



# “Inventory of Uses, Consumptions and Releases of Mercury”

Cambodia, March, 2009



## Cooperating Institutions



**National Coordinator :** CONAMA (National Environmental Commission)

**International Organization :** PNUMA Chemicals; UNITAR

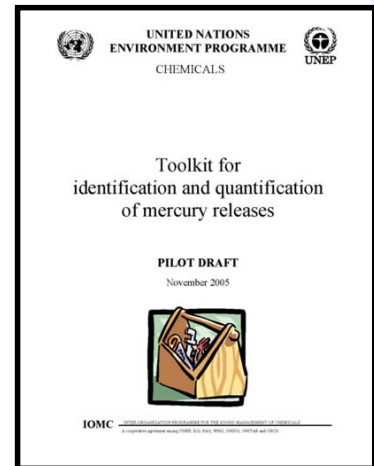
### Support Organizations

- Public Services :** Customs National Service, Public Works Ministry, Agriculture and Livestock Service , Health Ministry, National Institute of Statistics, Institute of Public Health, National Geological and Mining Service, Chilean Commission of Copper, Forestry National Corporation, Forestry National Institute, National Corporation of Copper, General Marine Authority, Ministerial Regional Secretary of Health Metropolitan Region.
- Private Sector :** ASQUIM A.G., AFIPA, SONAMI, ENDESA, ENAP, POLPAICO, LAFARGE, ENAMI and another industries.
- ONGs:** RAP-AL, Greenpeace, TERRAM, Participa.
- Academic Sector:** Atacama University, La Serena University



## METHODOLOGY

- ❑ Use of toolkit, considering data of 2005.
- ❑ Identification of categories and subcategories
- ❑ Information Compilation
- ❑ Application of minimum and maximum values recommended by toolkit
- ❑ Distribution by liberation routes



## SOURCES OF INFORMATION

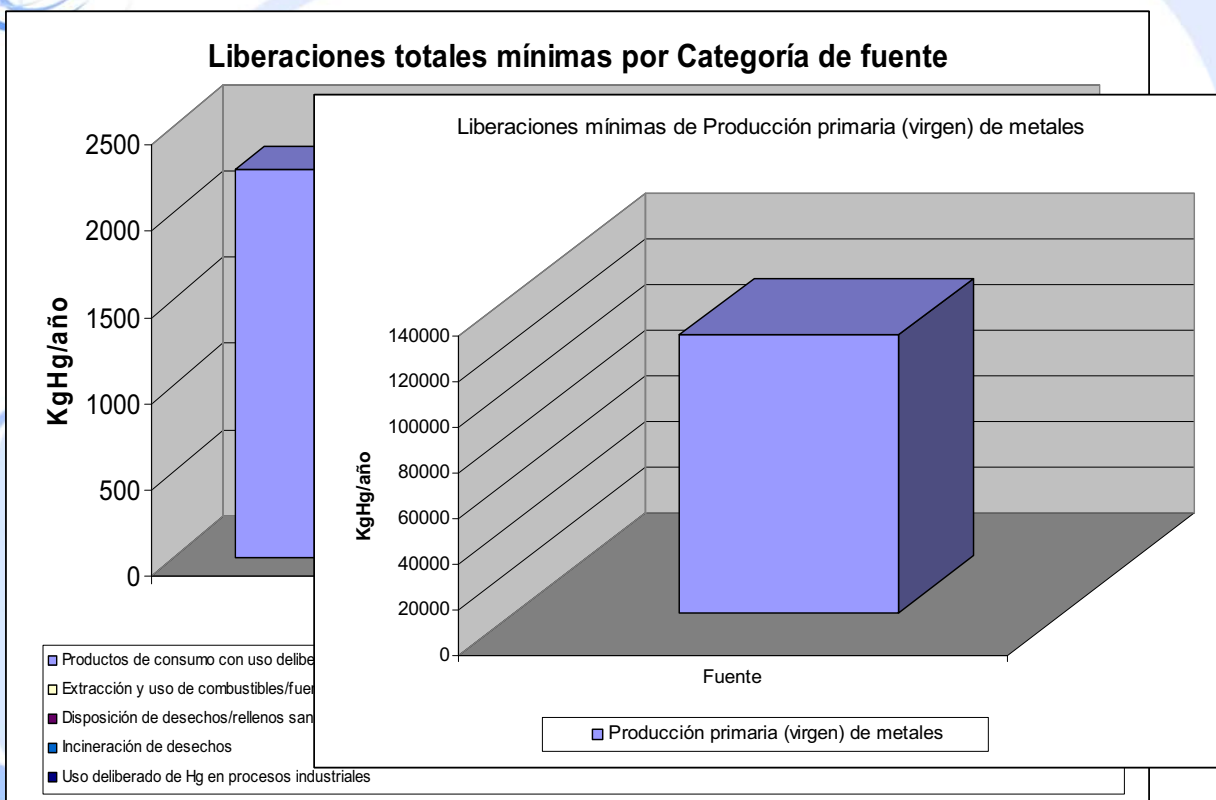
- ✓ Inspection fields
- ✓ Interview with experts and academics
- ✓ Direct surveys with different actors
- ✓ Group of Work with different actors
- ✓ Projects entered to the Environmental Impact Assessment System
- ✓ Existing annuary and Inventories
- ✓ Thesis
- ✓ Information of National Advice of Clean Production
- ✓ Existing monitorings in waste water
- ✓ Available data in the Information System of Hazardous Waste and in Environmental Management Plans



