Workshop TOWARDS CLEAN AIR FOR EUROPE: A CHALLENGE
Siracusa, 9-11 november 2005

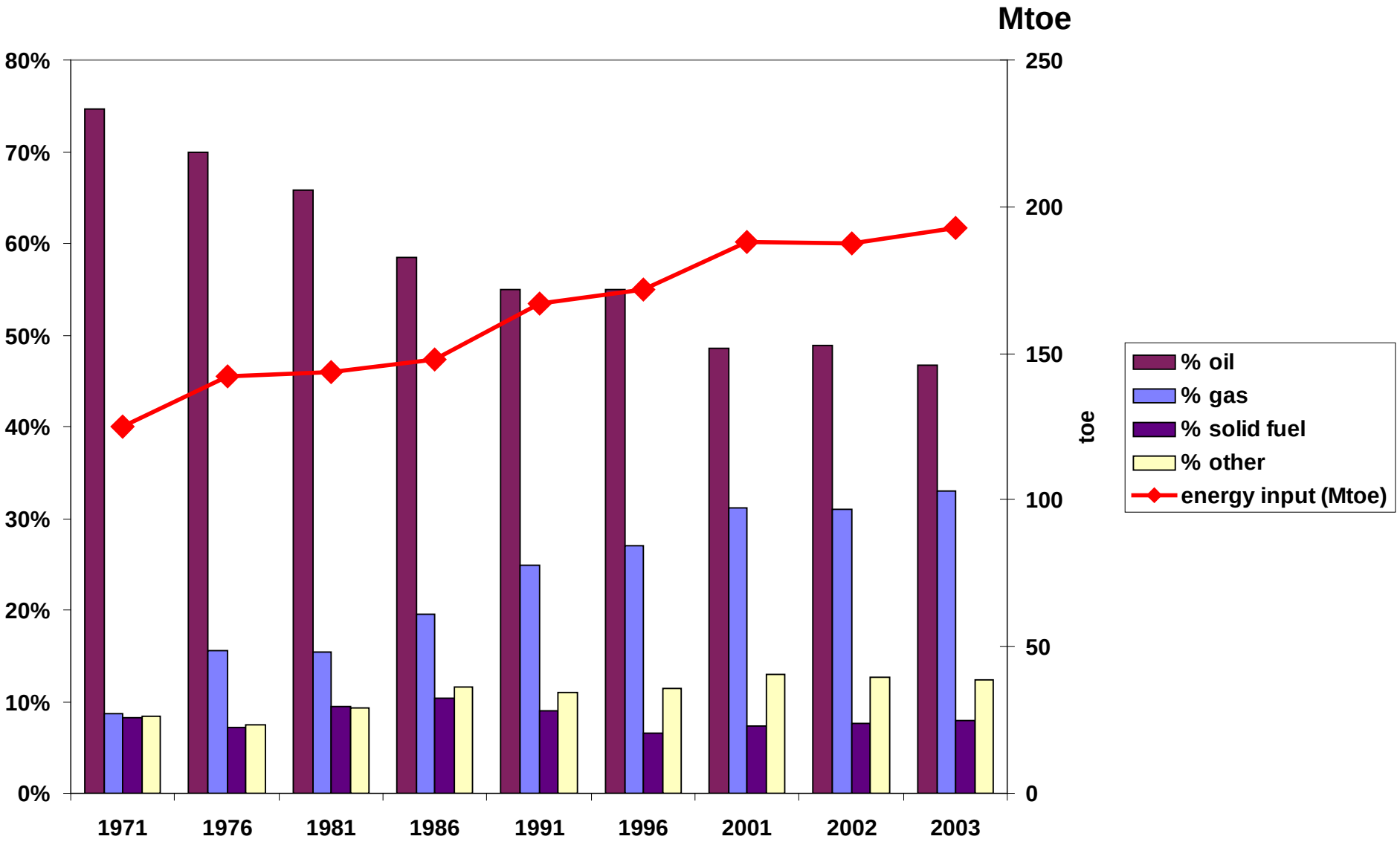
AIR QUALITY MANAGEMENT IN ITALY:

PAST, PRESENT AND FUTURE CHALLENGES

Mario C. Cirillo and Silvia Brini
APAT (Italian National Agency for Environmental Protection and Technical Services)

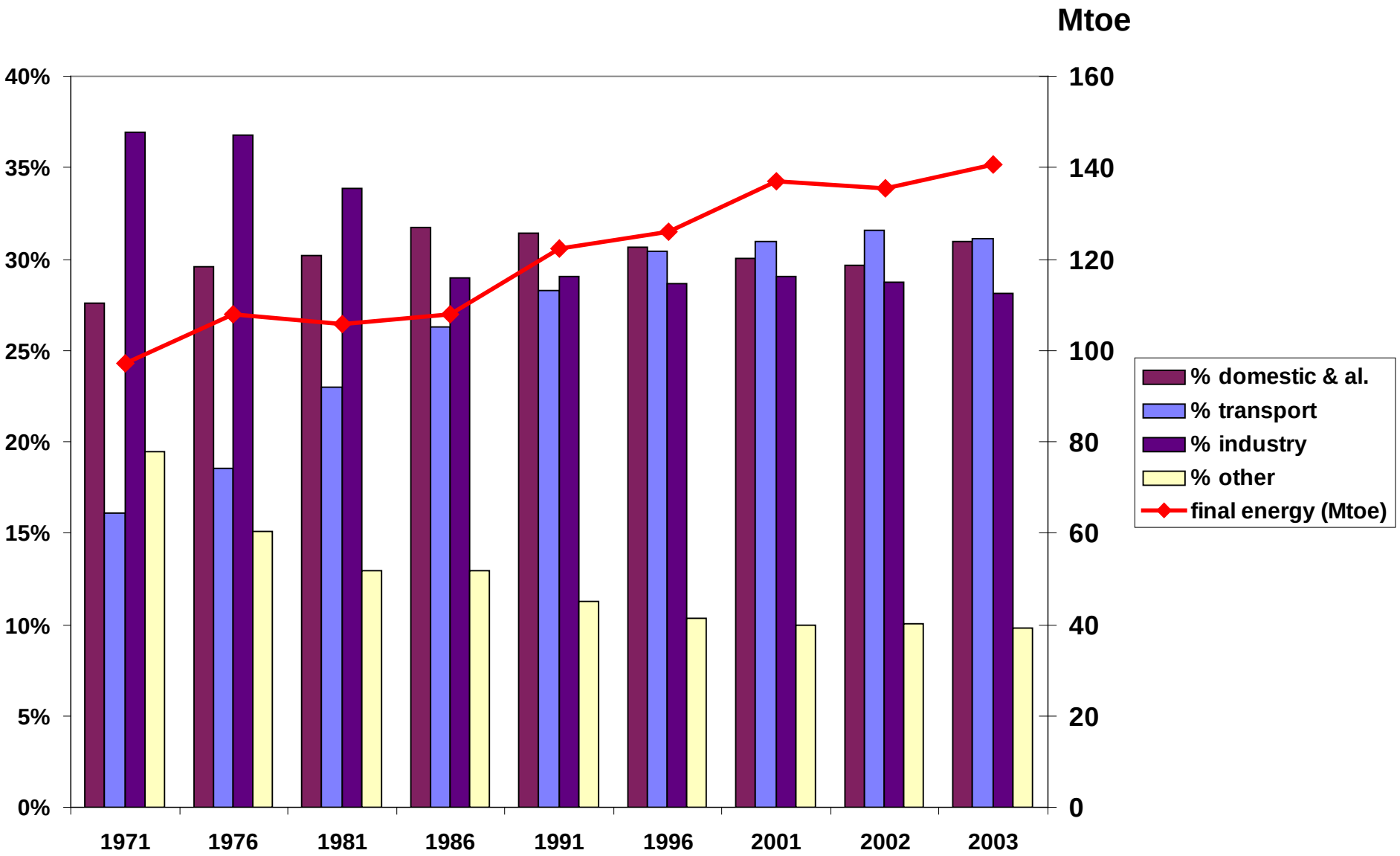
DRIVING FORCES

PRIMARY ENERGY SOURCES IN ITALY



APAT elaboration based on ENEA (2004) Energy and Environment Report

ENERGY FINAL USES IN ITALY

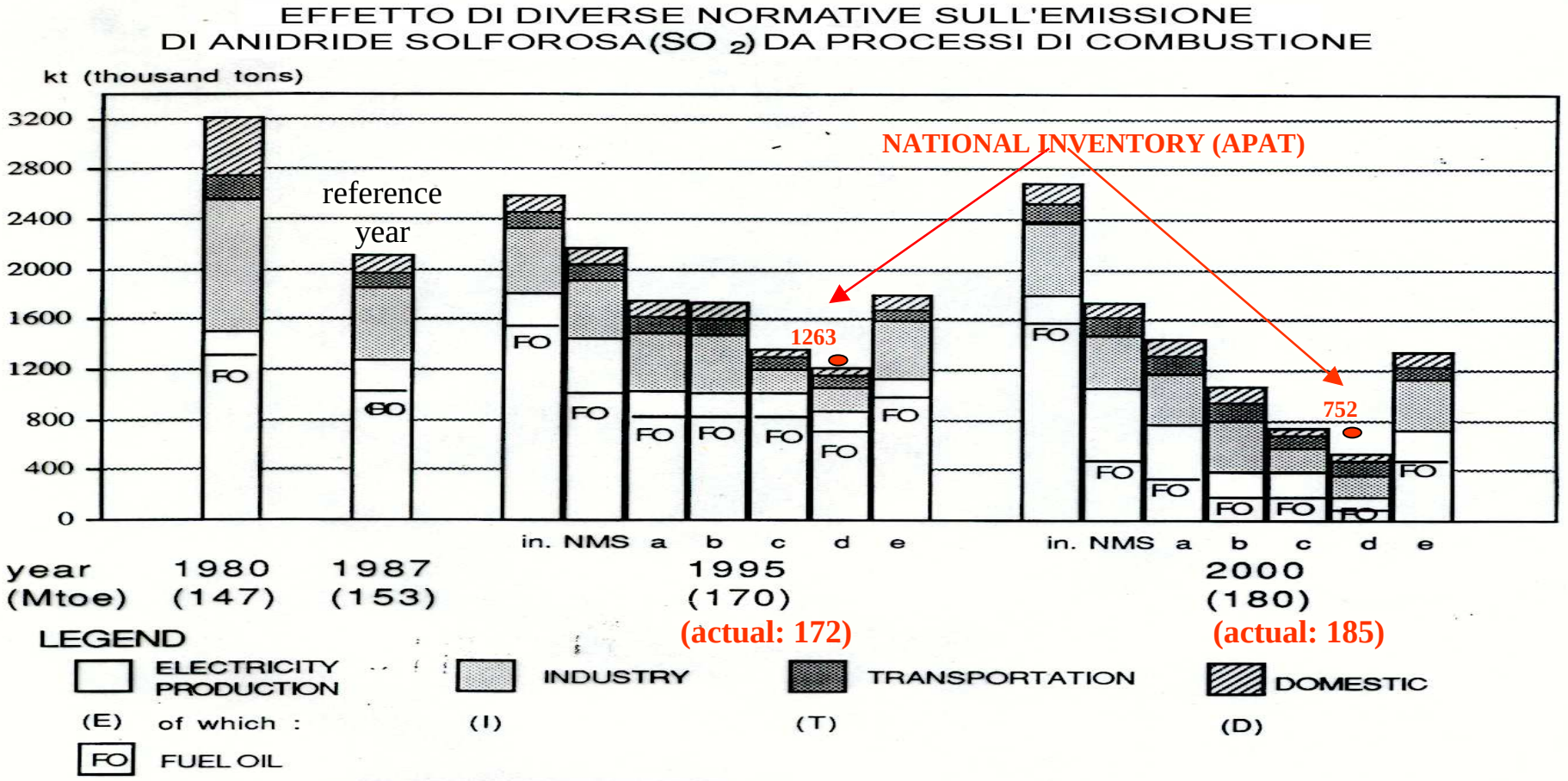


APAT elaboration based on ENEA (2004) Energy and Environment Report

PRESSURES

THE PAST

The 1988 Italian National Energy Plan



Source: Italian Energy Plan, 1988

	energy sources mix		REGULATIONS							
			all sectors	E			ID	TID	EI	
	inertial mix	new mix	pre 87	M.D. 105/87	P.R. 1200	P.R. 400	F.O. 1200	GASOIL 0.2%	EEC hypothesis	
in.	X		X							
NMS		X	X							
a		X		X						
b		X		X	X					
c		X		X	X		X	X		
d		X		X		X	X	X		
e		X						X	X	

M.D.105/87= Ministry of Environment decree on the limits for emissions in the atmosphere by thermal power plants.

P.R.1200 or 400 = Emission standards equal to 1200 or 400 mg/Nmc for existing plants.

F.O. 1200= Emission standards equal to 1200 mg/Nmc for the use of fuel oil

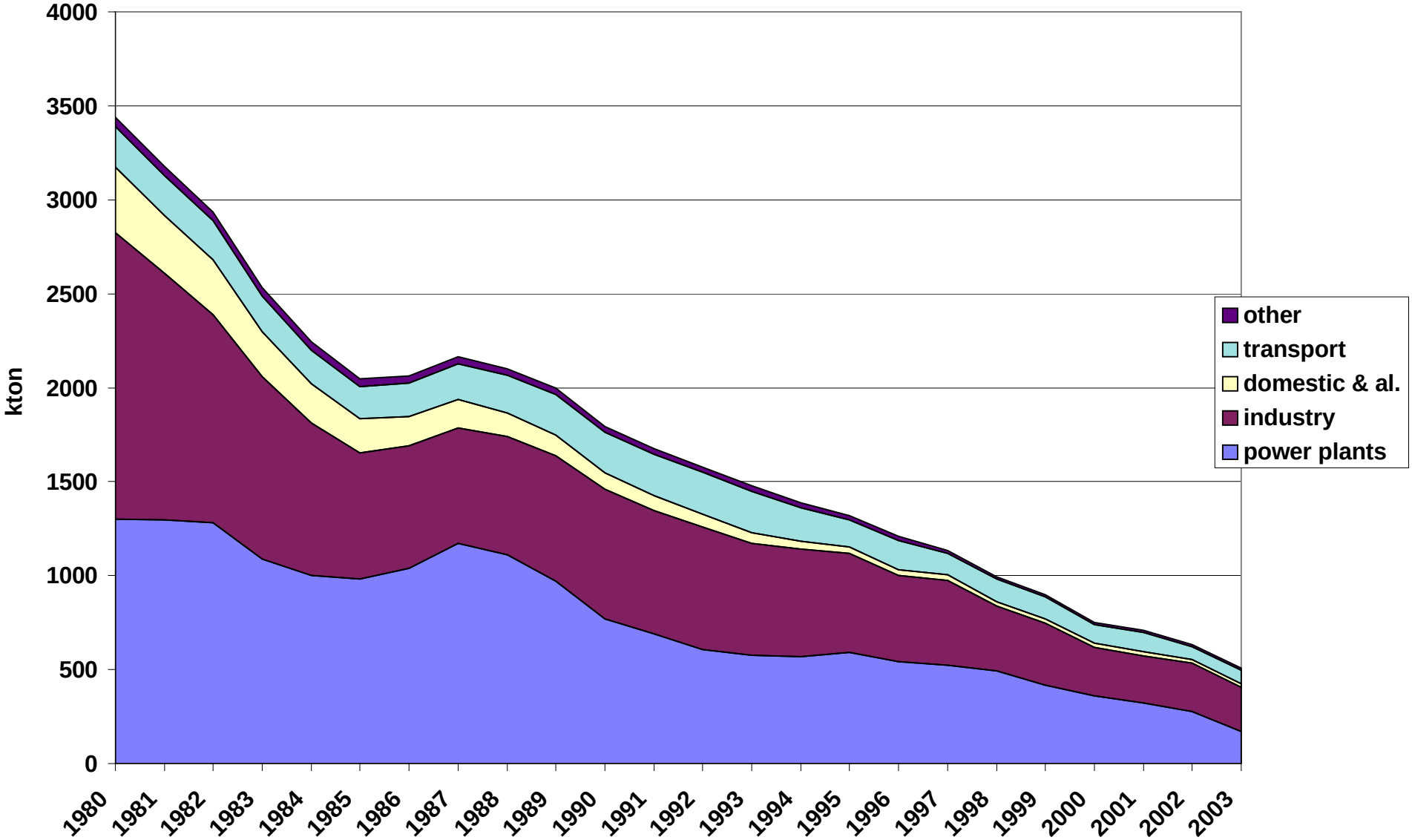
GASOIL 0.2% = Sulphur content in gasoil from 0.3 to 0.2 % as of 1991

