

# Working group on Strategies and Review (CLRTAP)

## Voluntary Agreement to reduce mercury emissions in Chlor-Alkali sector

*Géneve 1 July 2014*



GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE AGRICULTURA, ALIMENTACIÓN  
Y MEDIO AMBIENTE

SECRETARÍA DE ESTADO DE MEDIO AMBIENTE

DIRECCION GENERAL DE CALIDAD Y EVALUACION  
AMBIENTAL Y MEDIO NATURAL

# MAIN OBJECTIVE OF THE STRATEGY

## Main Objective:

Reduce mercury emissions from Chlor-Alkali Sector

## How? With Voluntary Agreements

In 1999 and 2006, specific voluntary agreements were signed among:

- .- Spanish Chlor-alkali sector
- .- Regional governments where companies are located
- .- Spanish Environment Ministry.

Signing these agreements, the Spanish Chlor-alkali sector committed itself to reduce their Hg emissions.

Taking into account the successful results of the first agreement, one second agreement has been implemented for the period 2006-12.



# Spanish Chlor-Alkali Sector Background

In 1999, there were in Spain 9 chlorine production sites:

- 8 installations with mercury technology

- 1 installation of mercury and membrane technology

In 2012 there were also 9 production sites but:

- 1 installation of mercury and membrane technology

- 2 installation of membrane technology

- 1 installation converting to membrane

- 5 installations with mercury technology



# Description of Voluntary Agreements (1)

## Voluntary agreements:

- Set up multiannual mercury emission limit values for the whole sector, allowing some flexibility inside it, depending on the size and characteristics of the plants.
- Include also complementary objectives like: Investments to update installations, training staff, safety and hygiene issues.
- Emissions and other commitments should be verified by a external accredited body and reported annually to the Ministry.
- Each year a follow-up meeting takes place, with the participation of all parties involved in the agreement.



## Description of Voluntary Agreements (2)

- Annual meeting is key, because:
  - It involves all the stakeholders
  - It allows reviewing the achievements of the previous year as a sector and for each plant
  - It allows the sector explaining: plans, investments, actions to improve, concerns, training plans, safety measures ...etc.
  - It allows the authorities having the opportunity to suggest, promote, demand... actions in order to improve the performance of the plants.



# RESULTS

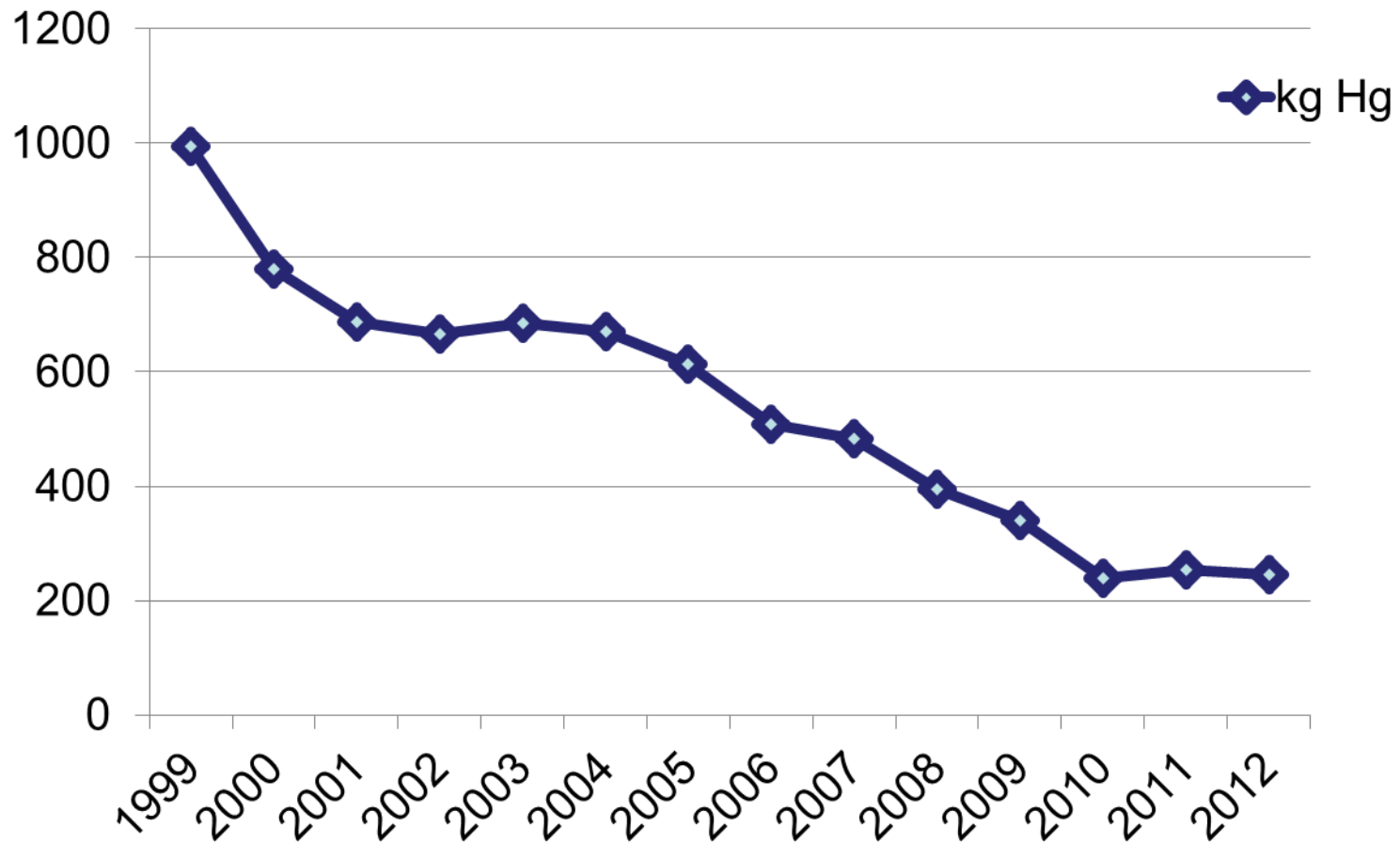
- 48% of reduction of Hg emission to air in the first agreement and one additional 43% in the second.

