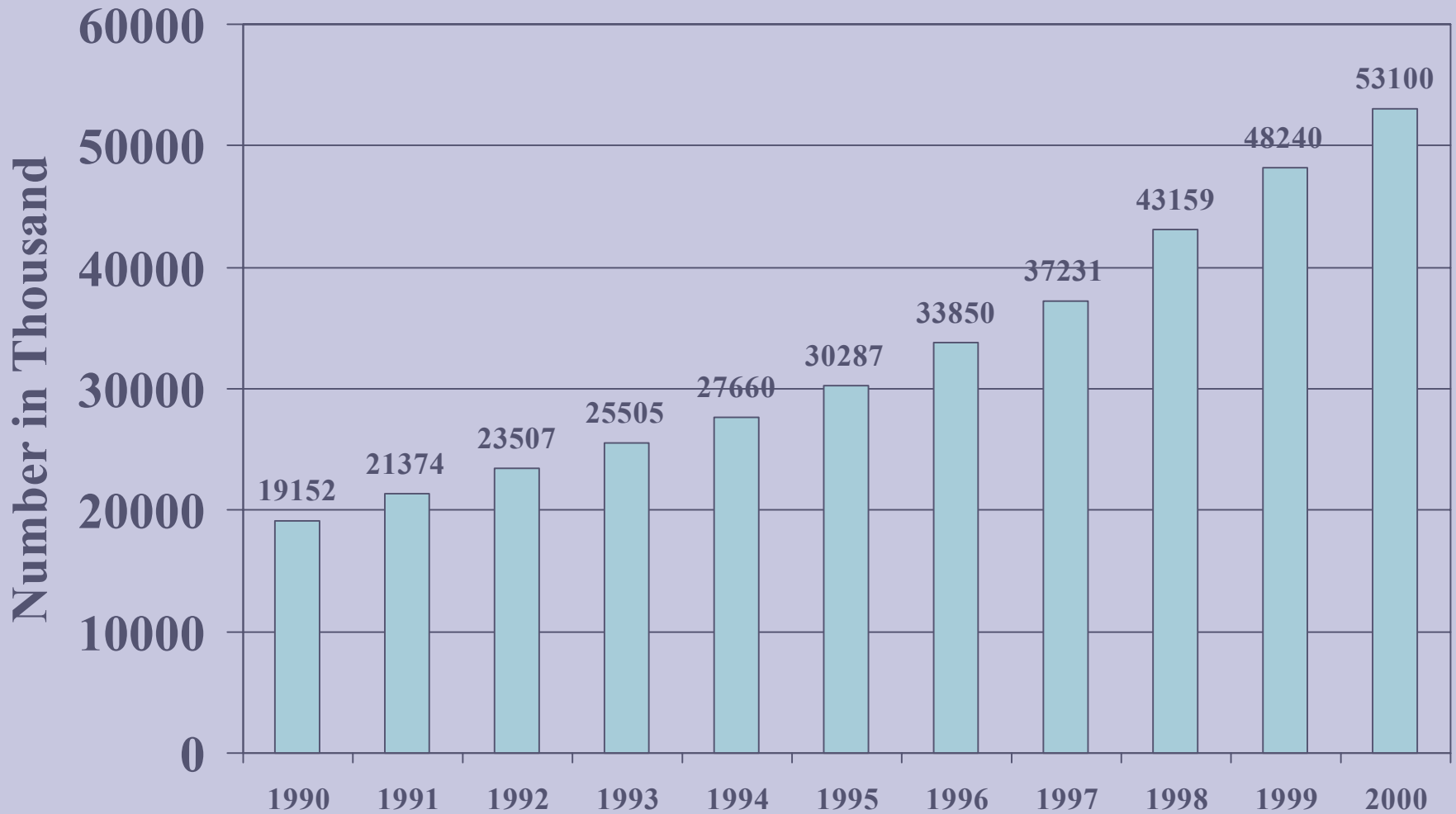
**CNG CONVERSION PROGRAMME FOR
AUTO RIKSHAWS IN DELHI**

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Chairman

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Ministry of Environment & Forest
New Delhi, India**

