

“Capacity Building and Strengthening Institutional Arrangement”

Analysis and sampling of air and air pollution

Studies about environmental, social and economic impact of transport

Mr. Alfredo Leonardi

APAT

Agency for Environmental Protection and Technical Service

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

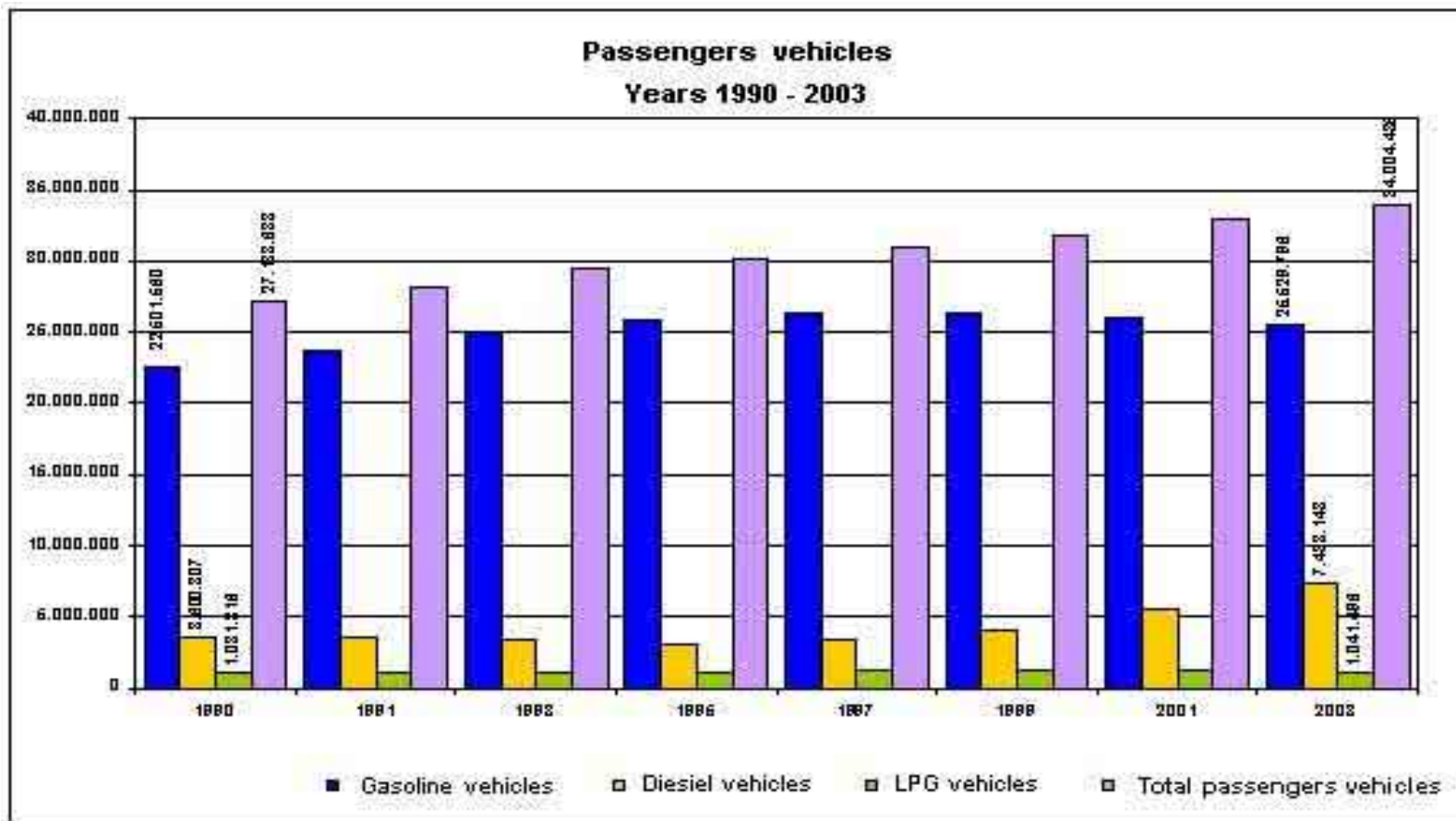
- MAJOR CONCERNS OF AIR POLLUTION IS IN URBAN AREAS
- MAJOR CONTRIBUTE OF AIR POLLUTION IN URBAN AREAS COMES FROM SECTOR OF TRANSPORTS
- 1 CAR EACH 2 INHABITANTS
- MAIN CONTRIBUTION TO URBAN AIR POLLUTION COMES FROM PASSENGER VEHICLES AND LIGHT DUTY TRUCKS (COMMERCIAL) VEHICLES