	t Cl2	Air		Total Emissions	
		<u>g/t Cl2</u>	<u>kg Hg</u>	<u>g/t Cl2</u>	<u>Kg. Hg</u>
1999	771.500	1,29	995,23	1,63	1257,54
2000	771.500	1,01	779,22	1,28	987,52
2001	771.500	0,89	686,64	1,11	856,37
2002	756.500	0,88	665,72	1,06	801,89
2003	756.500	0,907	686,42	1,06	801,89
2004	756.500	0,885	669,50	1,02	770,12
2005	756.500	0,811	613,52	0,94	712,62
2006	756.500	0,673	509,12	0,77	585,53
2007	756.500	0,639	483,40	0,74	560,57
2008	756.500	0,521	394,14	0,61	462,98
2009	742.000	0,459	340,62	0,54	403,87
2010	643.000	0,442	284,03	0,54	343,90
2011	643.000	0,396	254,63	0,48	309,39
2012	643.000	0,381	244,82	0,46	296,59
2013	615.700	0,384	236,21	0,46	283,92

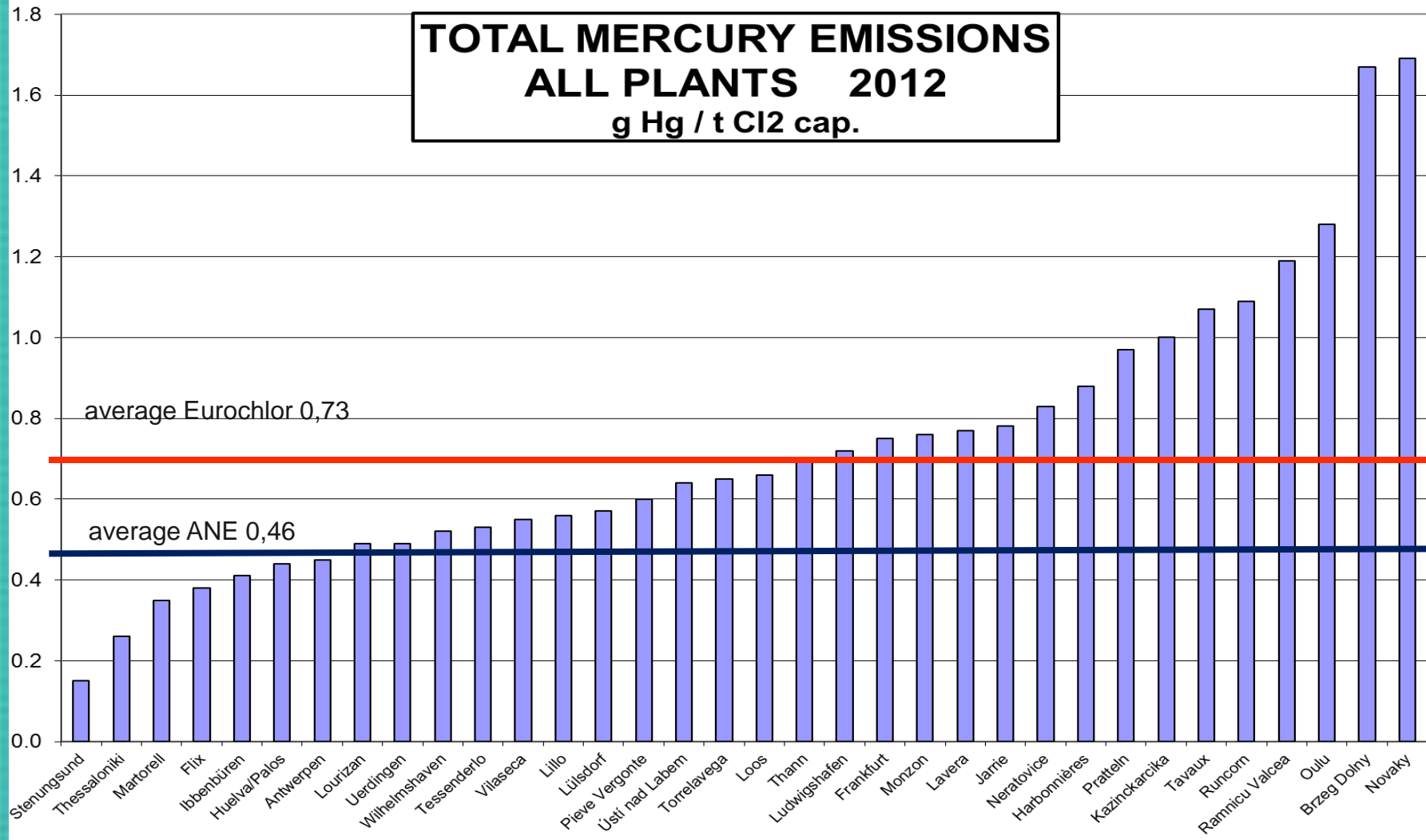


# RESULTS (2)

## Emissions mercury to air



# RESULTS (3)





# RESULTS (4)

The whole sector investment has been:

– First agreement (1999-2006)

**53% emissions reduction**                      **22,8 M€**

– Second agreement (2007-2012)

**52% additional reduction**                      **15,6 M€**