EEC = Proposal of the EEC for a directive on the limitation of emissions from large combustion plants

in. = inertial

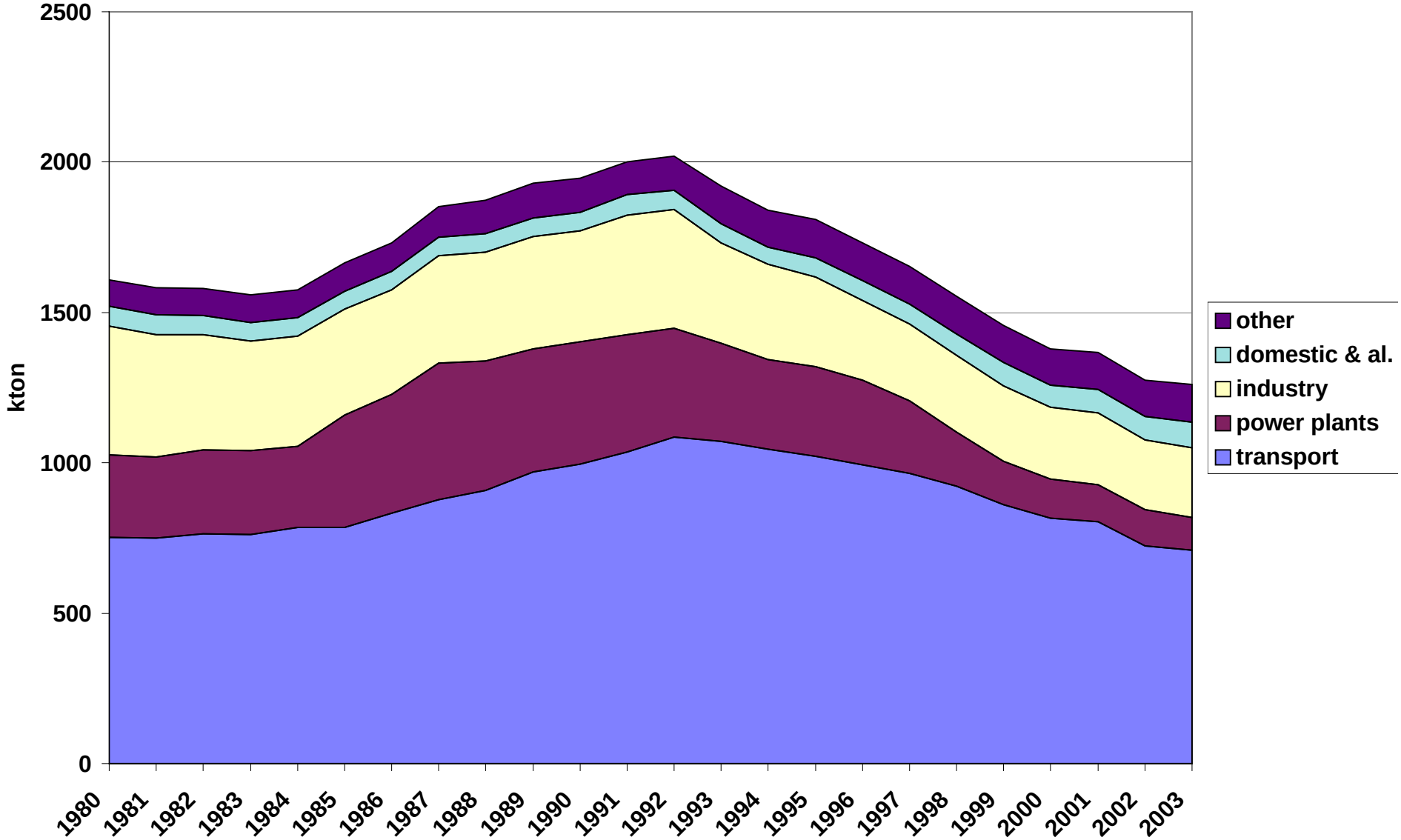
NMS = new mix of energy sources

ANTHROPOGENIC SOx EMISSIONS IN ITALY



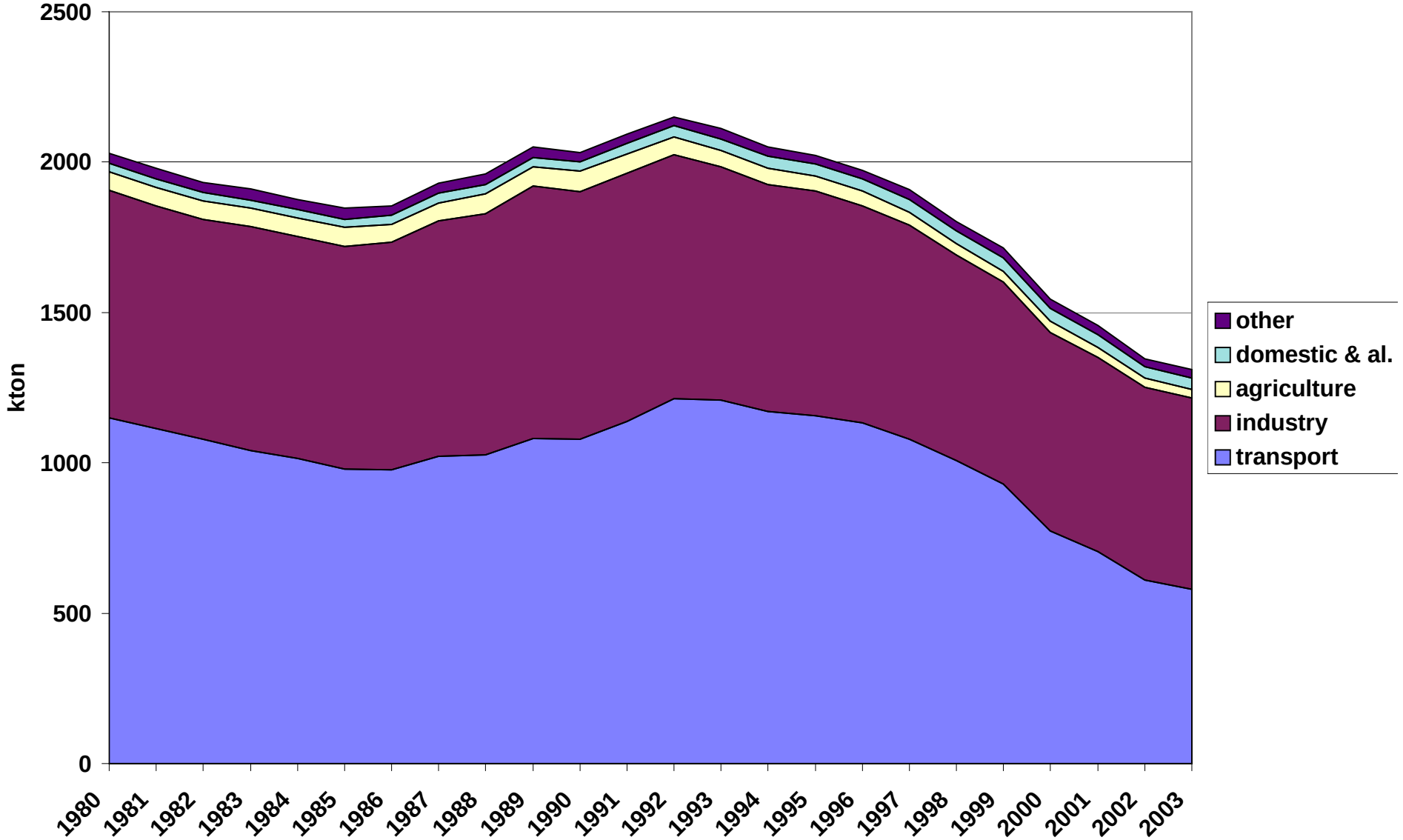
Source: APAT

NOx EMISSIONS IN ITALY



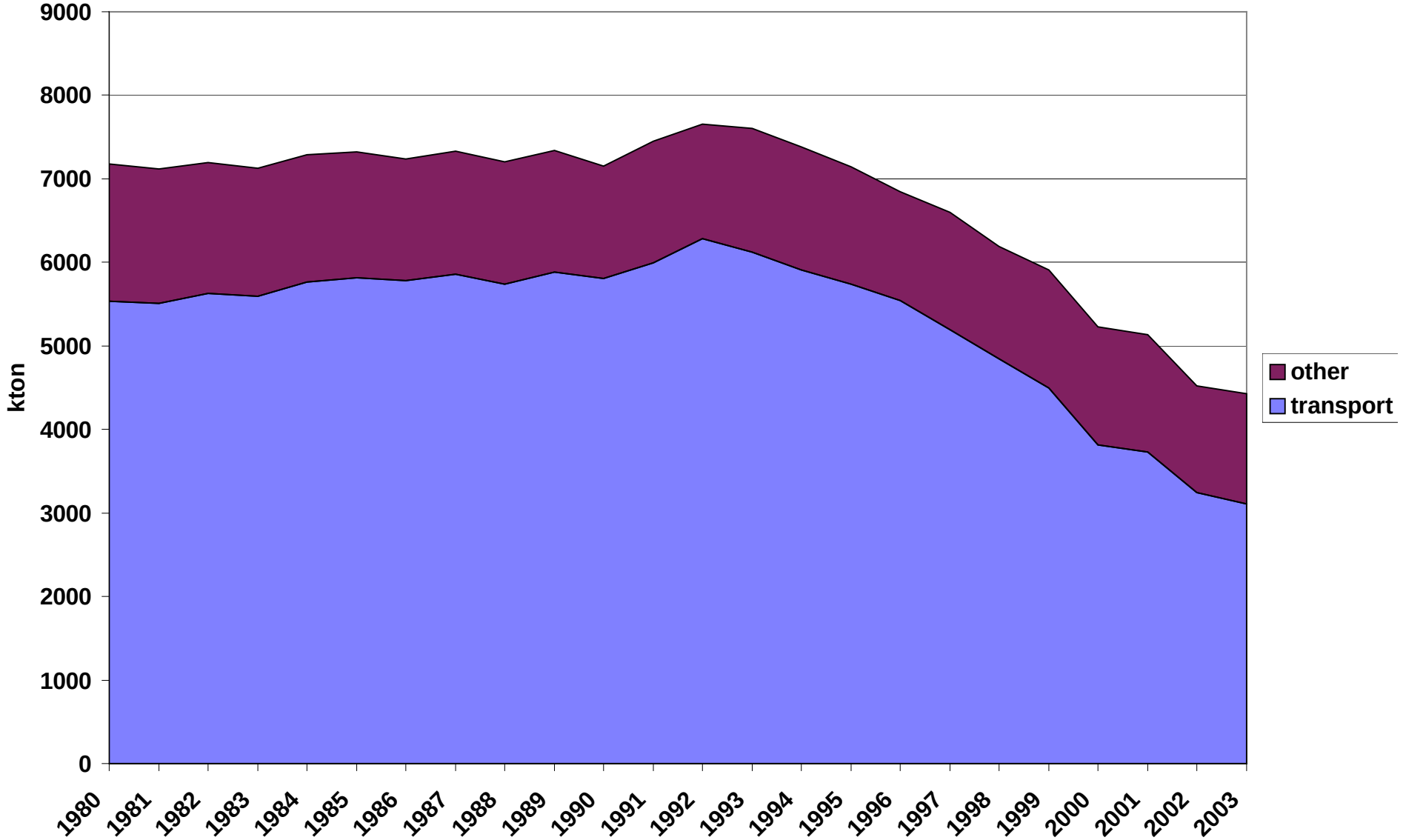
Source: APAT

ANTHROPOGENIC COVNM EMISSIONS IN ITALY



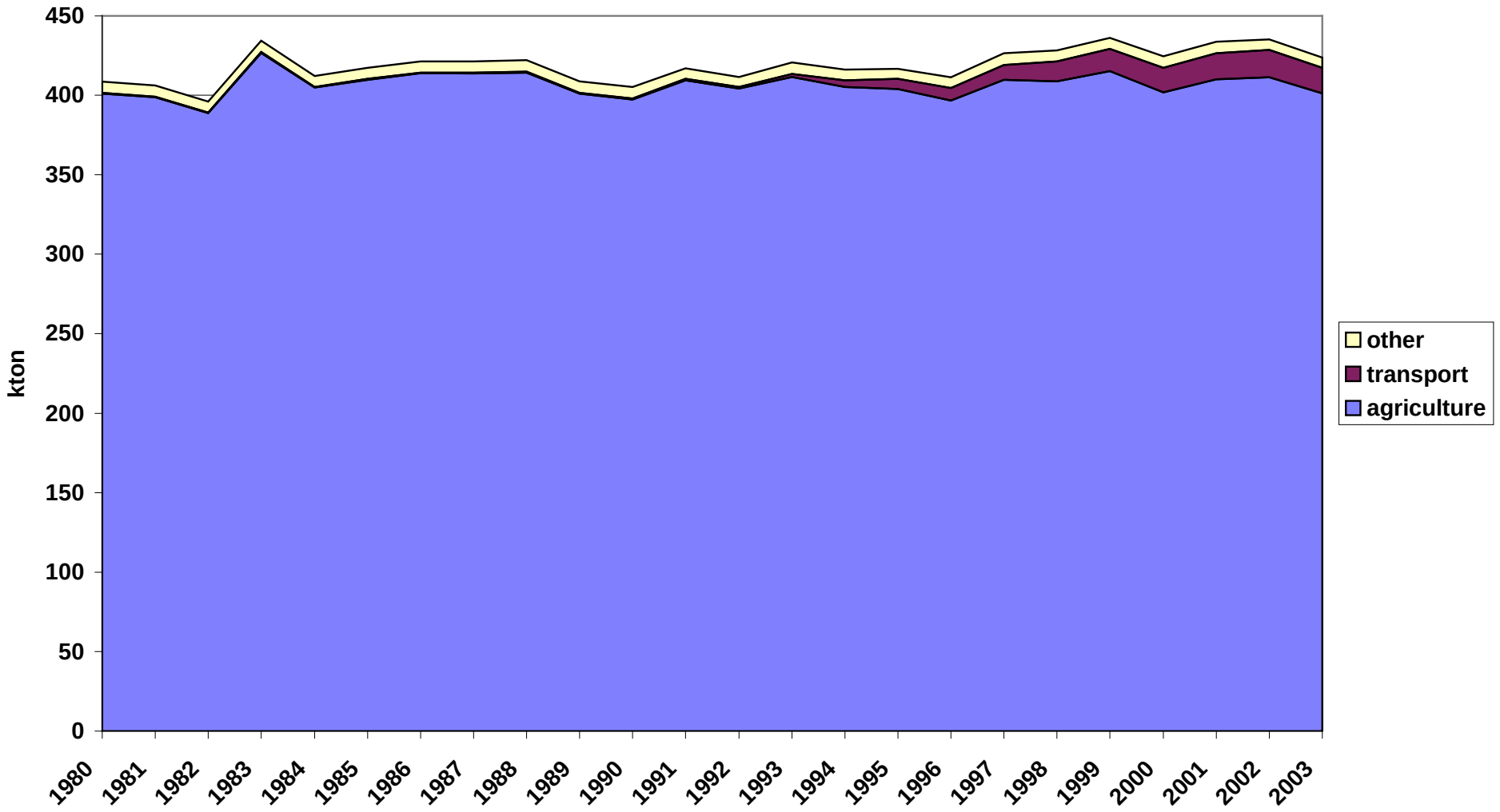
Source: APAT