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

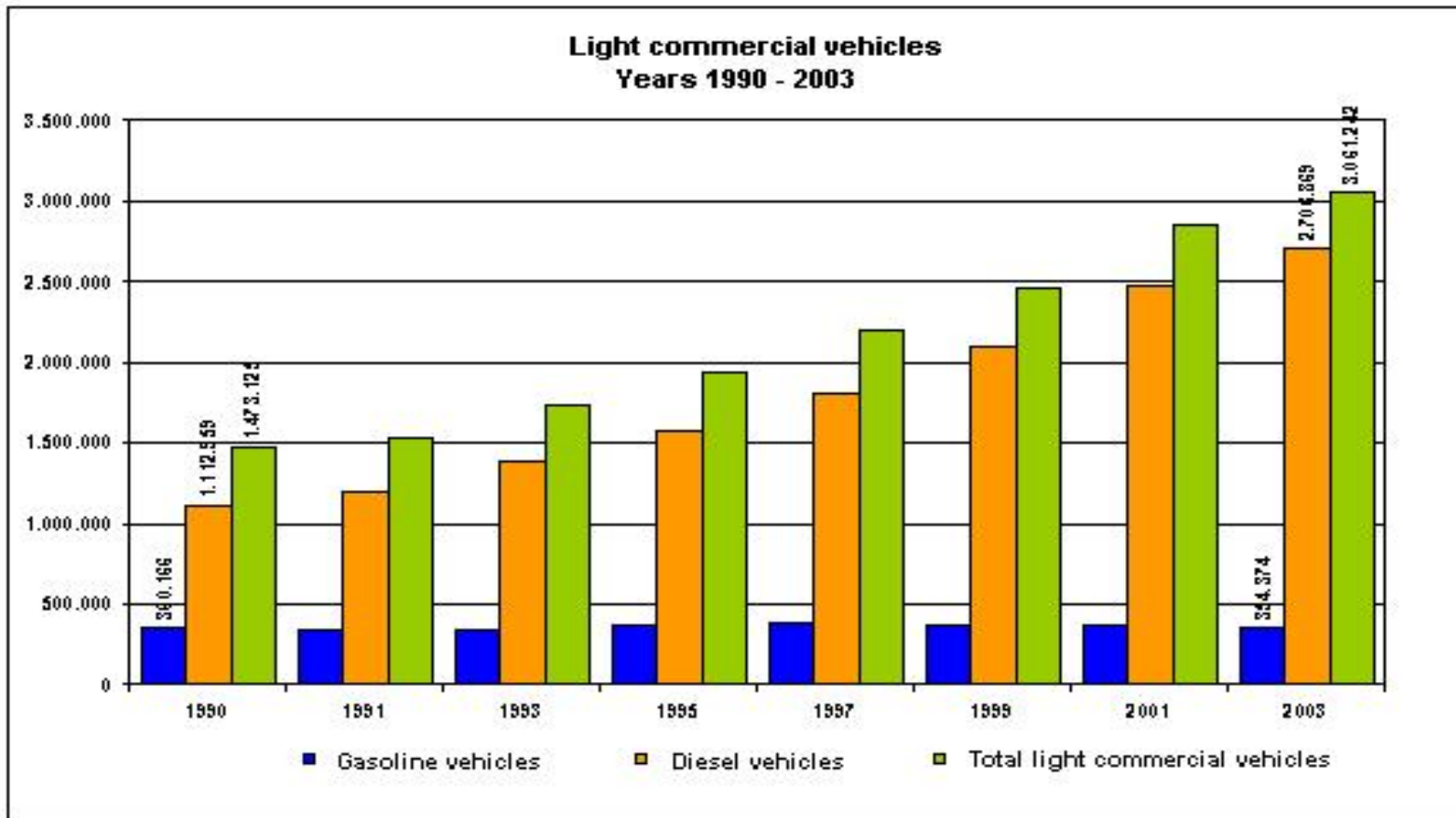
VEHICLES PARK IN ITALY (MILIONS)