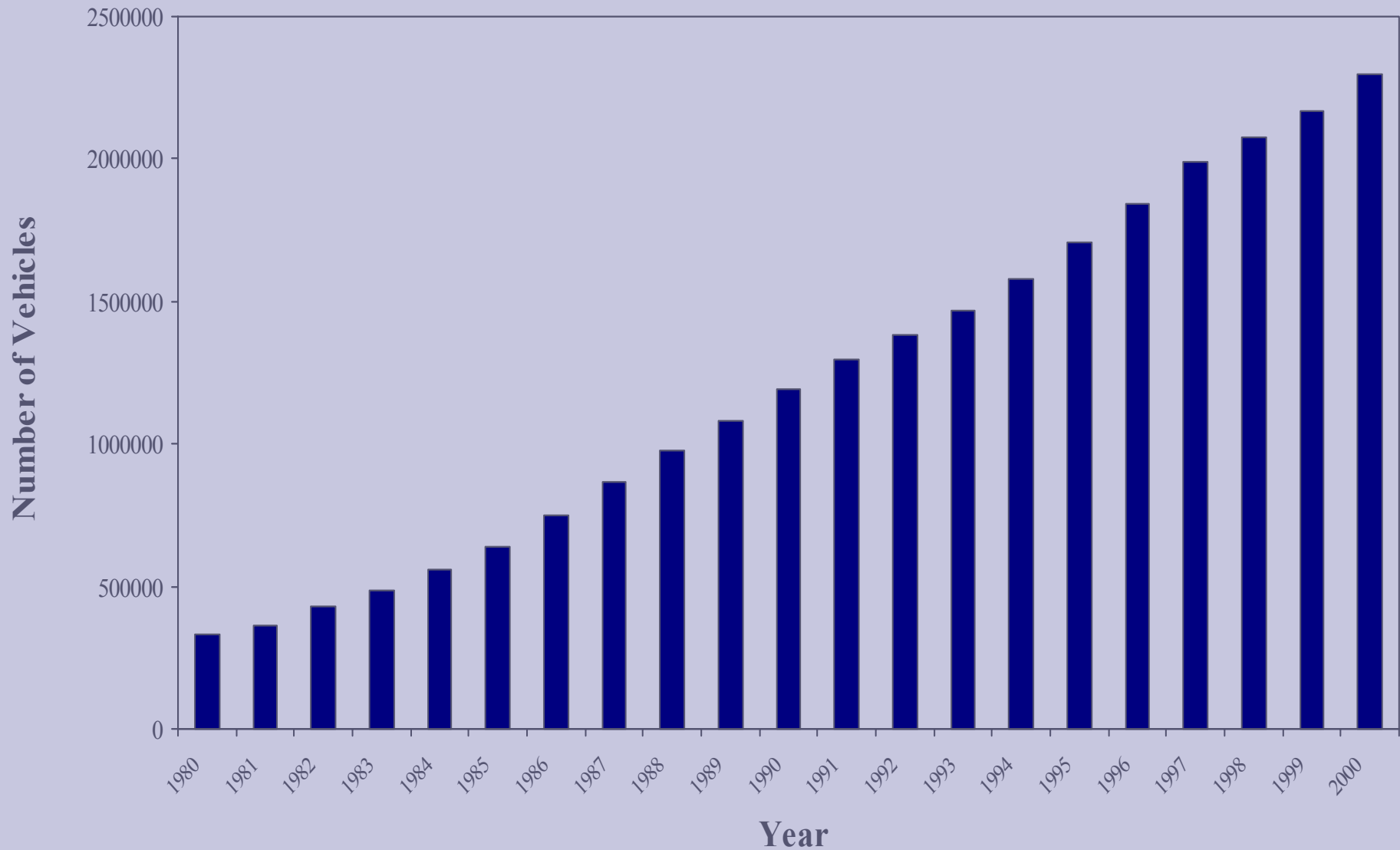
REGISTERED MOTOR VEHICLES IN INDIA



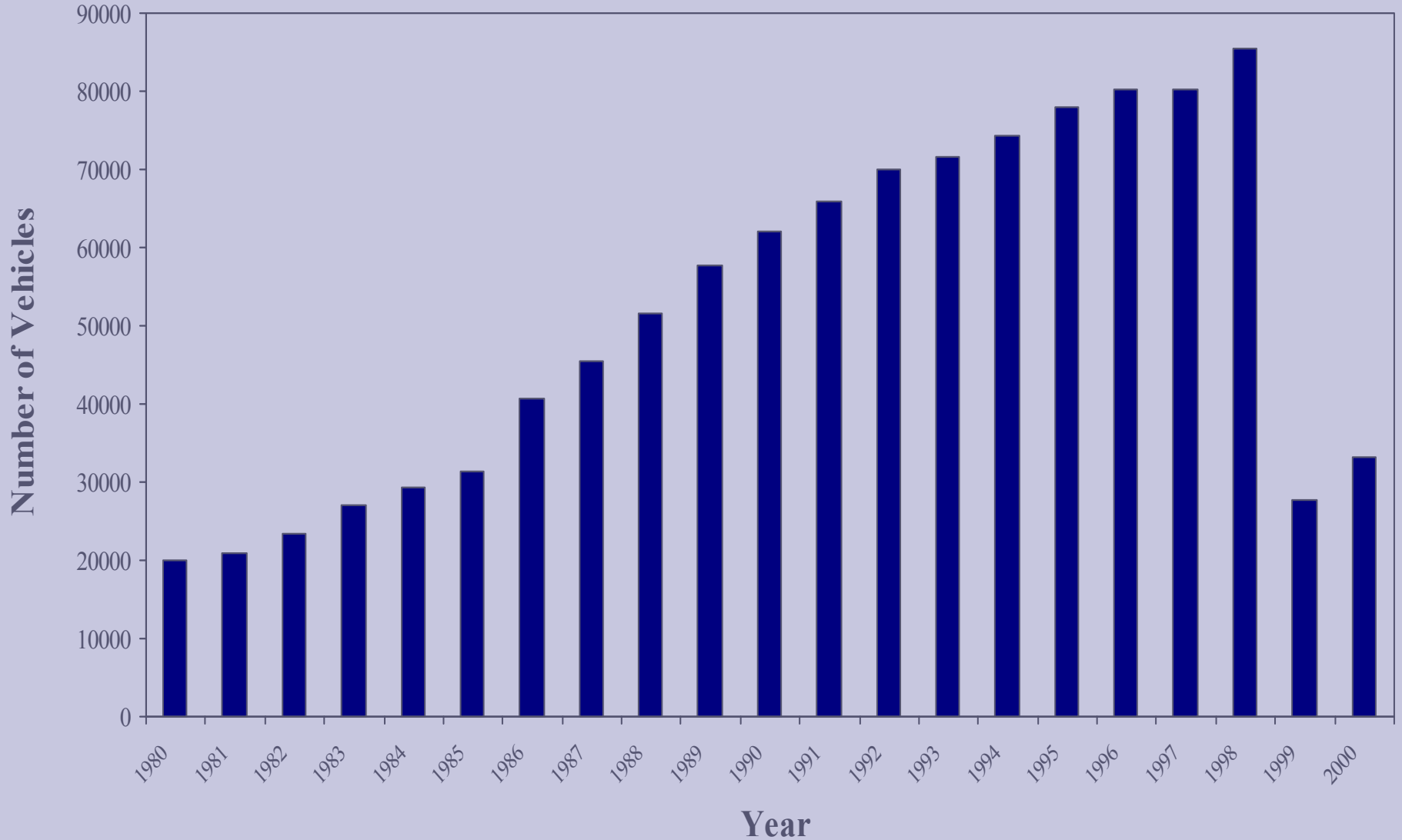
POPULATION OF DIFFERENT TYPES OF VEHICLES IN DELHI IN YEAR 2000

VEHICLES	POPULATION	PERCENTAGE
TWO STROKE TWO WHEELER	1477330	56
FOUR STROKE TWO WHEELER	192143	7
THREE WHEELERS	30828	<1
GASOLINE CAR	800780	30
DIESEL CAR	10686	1
TAXIS	8353	<1
GASOLINE MULTIUTILITY VEHICLE	11769	<1
DIESEL MULTIUTILITY VEHICLE	47078	2
TRUCK	51771	2
BUS	13455	1
LIGHT COMMERCIAL VEHICLE	57081	2

REGISTRATION GROWTH OF TWO WHEELERS



REGISTRATION GROWTH OF THREE WHEELERS



CONTRIBUTION OF THREE WHEELERS TO POLLUTANT CONCENTRATION IN DELHI IN 2000

POLLUTANTS	% CONTRIBUTION BY 3-WHEELERS IN YEAR 2000
CO	8%
HC	13%
NOx	<1%
PARTICULATES	4%
BENZENE	18%
BUTADINE	7%
OZONE POTENTIAL	13%

* Study by CPCB.