CO EMISSIONS IN ITALY



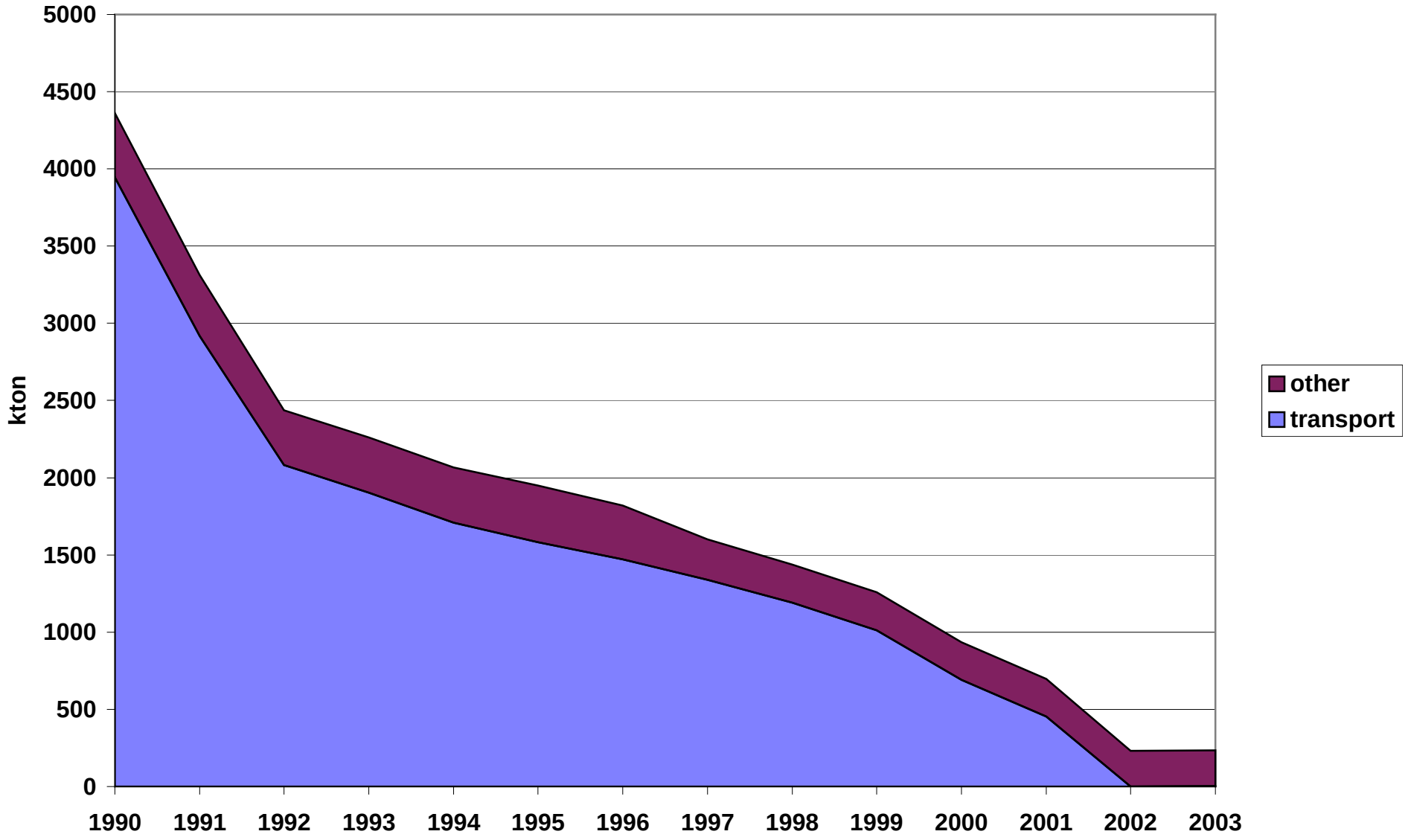
Source: APAT

NH_3 EMISSIONS IN ITALY



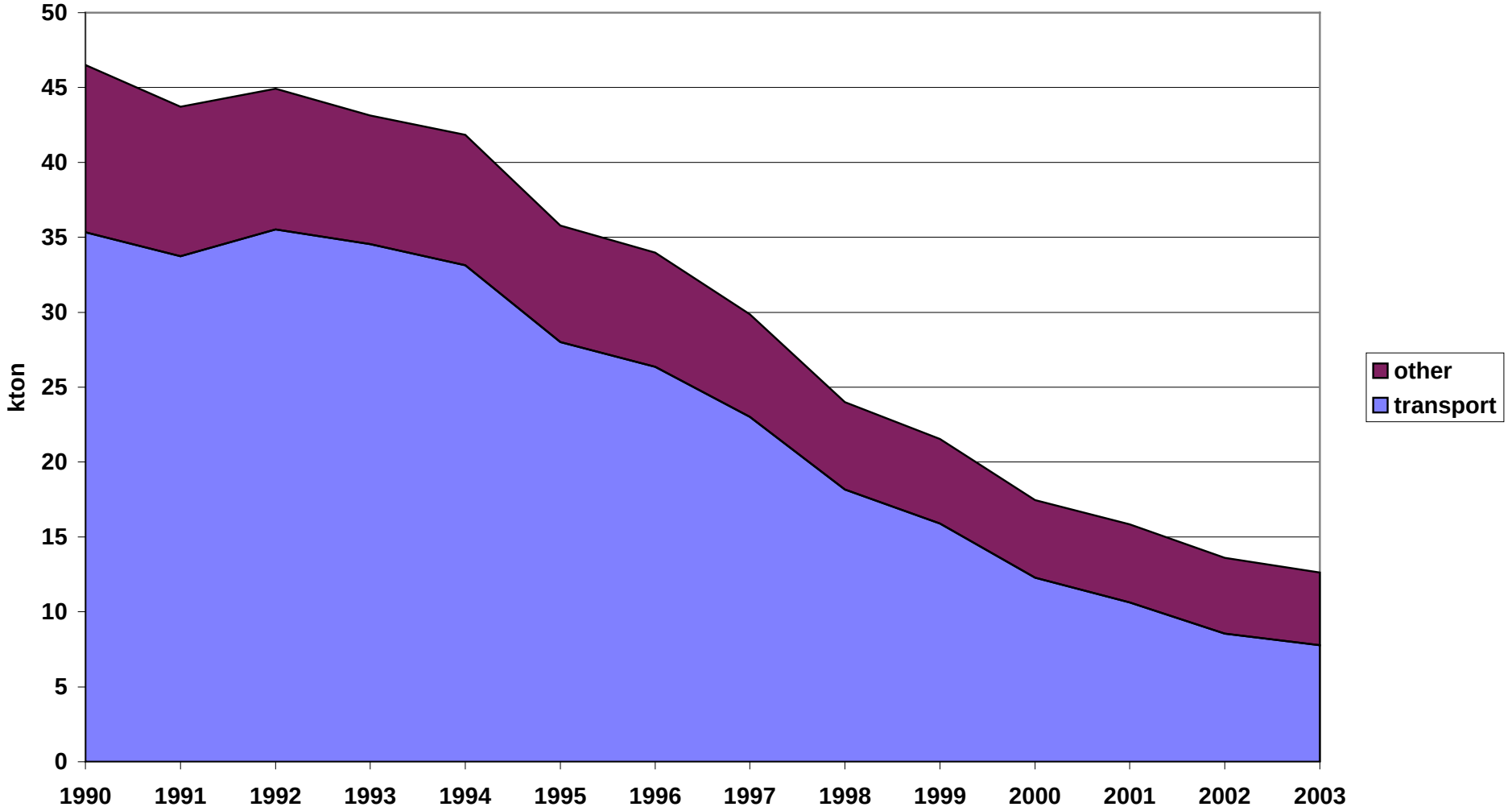
Source: APAT

Pb EMISSIONS IN ITALY



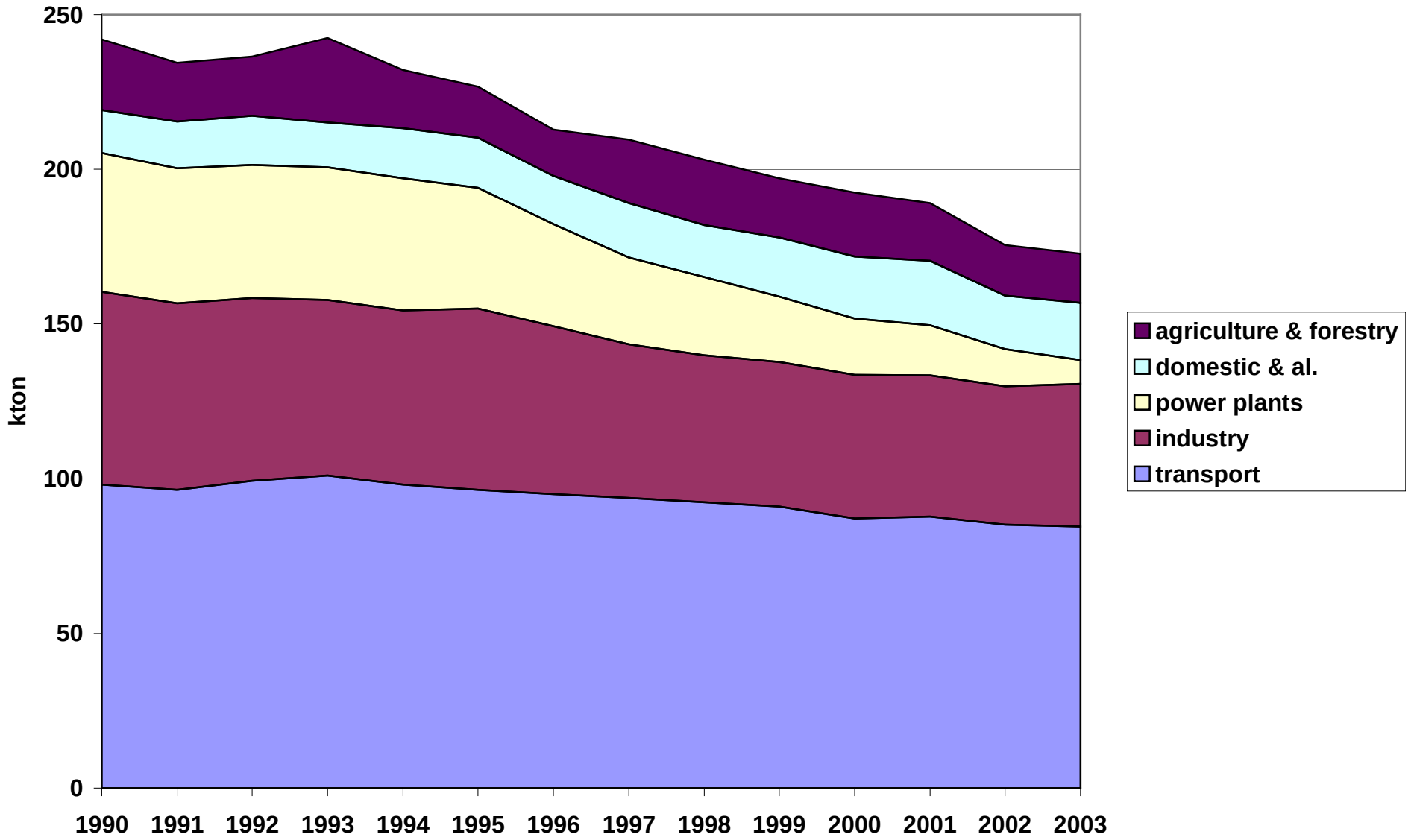
Source: APAT

C_6H_6 EMISSIONS IN ITALY



Source: APAT

PM_{10} EMISSIONS IN ITALY



Source: APAT

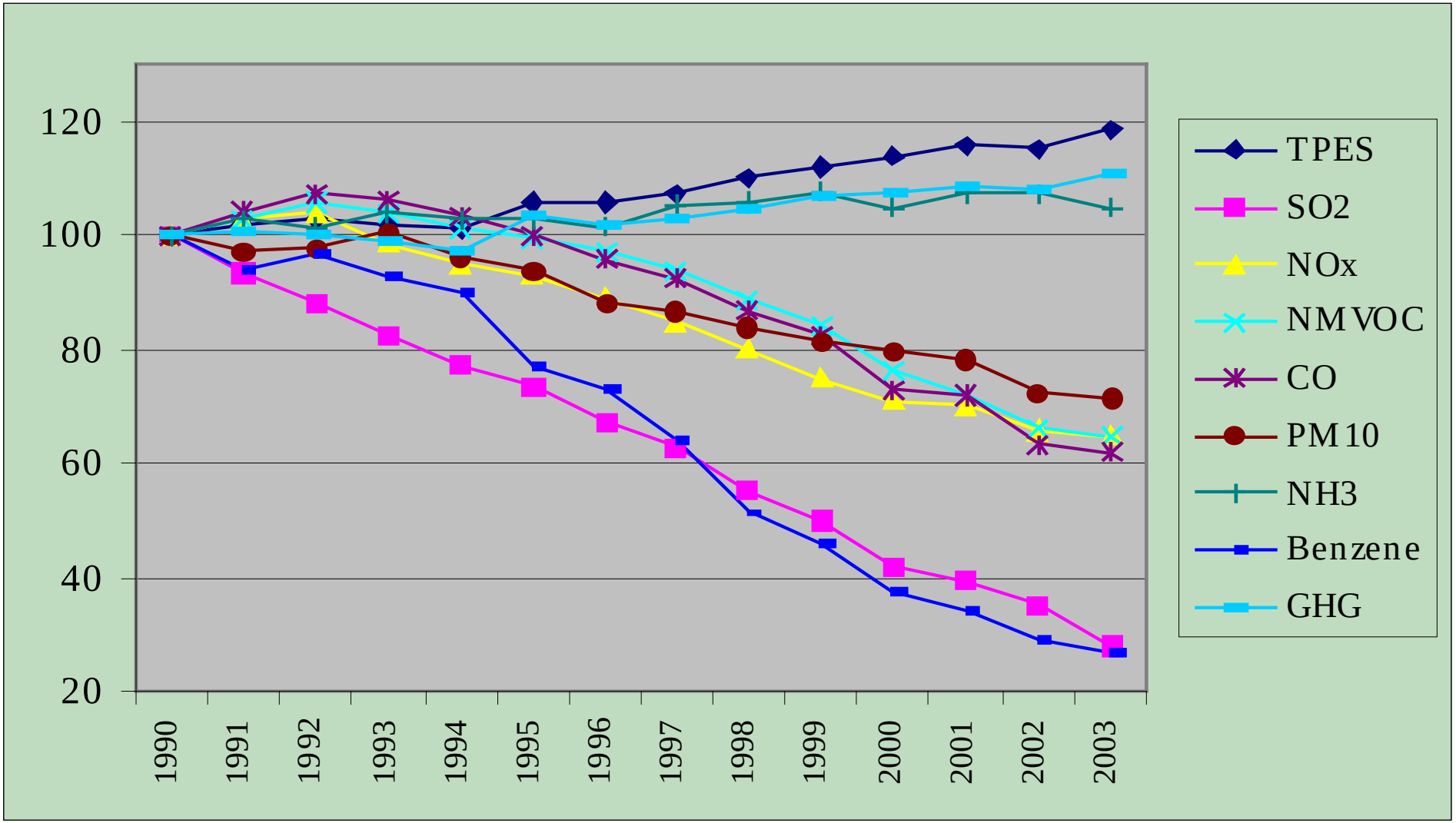
driving forces

versus

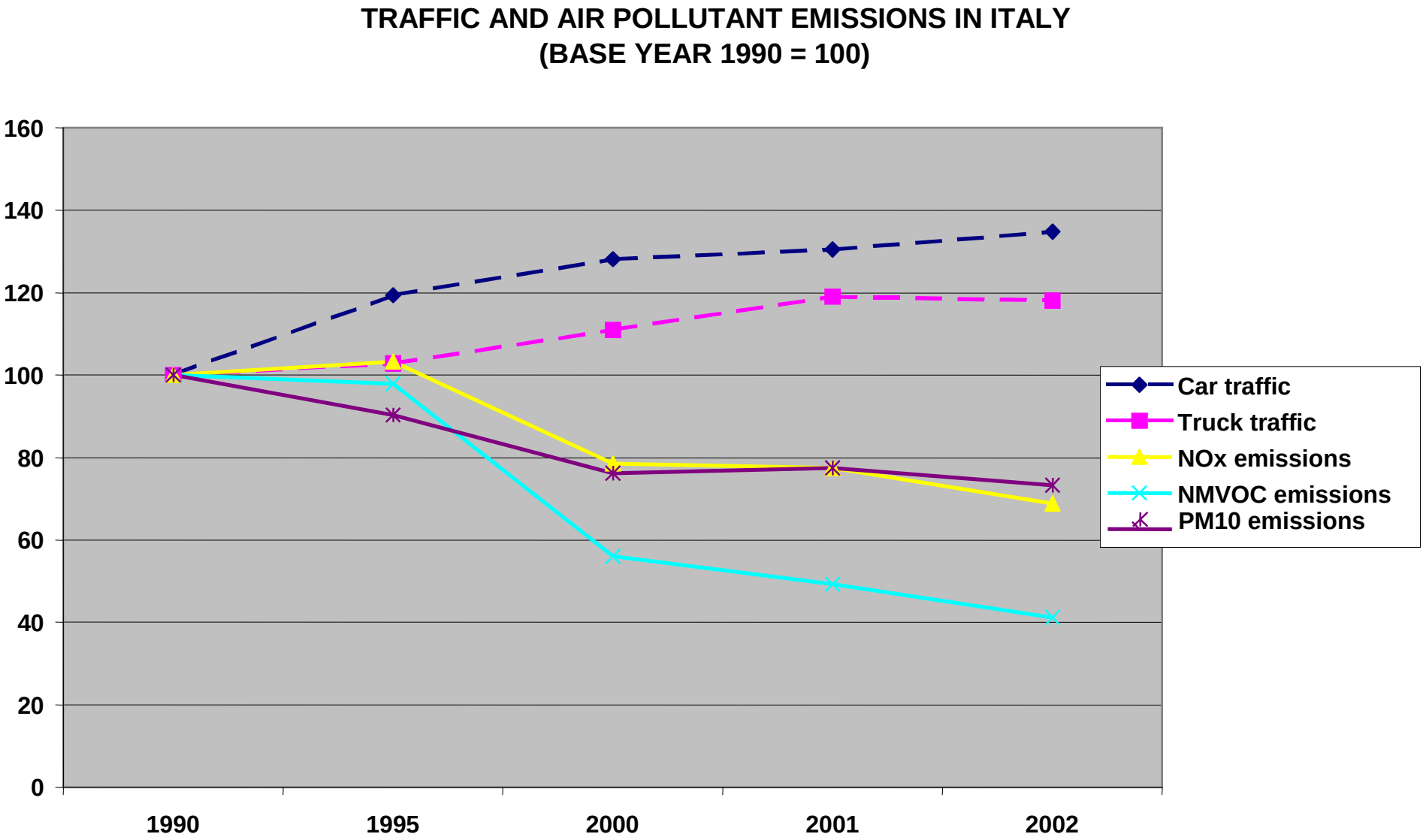
pressures

decoupling?