	1985	1990	1995	2000	2001	2002	2003	2004
Total cars	22,75	27,65	30,98	32,86	33,31	33,77	33,26	34,28
circulating cars	22,20	27,30	29,71	31,41	31,90	32,34	32,68	32,94
Gasoline	18,75	22,29	24,77	25,17	24,94	24,63	24,19	23,35
Diesel	2,08	3,46	3,24	4,65	5,35	6,17	7,14	8,29
LPG	0,87	1,31	1,41	1,30	1,29	1,20	1,05	0,98
Methane	0,26	0,23	0,29	0,29	0,32	0,34	0,30	0,32
motorbikes	3,50	3,65	4,44	5,19	5,10	4,90	4,80	4,70
motorcycles	2,00	2,51	2,53	3,38	3,73	4,05	4,38	4,69
trucks	2,44	3,02	3,41	3,65	3,83	4,10	4,42	4,39
three wheelers	0,40	0,46	0,42	0,39	0,38	0,37	0,37	0,37
bus service	0,076	0,078	0,076	0,087	0,089	0,092	0,093	0,094
Total vehicles	30,78	36,90	41,43	45,16	46,06	46,91	46,94	48,16

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

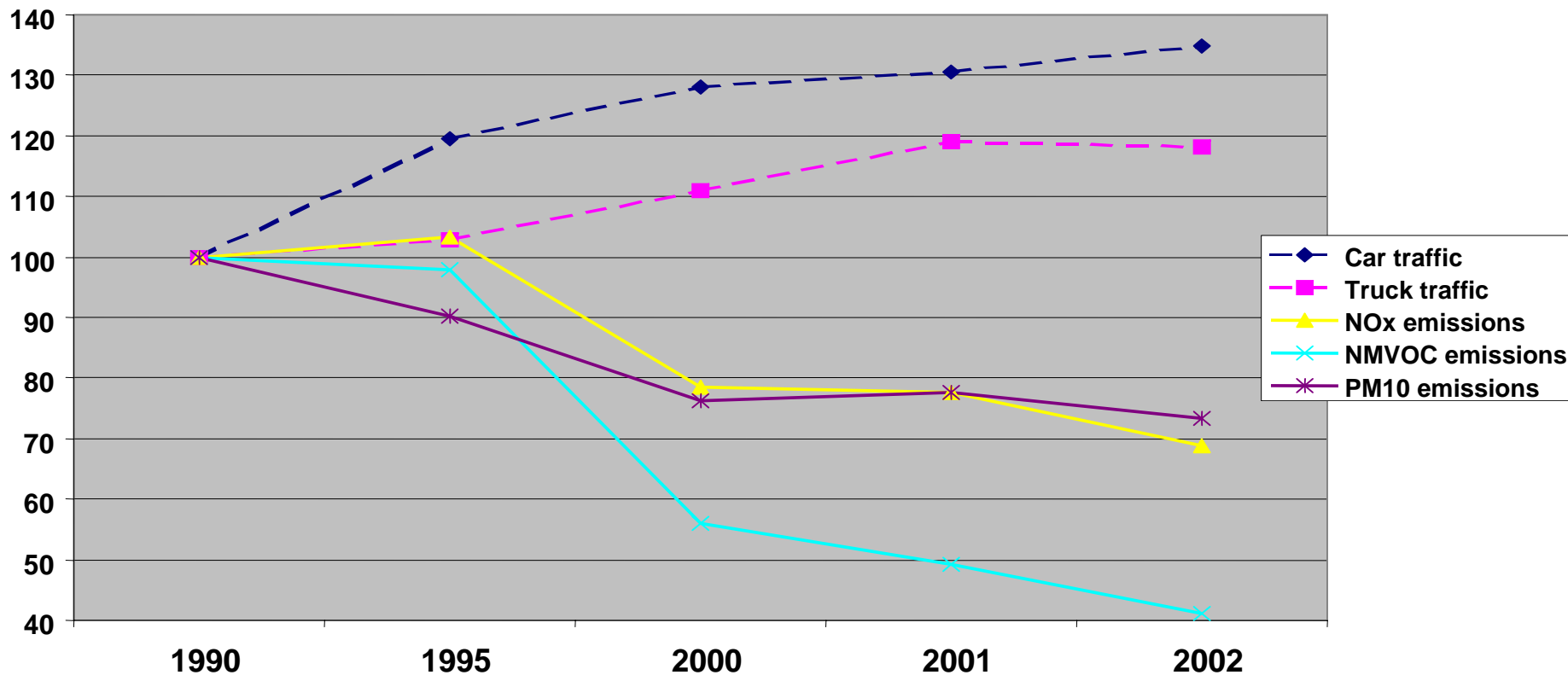


AIR POLLUTION AND ENVIRONMENTAL IMPACTS



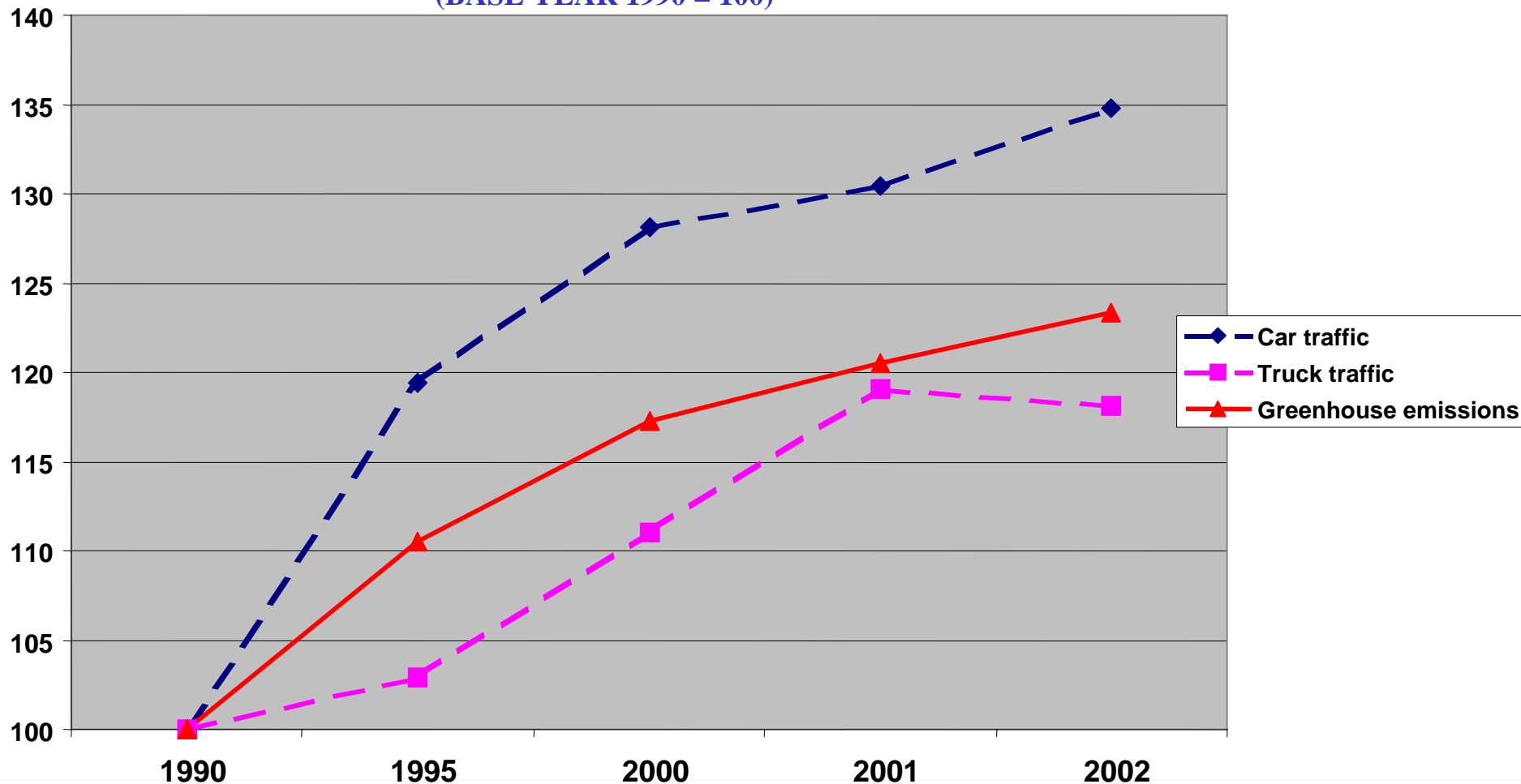
AIR POLLUTION AND ENVIRONMENTAL IMPACTS

TRAFFIC AND RELATED AIR POLLUTANT EMISSIONS IN ITALY (BASE YEAR 1990 = 100)