POPULATION OF CNG DRIVEN VEHICLES IN DELHI

Category	CNG population (AUGUST 2001)	Conventional (Petrol + Diesel) fuelled population
Buses	2450 (18%)	11005 (82%)
3-Wheelers/Autos	27263 (88%)	3565 (12%)
Taxis	2901 (35%)	5452 (65%)

**In Mumbai above 400 CNG three wheelers are plying.*

COMPARISON OF CNG Vs PETROL DRIVEN THREE WHEELERS

PARAMETERS	CNG 3-WHEELERS	CONVENTIONAL (PETROL) 3-WHEELERS
Present Population	88%	12%
Tank Capacity	3.5 kg	7.5 ltrs
Mileage per full tank	175 km	225 km
Engine type	Dedicated-4 Stroke rear engines Converted-mostly 2-Stroke engines	Both 4-Stroke and 2-Stroke

COMPARISON OF EMISSIONS (g/km) FROM DIFFERENT 3-WHEELERS

TYPE	CO	TOTAL HYDROCARBONS	NON METHANE HYDROCARBONS	NOX
2-Stroke Petrol RE	0.29	1.45	-	0.1
2-Stroke CNG RE	0.8	5.74	0.291	0.02
4-Stroke Petrol RE	0.45	0.68	-	0.56
4-Stroke CNG RE	0.29	2.4	0.17	0.75

NUMBER OF CNG DISPENSING STATIONS IN TWO INDIAN METROS

TYPE OF STATION	MUMBAI	DELHI
Mother stations	1	9
Online stations	17	18
Daughter-booster stations	4	8
Daughter stations	-	39
Total CNG dispensing stations	22	74

PROBLEMS WITH CNG DISPENSING STATIONS

- ➡ **Uneven distribution of CNG stations**
- ➡ **Inadequate pressure in daughter stations**
- ➡ **Overrunning of compressors**
- ➡ **Frequent O-ring failures in nozzles of three wheelers**
- ➡ **Non-availability of continuous power supply**
- ➡ **Shortage of trained manpower**

EMISSION NORMS FOR THREE WHEELERS

Year	CO g/km	HC g/km	HC + NO _x g/km
1991	30	12	-
1996	6.75	-	5.40
2000	4.00	-	2.00
2005	2.25	-	2.00

*Emission norms for CNG driven vehicles notified vide GSR 99(E) dated 09.02.2000 and safety regulations are included in revised draft notification.