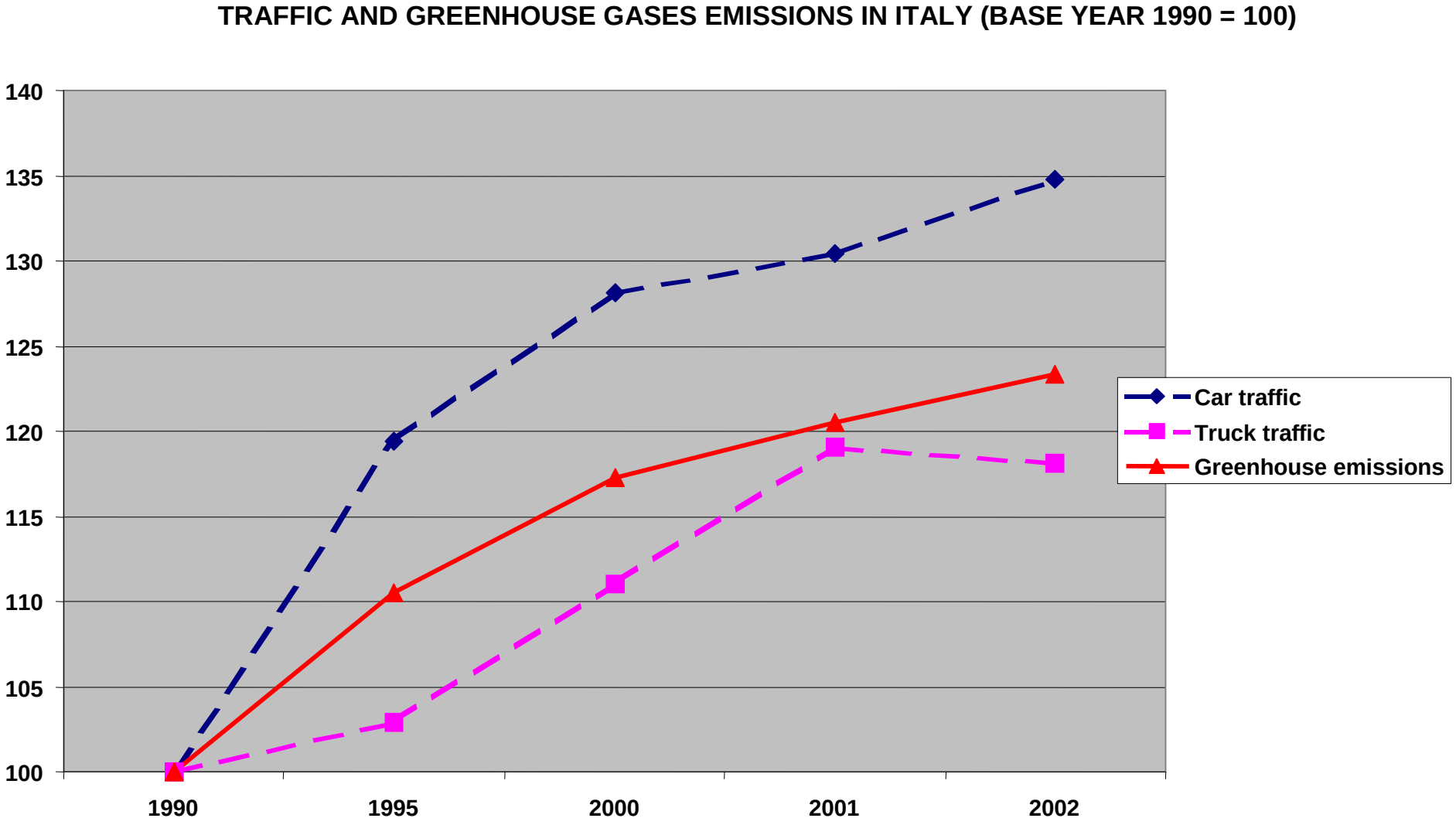
Overall emission trends in Italy, 1990-2003



Source: APAT


TRAFFIC AND AIR POLLUTANT EMISSIONS IN ITALY
(BASE YEAR 1990 = 100)
160
140
120
100
80
60
40
20
0
1990
1995
2000
2001
2002
Car traffic
Truck traffic
NOx emissions
NMVOC emissions
PM10 emissions

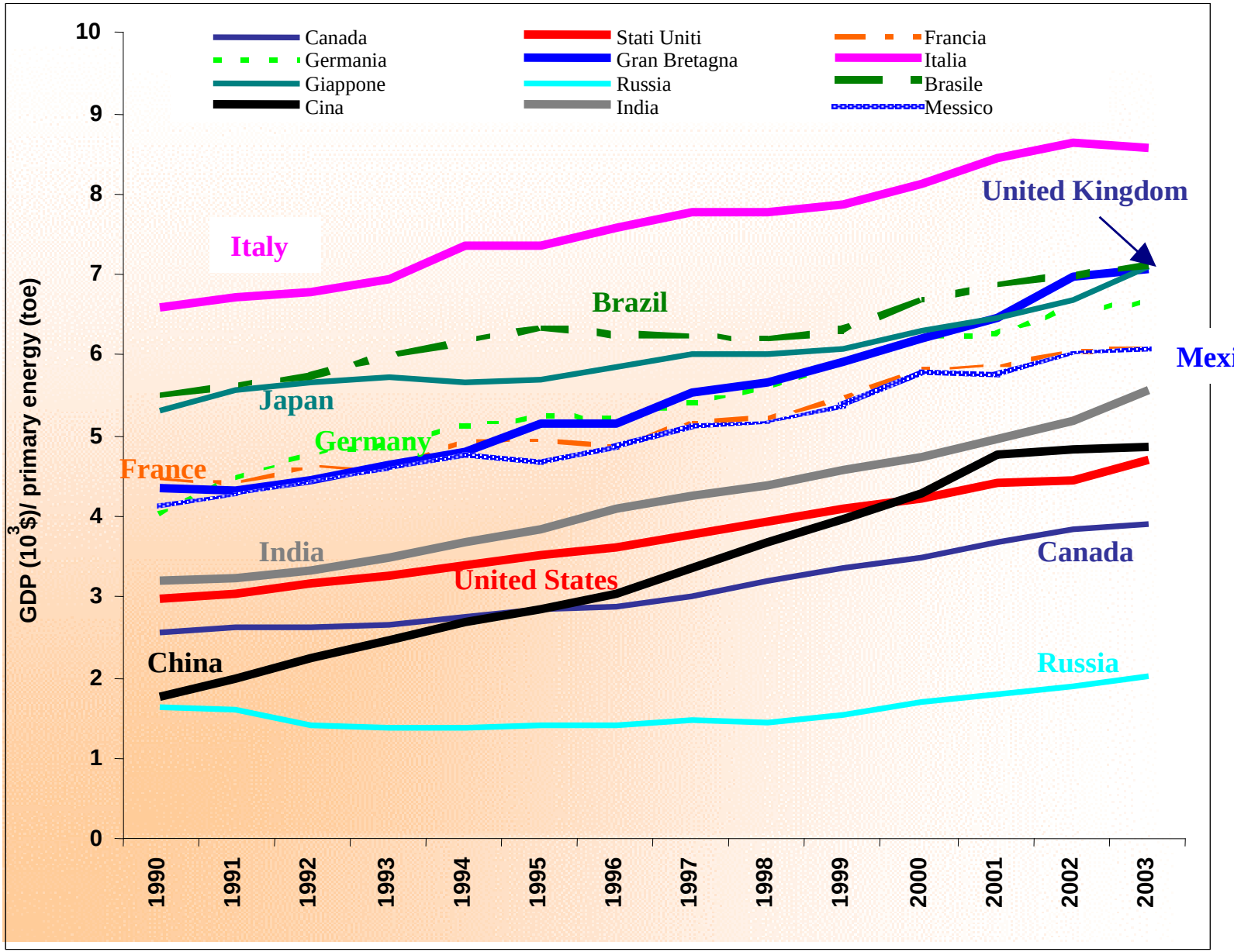
Source: APAT


TRAFFIC AND GREENHOUSE GASES EMISSIONS IN ITALY (BASE YEAR 1990 = 100)
140
135
130
125
120
115
110
105
100
1990
1995
2000
2001
2002
Car traffic
Truck traffic
Greenhouse emissions

Source: APAT

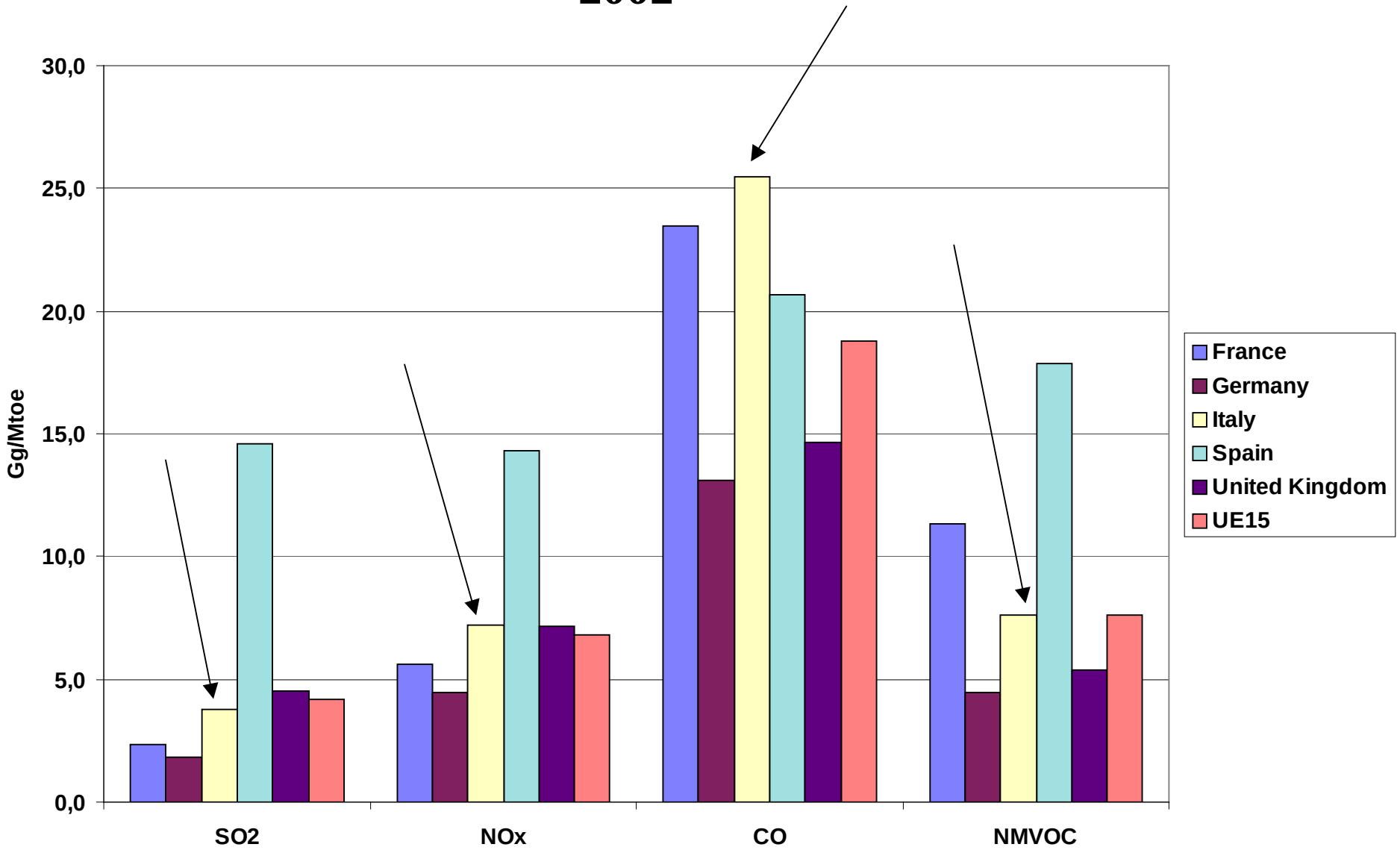
International and inter-UE comparison

PRODUCED WEALTH PER UNIT PRIMARY ENERGY

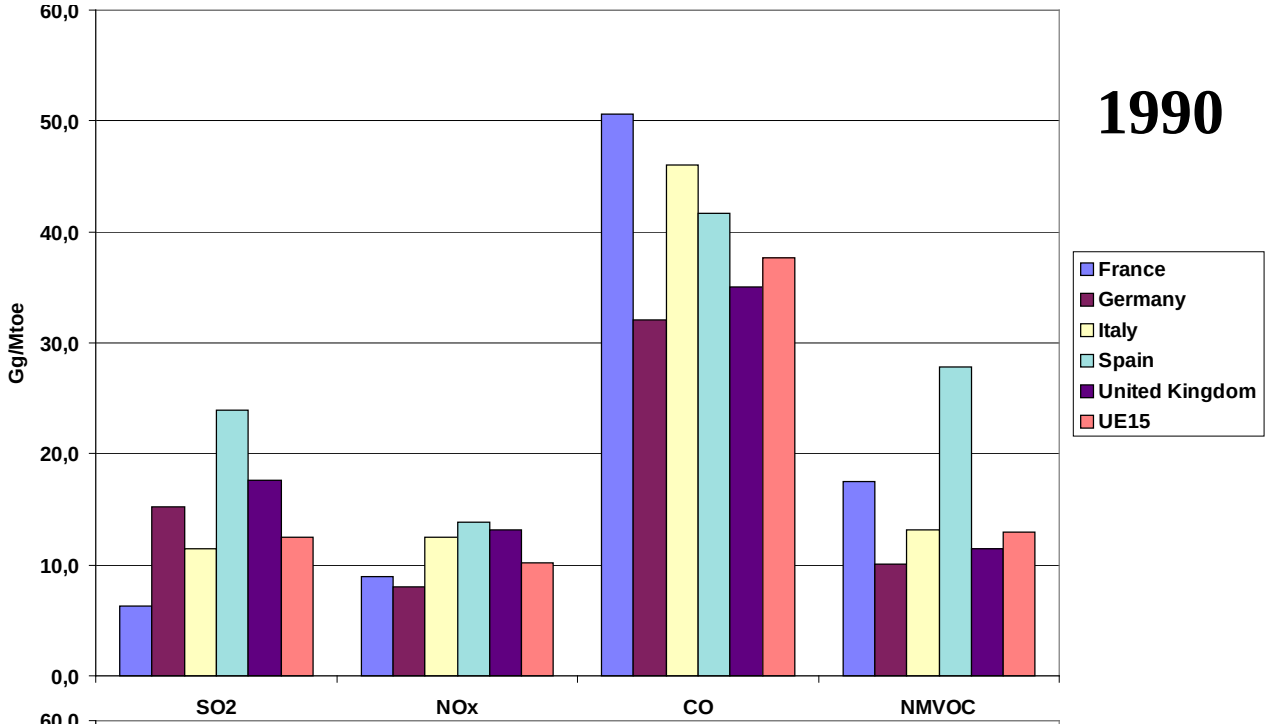


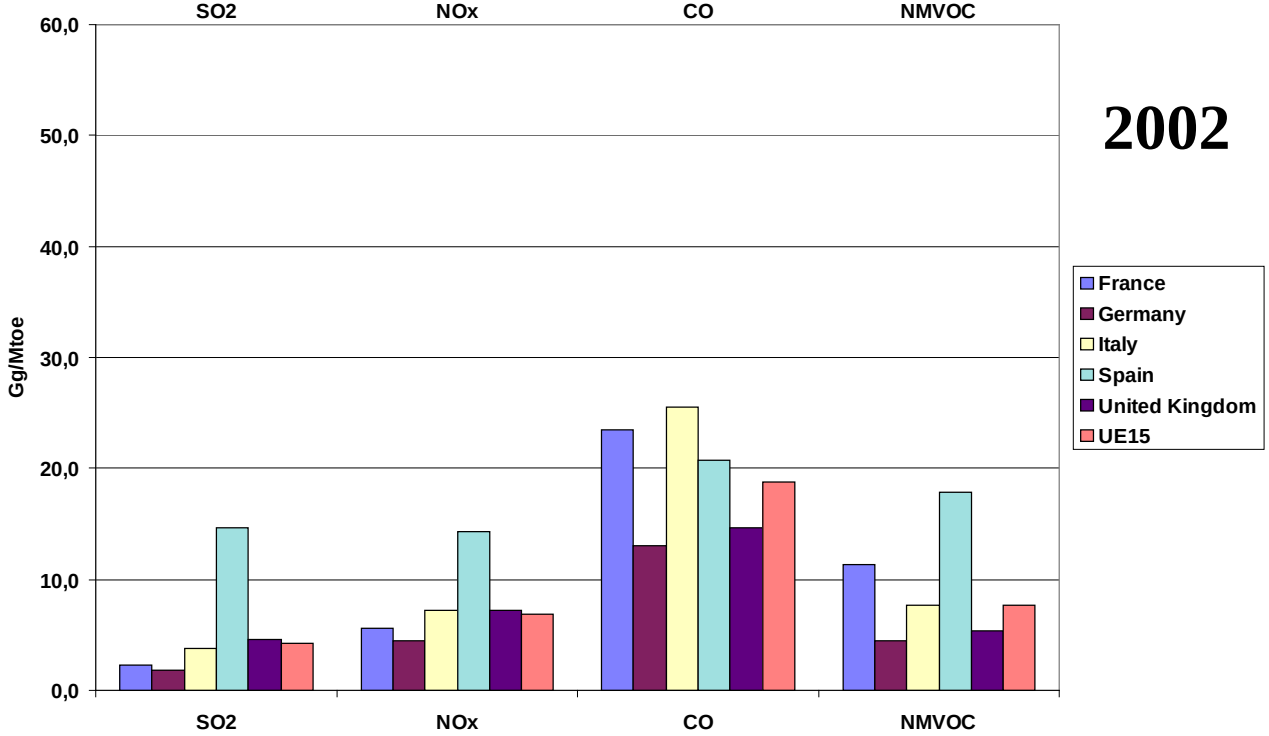
APAT elaboration based on ENERDATA and IMF data