AIR POLLUTION AND ENVIRONMENTAL IMPACTS

TRAFFIC AND RELATED GREENHOUSE GASES EMISSIONS IN ITALY
 (BASE YEAR 1990 = 100)



AIR POLLUTION AND ENVIRONMENTAL IMPACTS

INDICATIVES RANGES OF EACH POLLUTANT CONTRIBUTION TO AIR POLLUTION IN URBAN AREAS (TRANSPORT ACTIVITY VERSUS OVERALL ACTIVITIES)

- PM_{10} (70 – 80%)
- NO_x (50 – 80%)
- NMVOC (40 – 70%)
- NH_3 (35 – 82%)
- SO_x (10 – 30%)
- Pb and C_6H_6 negligible

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

AVERAGE AGE OF CIRCULANT VEHICLES IN ITALY

	1990	1995	2000	2004
	age (years)			
Gasoline cars	8,6	8,2	8,3	8,9
Diesel cars	5,4	7,8	6,5	5,2
Light duty trucks «1.5 t p.u.)	8,7	8,7	8,5	8,2
Heavy duty trucks (> 1.5 t p.u.)	8,9	9,2	9,1	9,0
Buses	9,9	11,2	11,2	9,9

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

MAJOR SOCIAL IMPACTS DUE TO THE TRANSPORT SECTOR

HUMAN HEALTH

IN PARTICULAR, MANY STUDIES CONFIRM HIGH CANCEROGENIC PROPERTIES OF PM₁₀

AND DAMAGES COMING FROM NOISE POLLUTION

NATURAL HABITATS

LARGE TRANSPORT INFRASTRUCTURES AFFECT ECO-SYSTEMS AND BIO-DIVERSITIES

MARINE TRANSPORT CAN CAUSE WATER POLLUTION (OIL SPILL FROM TANKERS) AND SAME PROBLEMS ON MARINE ECO-SYSTEMS

WASTE MANAGEMENT

OBSOLETE VEHICLES DISPOSAL AND MATERIAL RECOVERY

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

ACTION TAKEN OR TO BE IMPLEMENTED

URBAN AREAS

- IMPLEMENTATION OF ENVIRONMENTAL LEGISLATION
- MODERNIZATION OF OBSOLETE VEHICLES
- STRENGTHENING OF PUBLIC TRANSPORT
- IMPLEMENTATION OF FISCAL POLICIES (INCENTIVES AND DISINCENTIVES)
- PROMOTION OF ECOLOGICAL AND BIO-FUELS UTILIZATION
- IMPLEMENTATION OF MOBILITY PLANS

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

ACTION TAKEN OR TO BE IMPLEMENTED (*con't*)

EXTRA-URBAN AREAS

- IMPLEMENTATION OF SPECIFIC (MARINE, HABITAT, ETC.) ENVIRONMENTAL LEGISLATION
- EIA (ENVIRONMENTAL IMPACT ASSESSMENTS) AND IMPLEMENTATION OF RELATED RESULTS

AIR POLLUTION AND ENVIRONMENTAL IMPACTS

ENVIRONMENTAL EUROPEAN REGULATION ACCOMPLISHMENT OF ITALIAN VEHICLES PARK- year 2003 (%)

	pre euro / euro 0	Euro I / stage I	Euro 2 / stage II	Euro 3 e others
Gasoline cars	37,4	20,1	26,9	15,6
Diesel cars	19,4	6,3	34,1	40,2
LPG and Methane cars	56,9	24,5	15,4	3,2
Motorcycles	59,1	40,9	-	-
Light duty trucks	46,9	6,6	17,1	19,4
Heavy duty trucks	63,8	7,4	20,0	8,8
Buses	54,7	7,9	27,2	10,1