AIR EMISSIONS PER UNIT PRIMARY ENERGY 2002



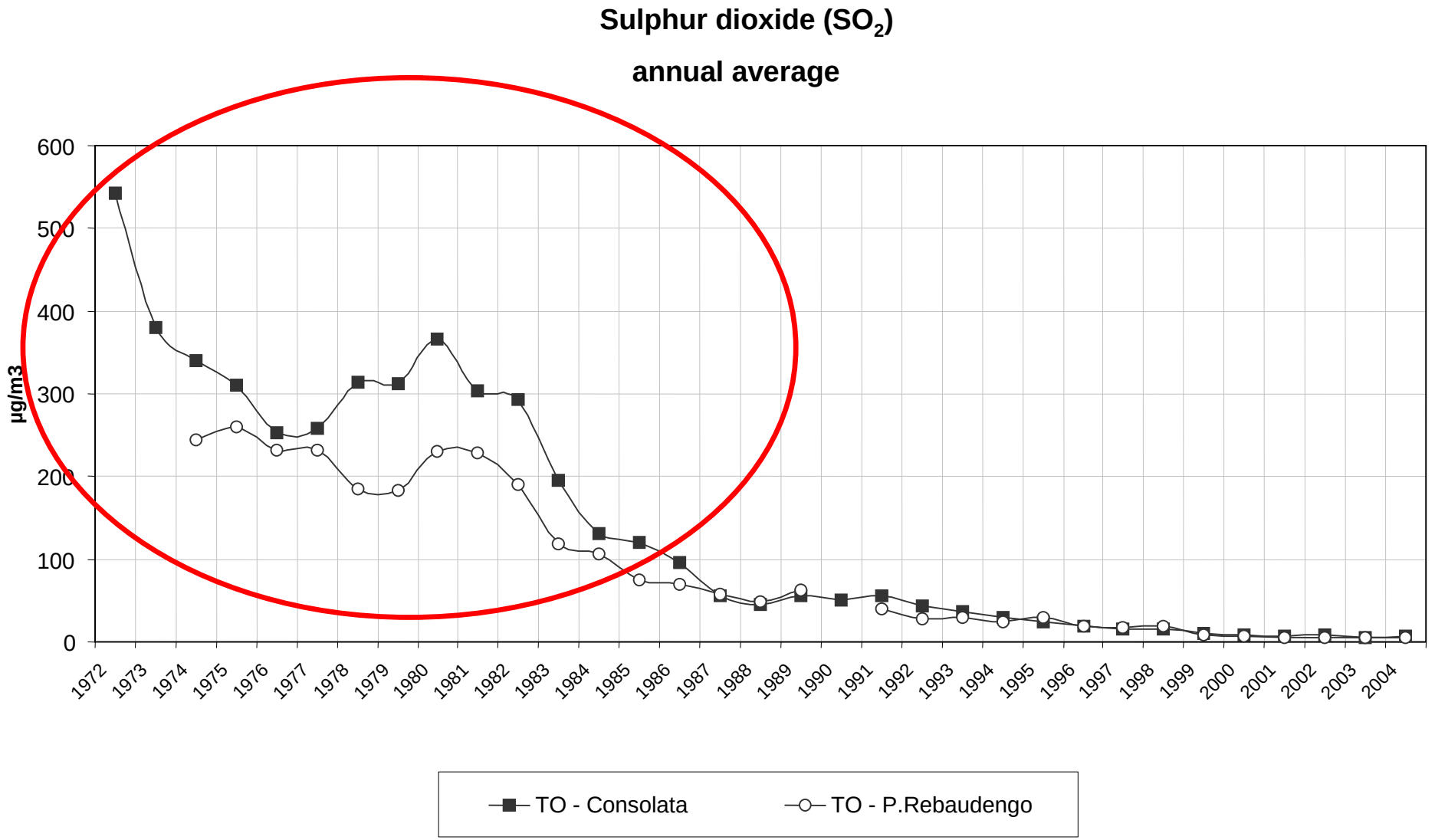
AIR EMISSIONS PER UNIT PRIMARY ENERGY





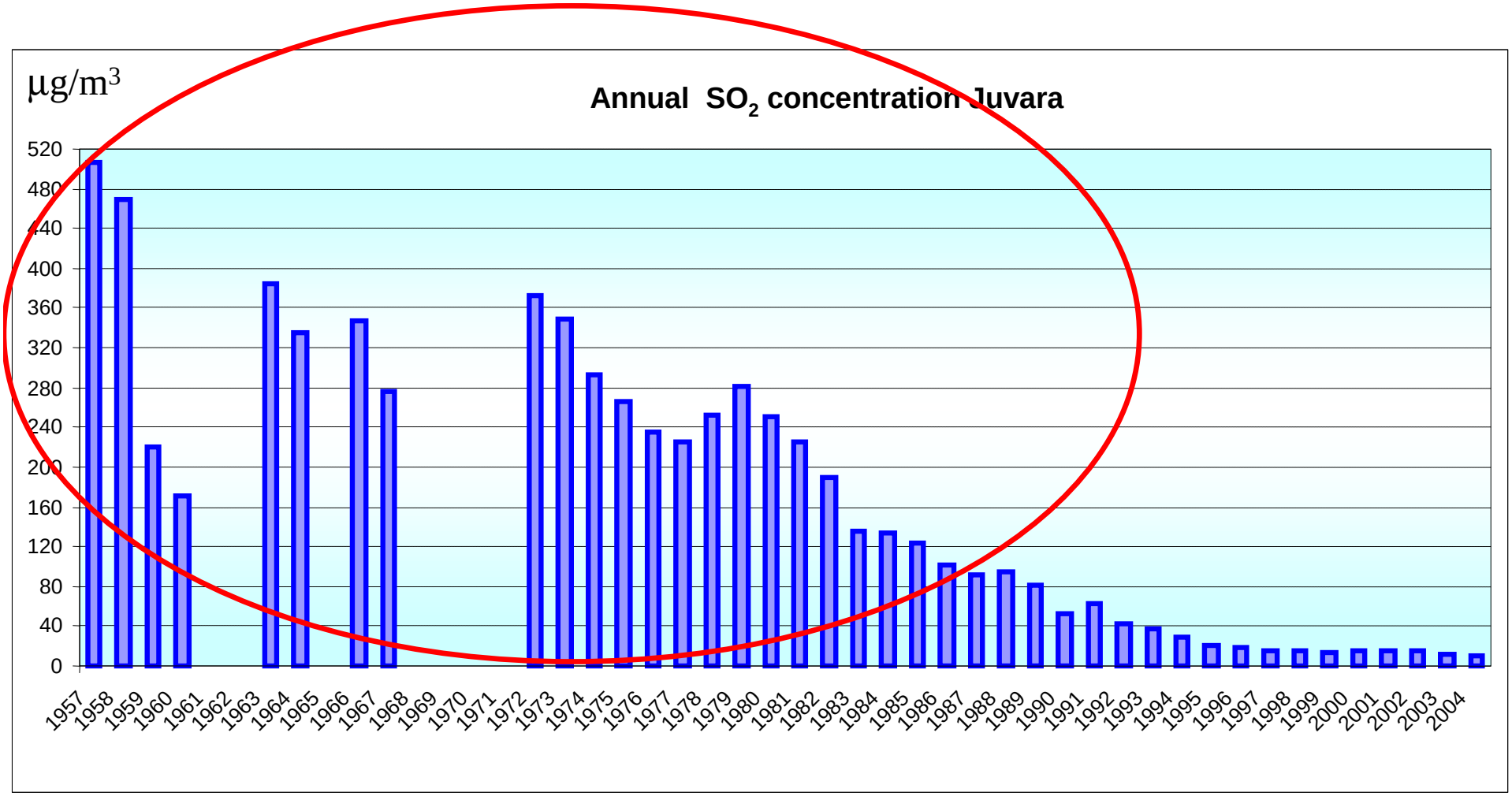
Past challenges

Torino



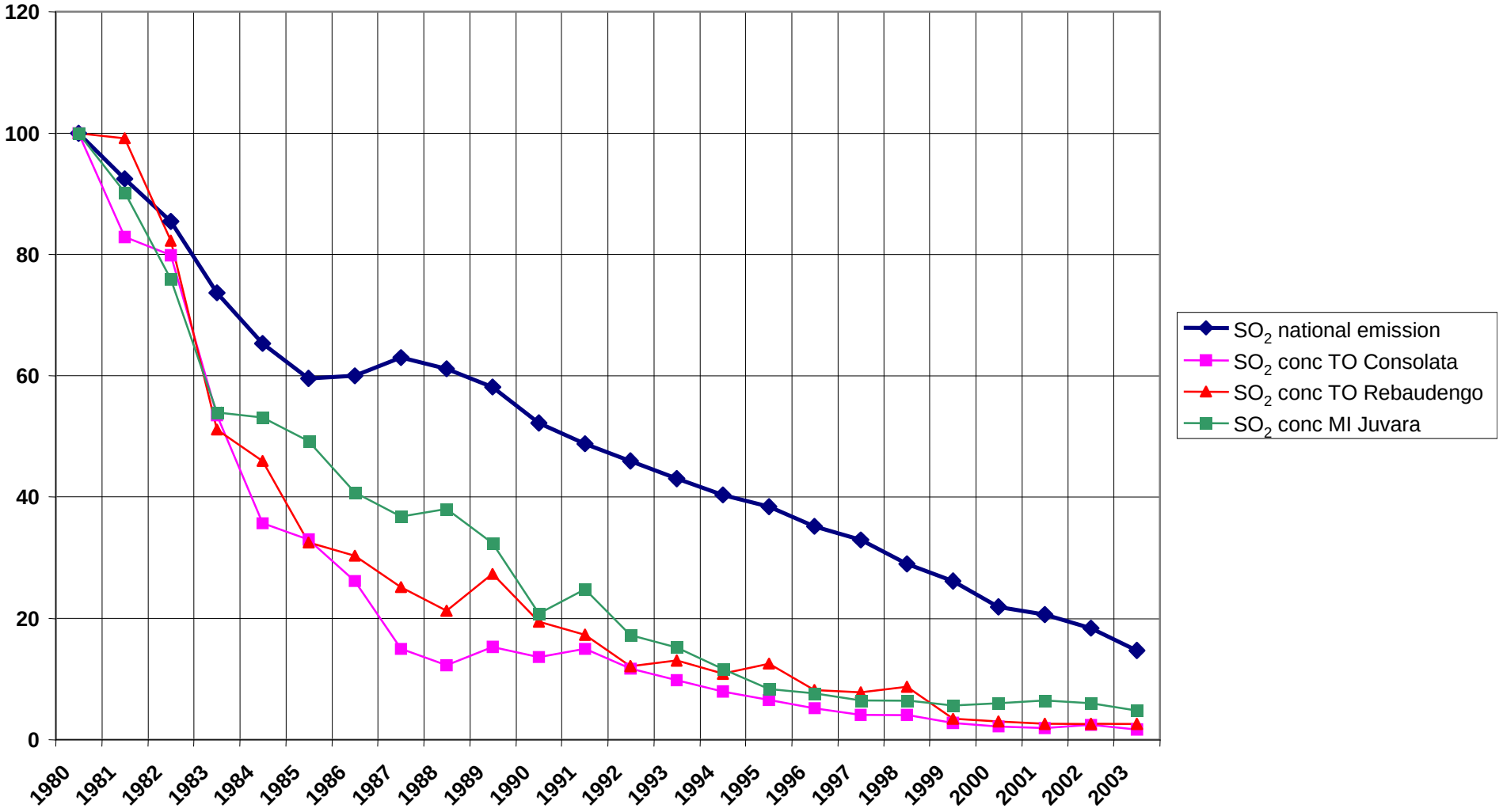
Source: CNEIA, Italian Ministry of the Environment

Milano



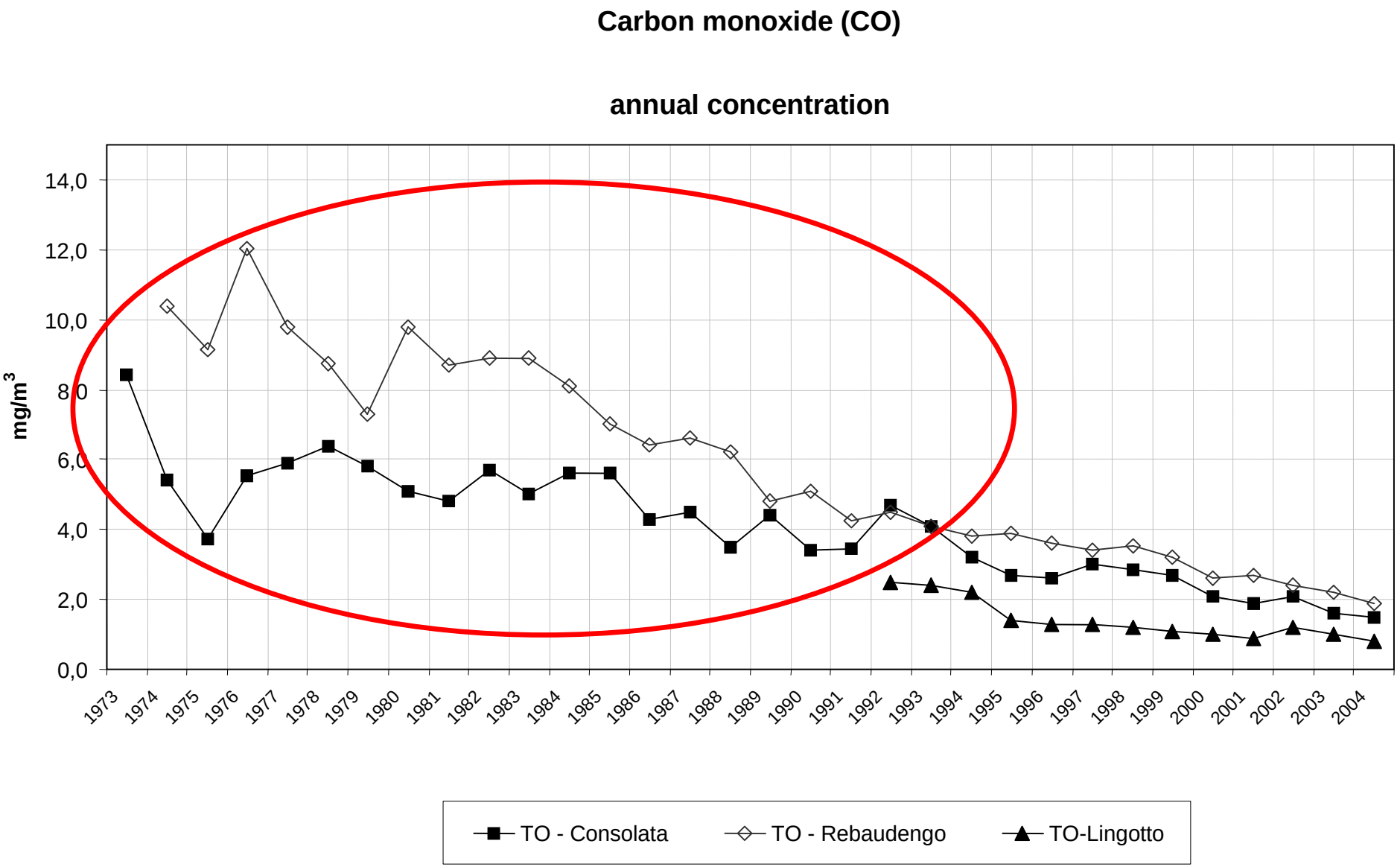
Source: CNEIA, Italian Ministry of the Environment

SO_2 EMISSIONS AND CONCENTRATIONS IN ITALY

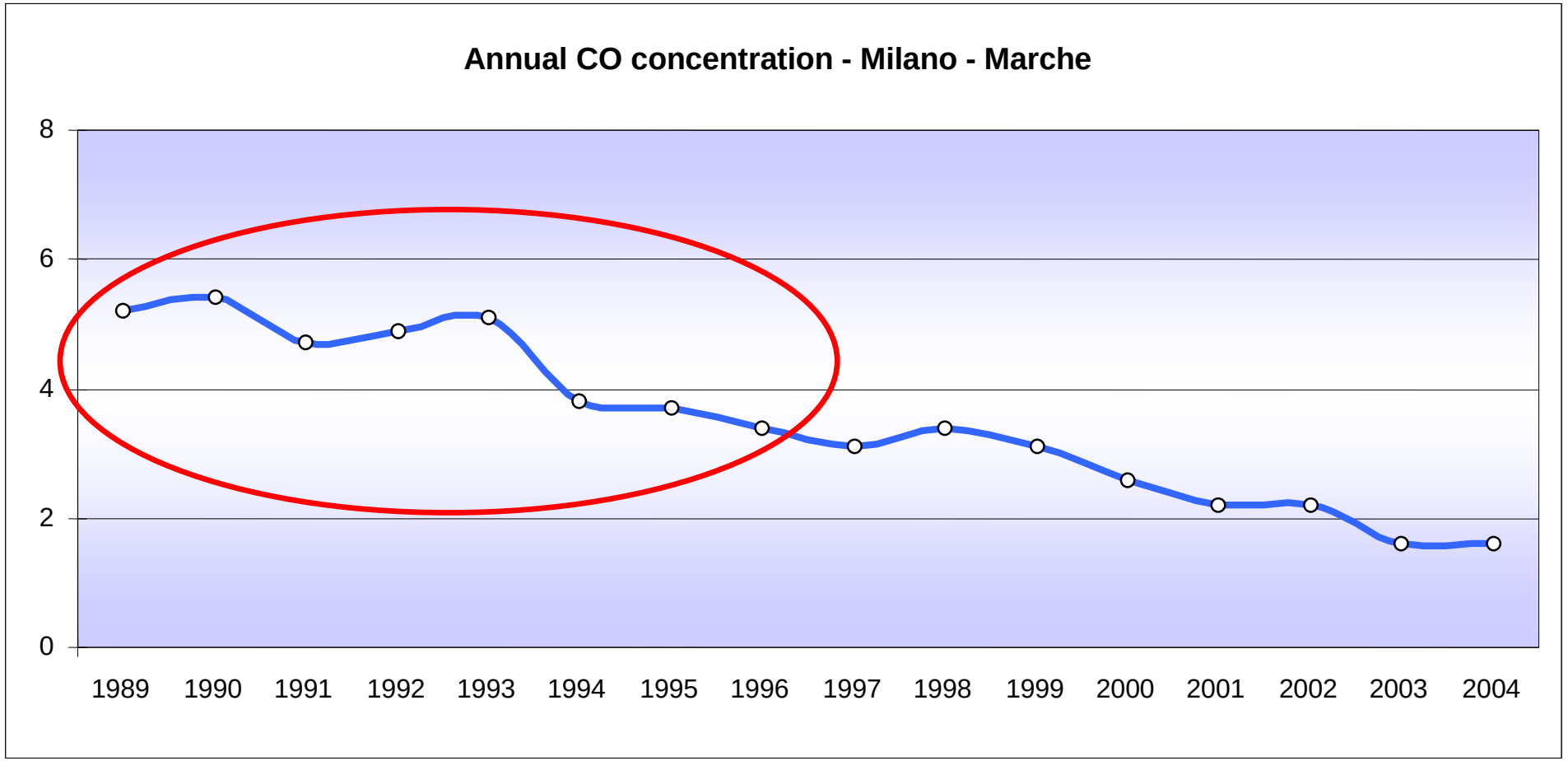


Source: CNEIA, Italian Ministry of the Environment

Torino

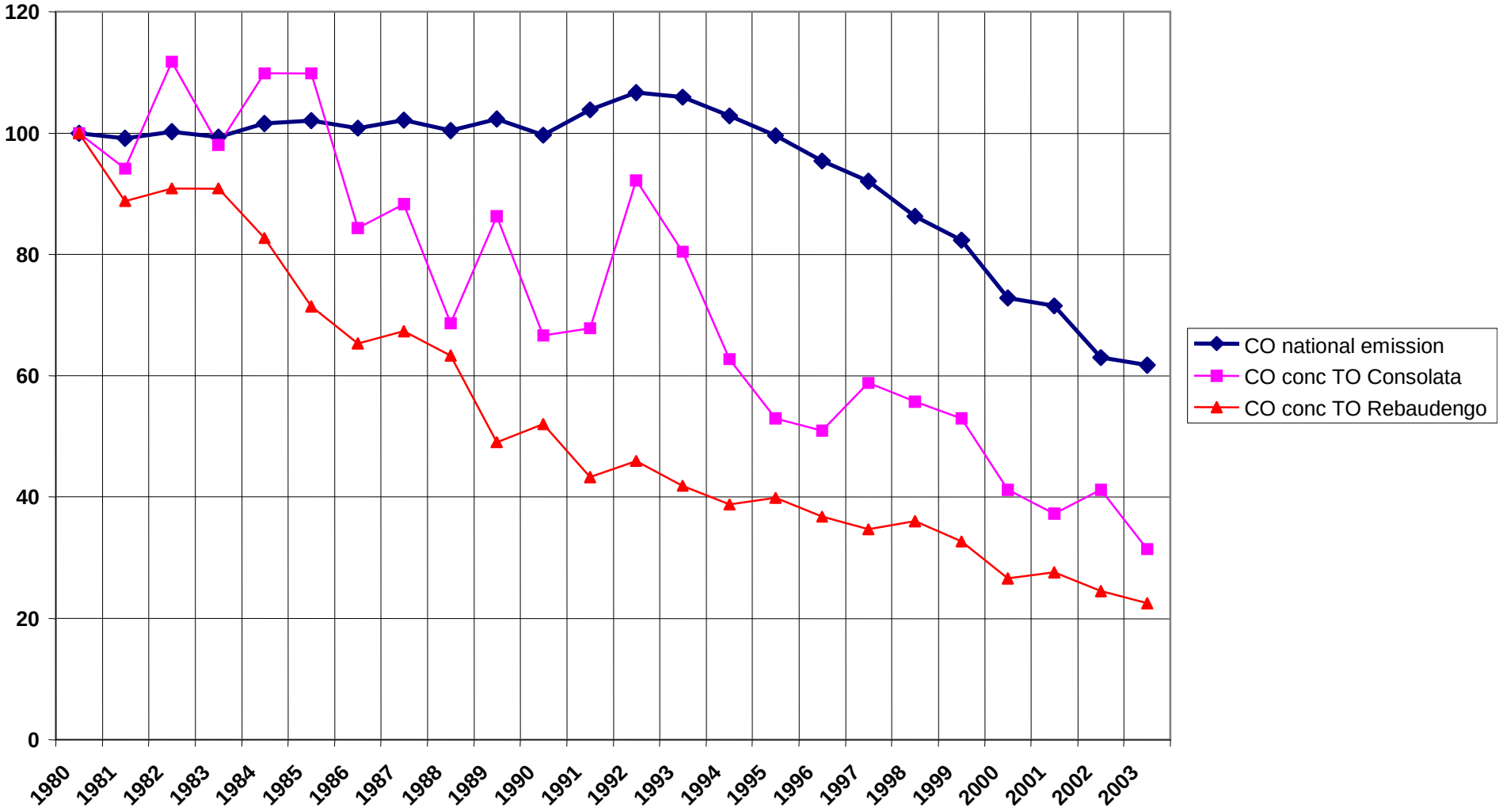


Source: CNEIA, Italian Ministry of the Environment



Source: CNEIA, Italian Ministry of the Environment

CO EMISSIONS AND CONCENTRATIONS IN ITALY



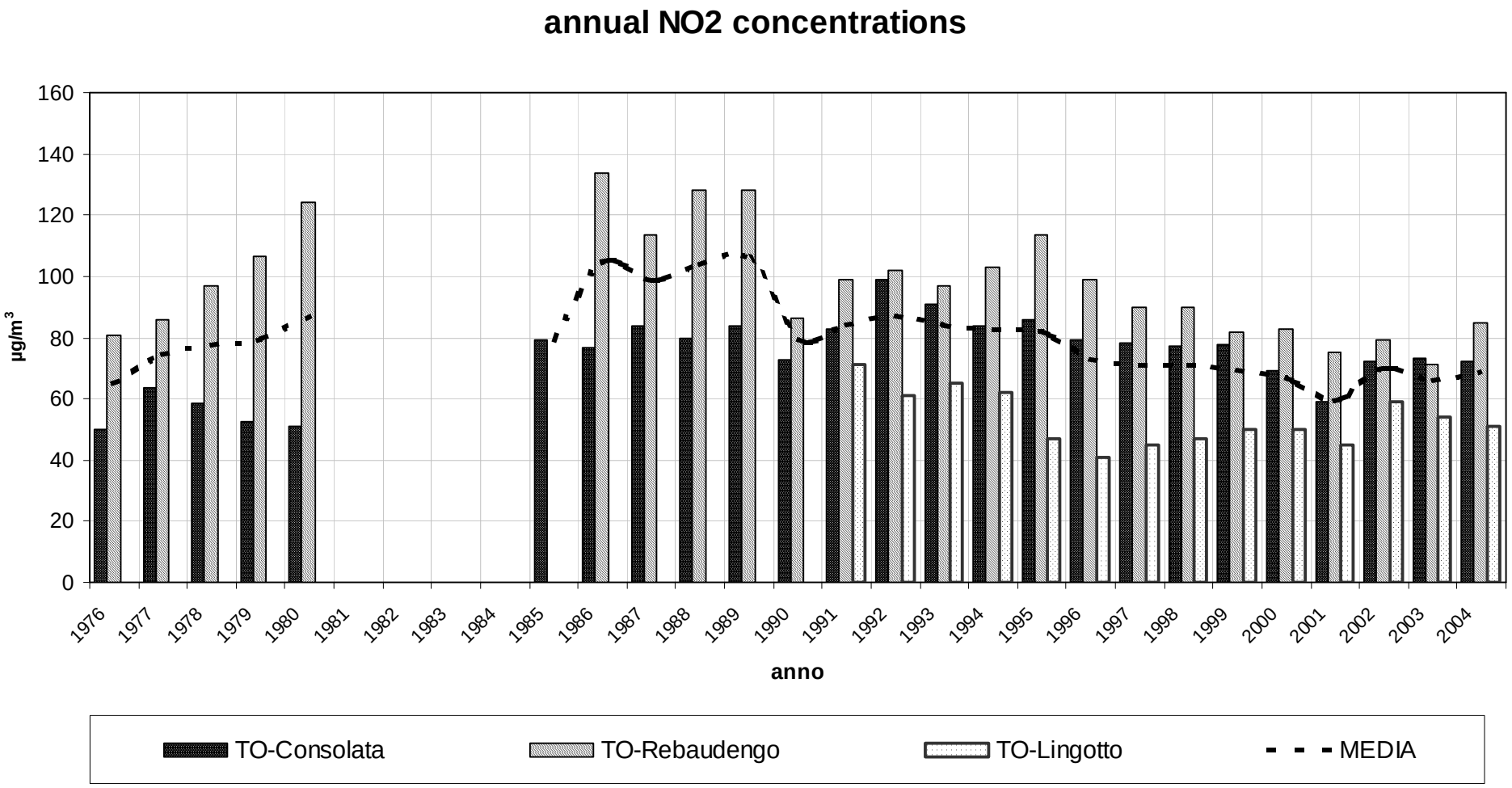
Source: CNEIA, Italian Ministry of the Environment

benzene and lead

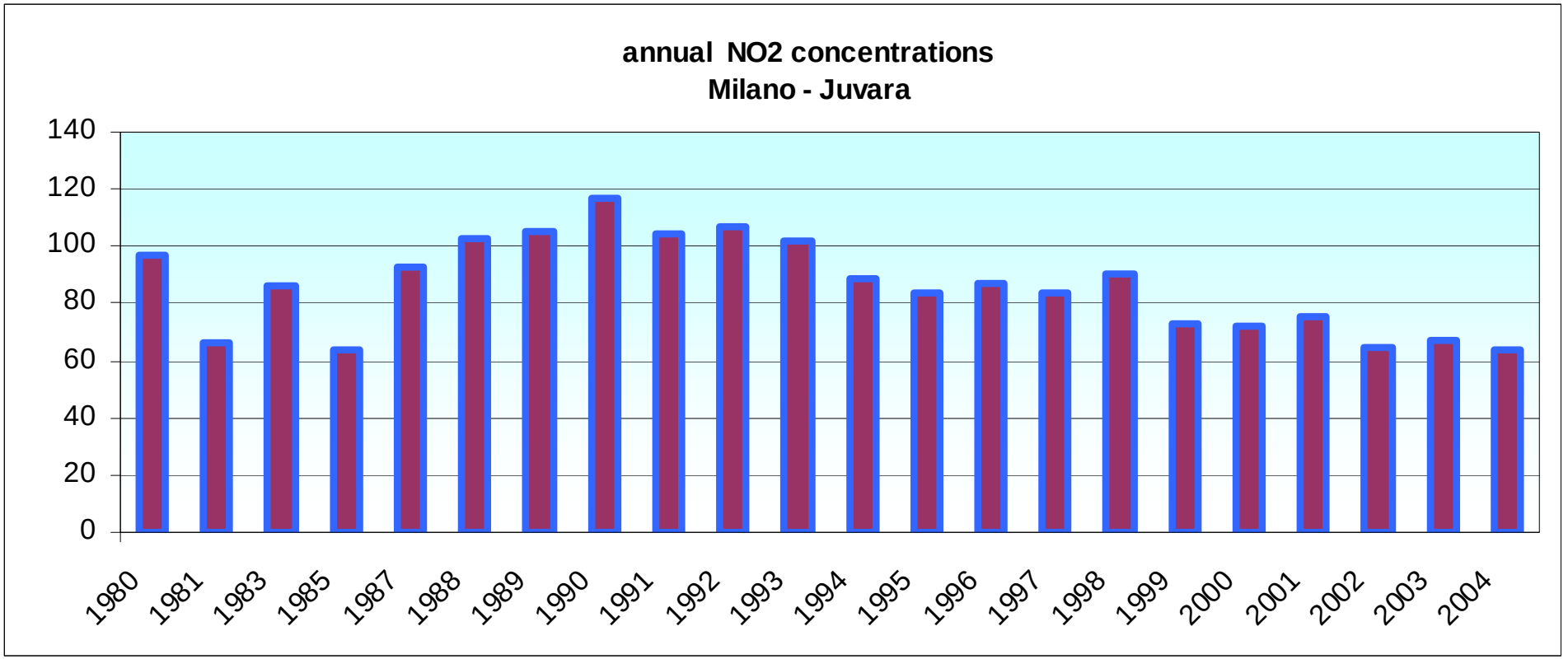
“past” challenges
(with few exceptions)

Present
(and past)
challenges

Torino

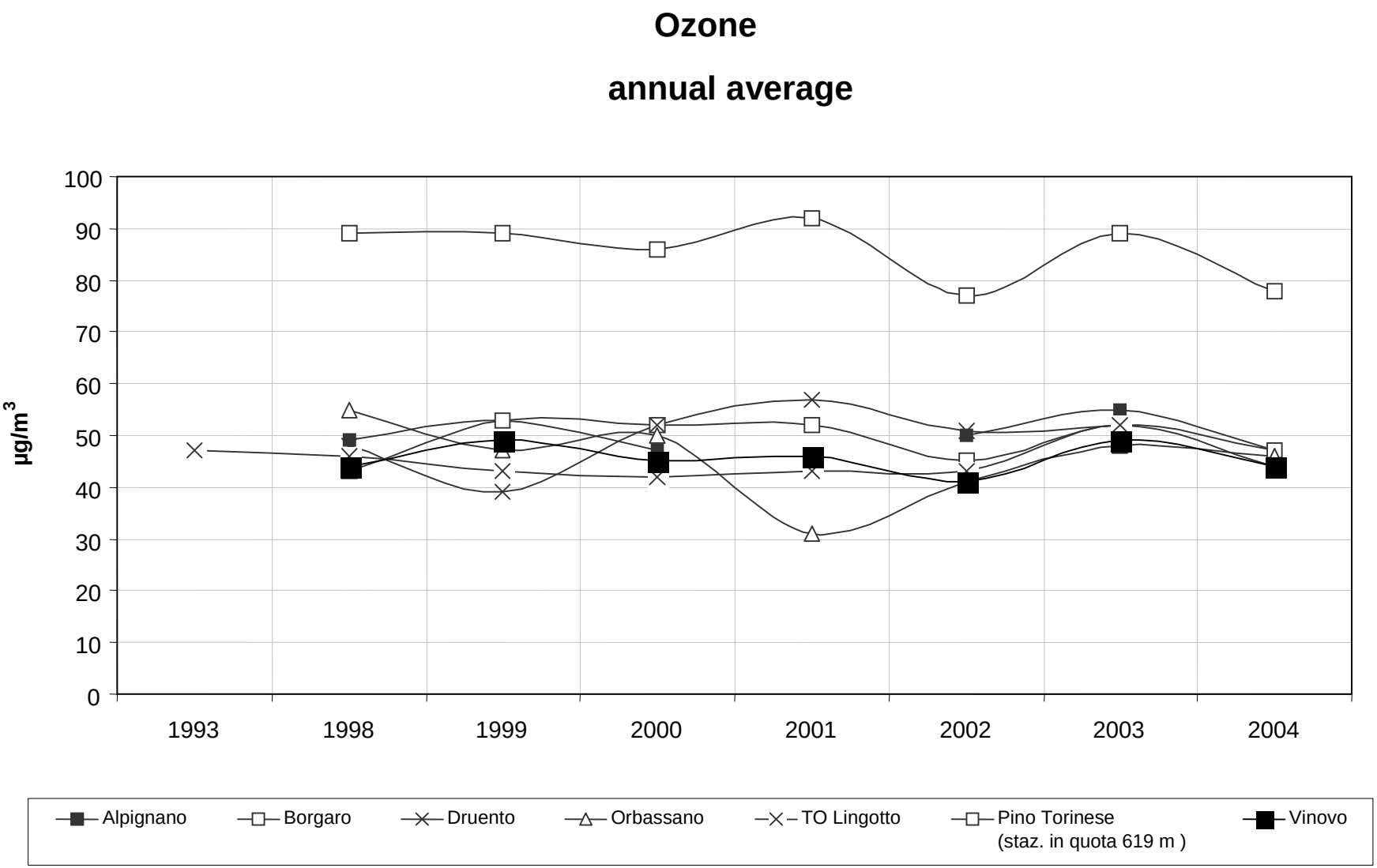


Source: CNEIA, Italian Ministry of the Environment



Source: CNEIA, Italian Ministry of the Environment

Torino

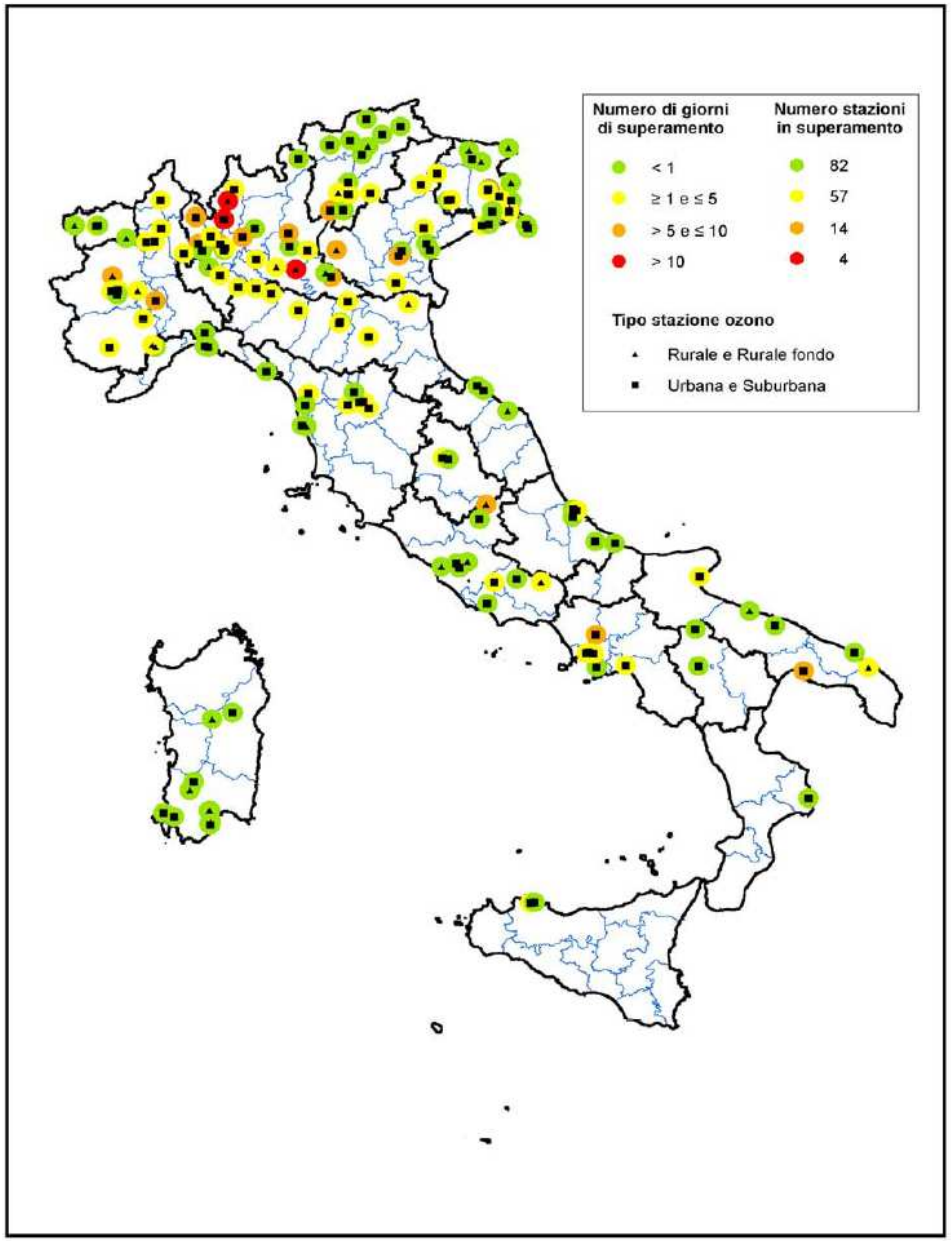


Source: CNEIA, Italian Ministry of the Environment

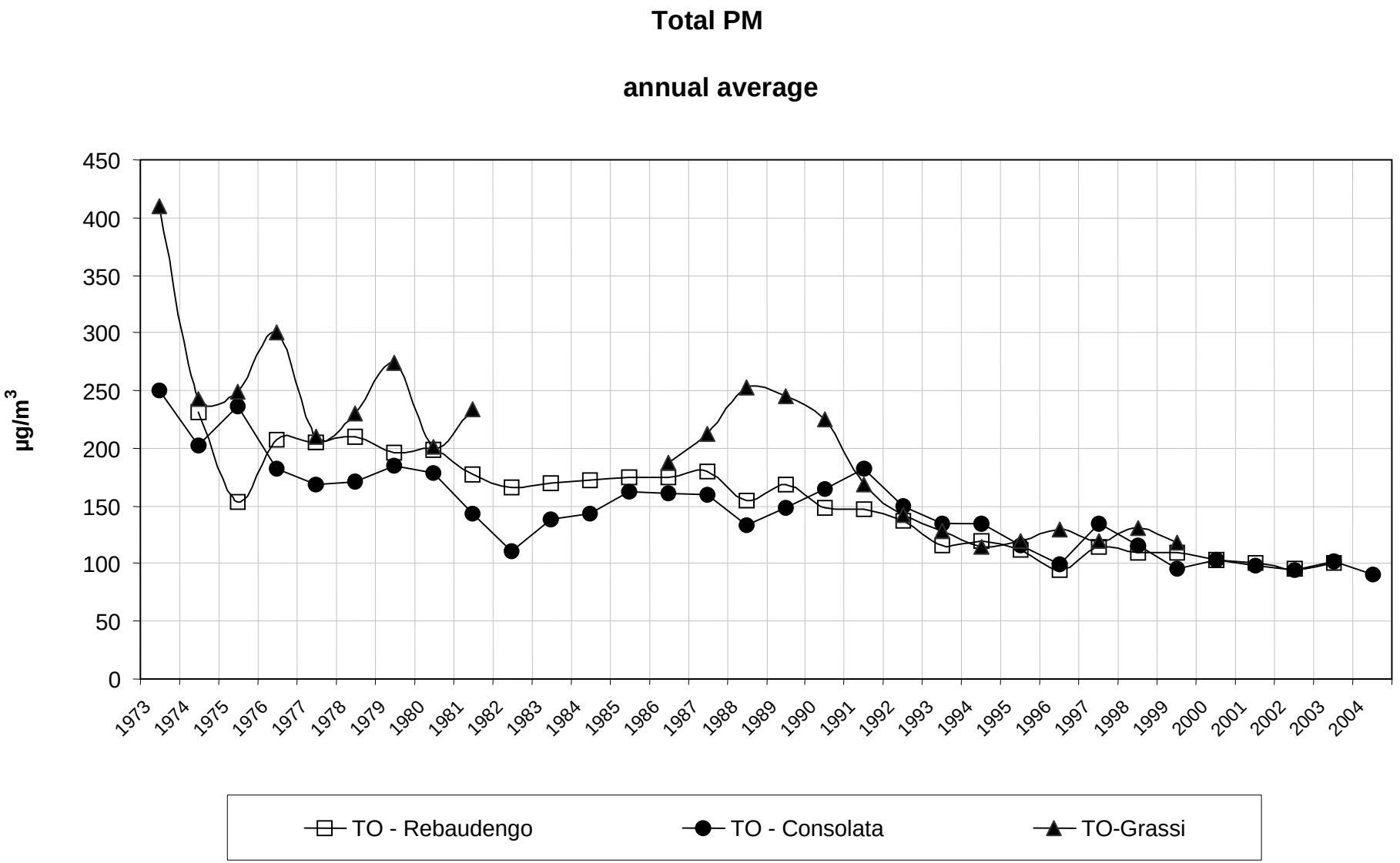
Figura 5: SUPERAMENTI DELLA SOGLIA DI INFORMAZIONE (180 µg/m^3) PER L'OZONO ESTIVO 2005

Mese di riferimento LUGLIO 2005 – (Giorni di superamento)

D.Lgs 183/04

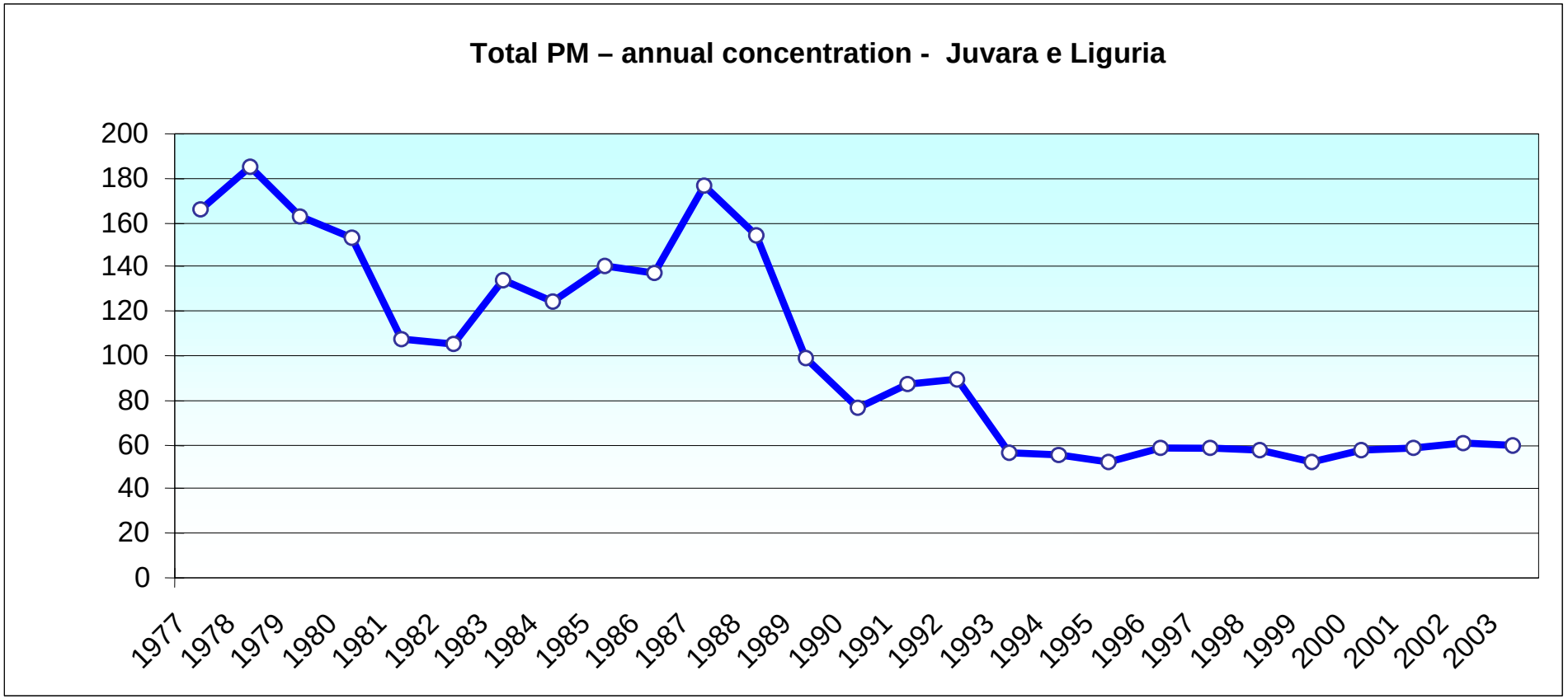


Torino



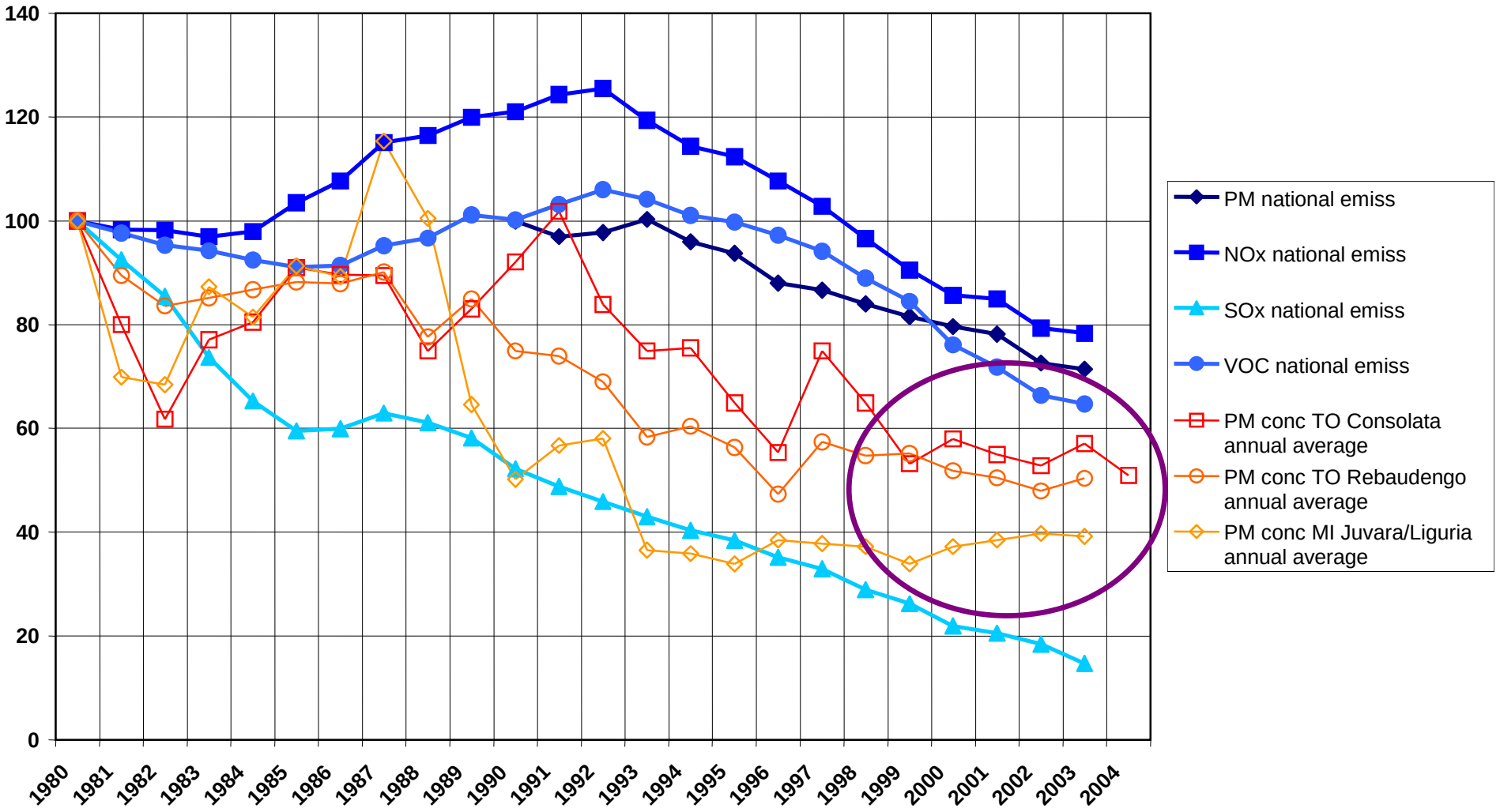
Source: CNEIA, Italian Ministry of the Environment

Milano

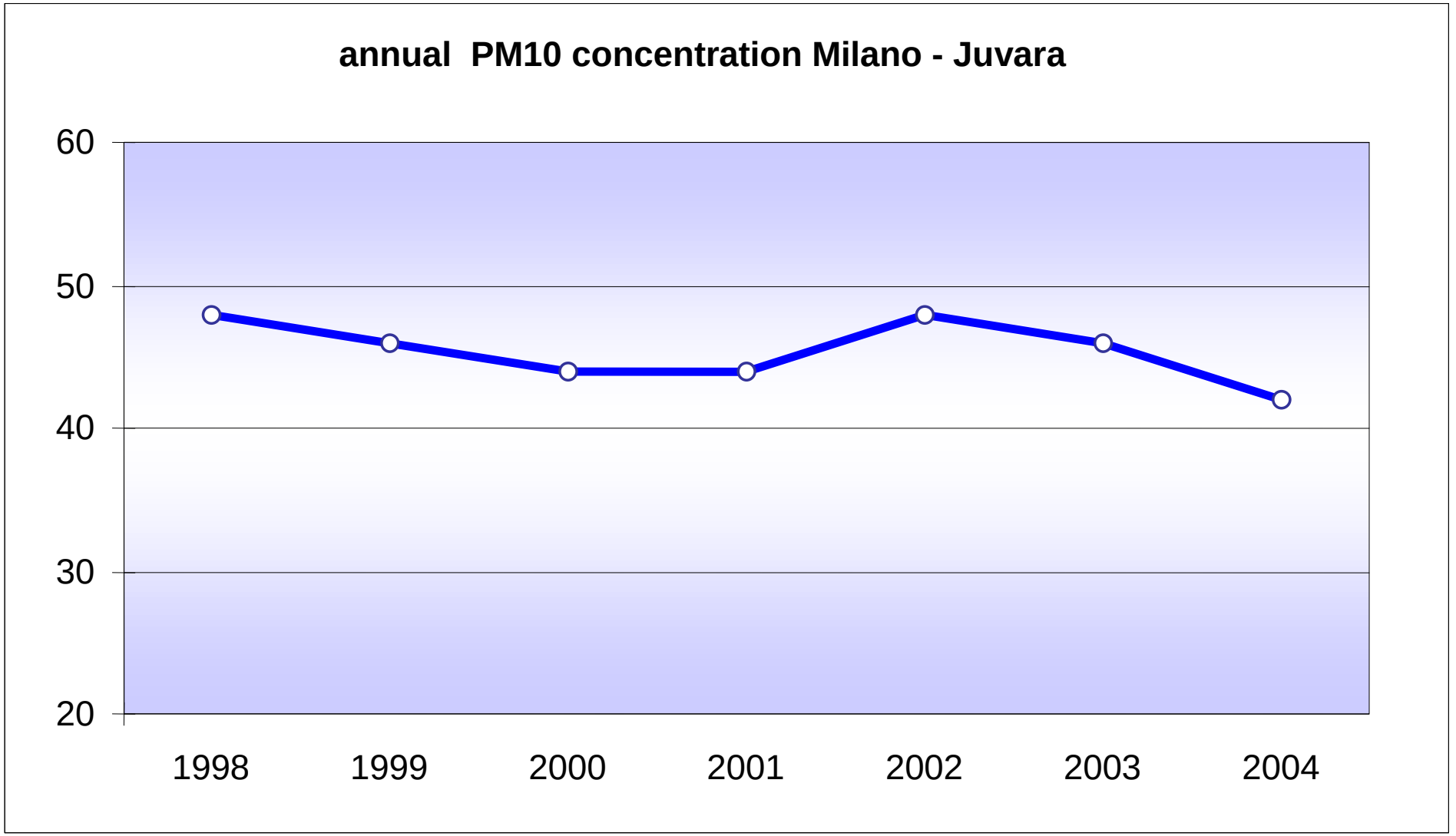


Source: CNEIA, Italian Ministry of the Environment

PM CONCENTRATIONS AND EMISSION OF PRIMARY PM AND ITS PRECURS



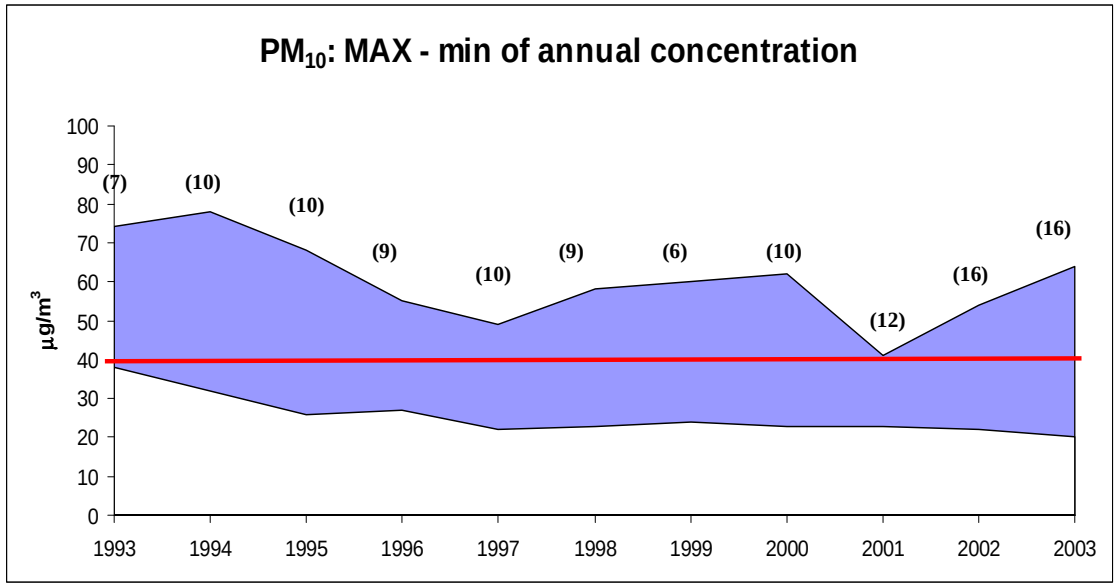
Source: CNEIA, Italian Ministry of the Environment

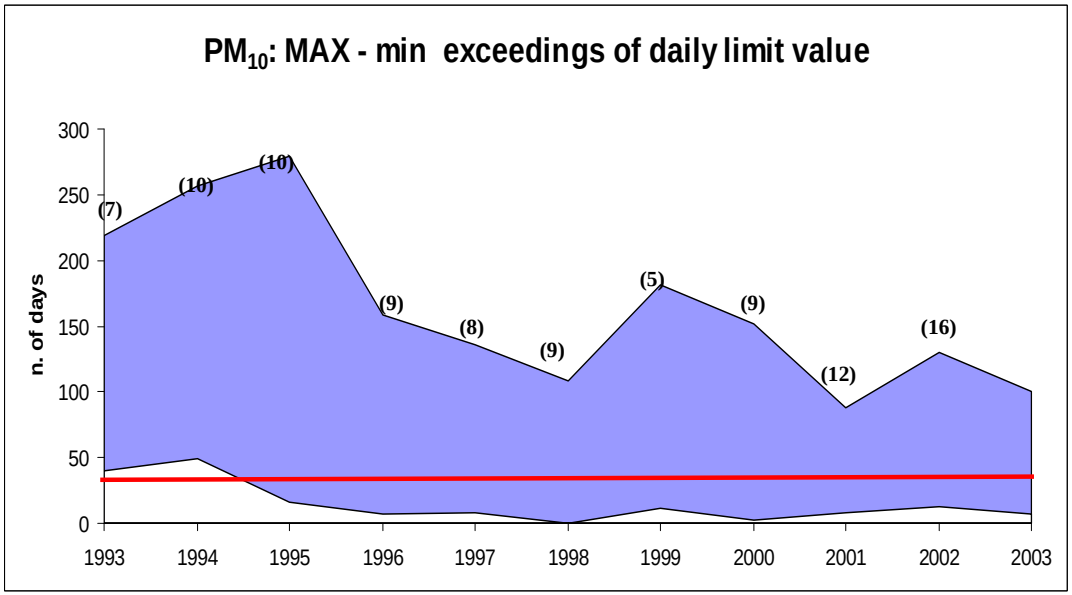


Source: CNEIA, Italian Ministry of the Environment

FIRENZE – air quality (red line indicates 2005 limit value)

(in parenthesis the number of monitoring stations for each year)

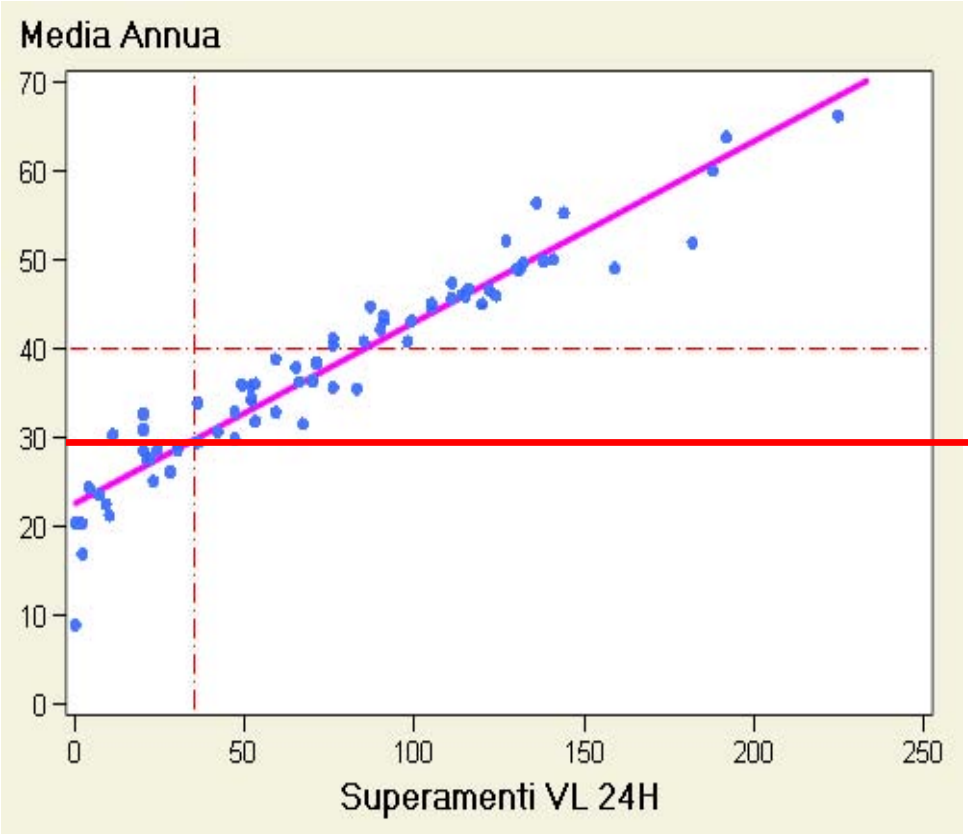




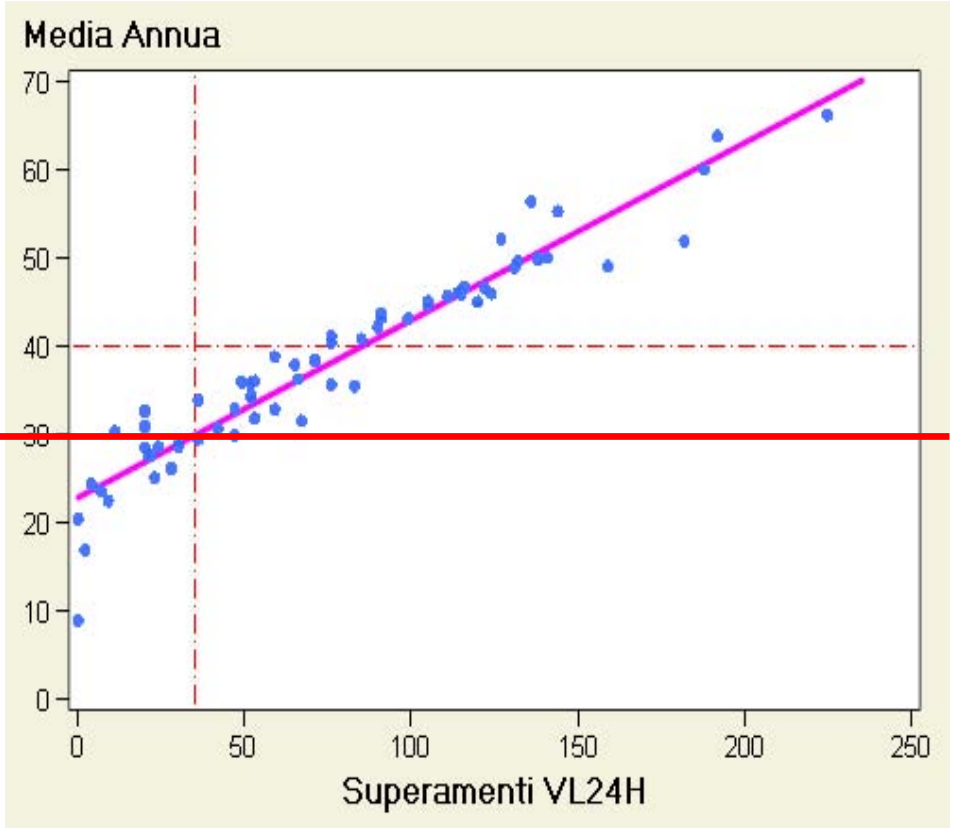
APAT elaboration of data from Toscana Regional Environment Agency

PM10 in Italy: daily versus annual concentrations

2003



2004



Source: CNEIA, Italian Ministry of the Environment

Future challenges

$PM_{2,5}$ ANNUAL AIR CONCENTRATION IN ITALY

TOWN	MONITORING STATION	2001	2002	2003	2004
MILANO	Zavattari	33	34		25
MILANO	Via Messina	42	43		51
COMO	Como Centro	23	23		
BRESCIA	Cantore				21
ASTI	Buttigliera d'Asti			30	
BOLZANO	Piazza Verdi				16
BOLZANO	Via C. Augusta			19	17
TRENTO	Largo Porta Nuova			26	
LIVORNO	Viale Carducci			25	
FIRENZE	Giardino di Boboli			23	17
FIRENZE	Viale Bassi			21	15
FIRENZE	Viale Gramsci			29	23
FIRENZE	Viale Rosselli			50	51
FIRENZE	Via Ponte alle Mosse	18	27	20	30
MONTELUPO	Montelupo F.no - Pratelle	26	24	25	21

Source: CNEIA, Italian Ministry of the Environment

responses

At local level:
REGIONAL PLANS AND PROGRAMMES

At national level:
CNEIA (National Commision for Air Pollution Emergency), set up by the Ministry of the Environment on February, 2005