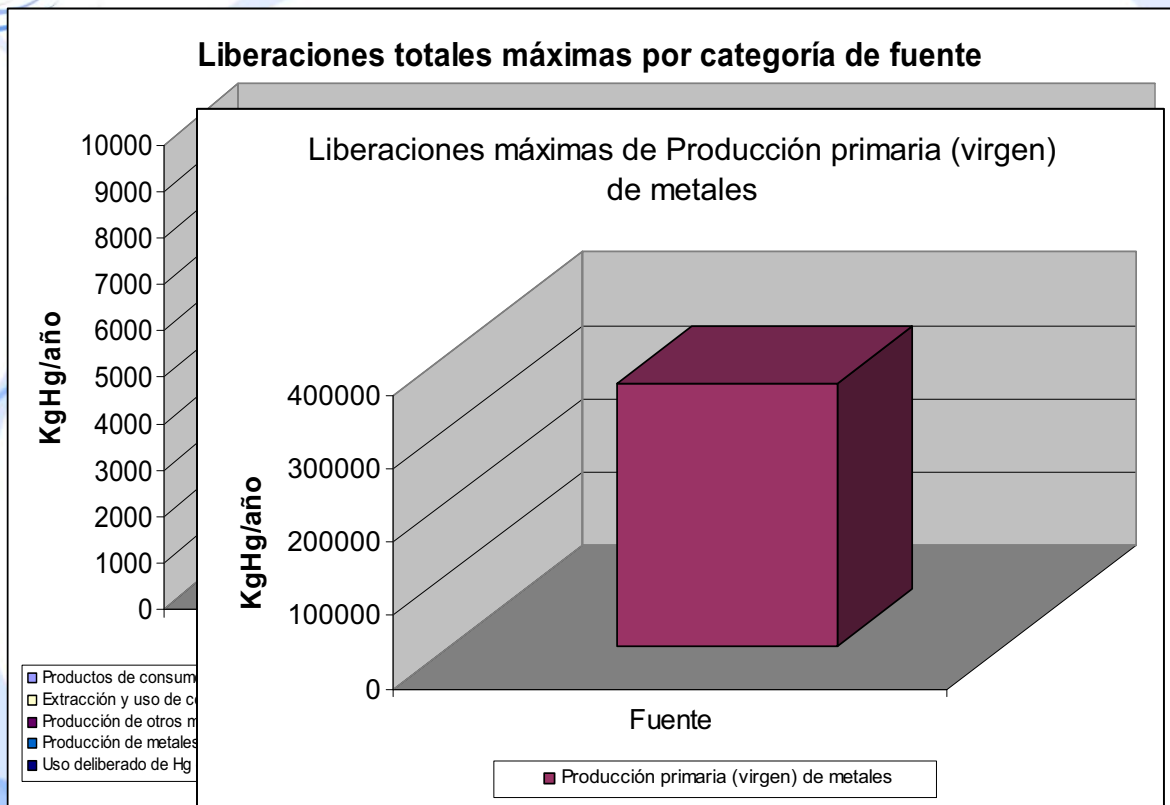
# RESULTS



## Minimum Values by Category of Source

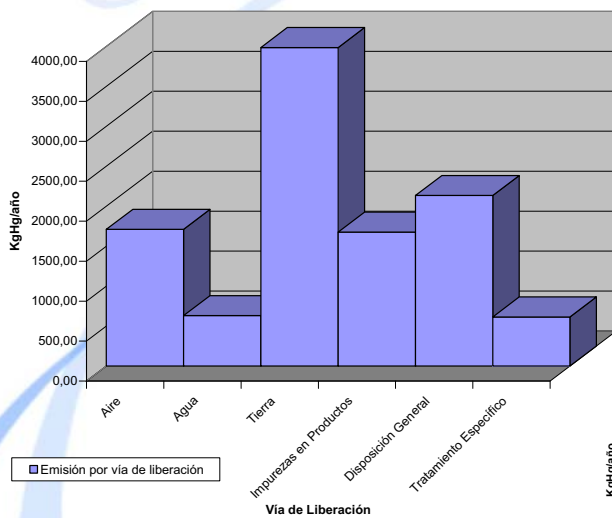


# Maximum Values by Category of Source

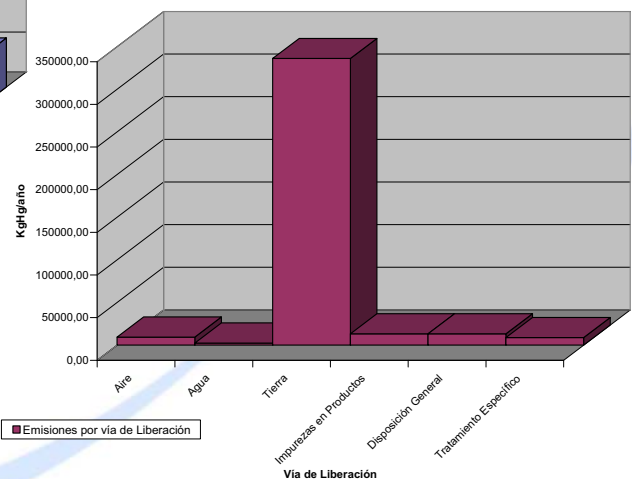


# Total Releases by Liberation Routes

Emisiones totales mínimas de todas las categorías por vía de liberación



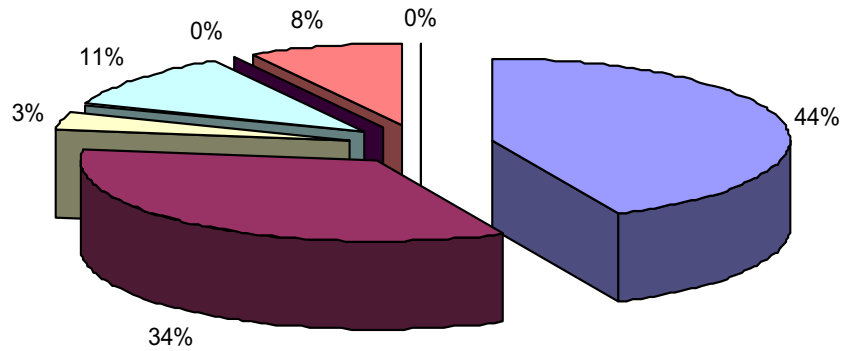
Emisiones totales máxima de todas las categorías por vía de liberación



## Relevants Subcategories

### 5.1 Extraction and use of fuels/energy sources

Máximo Extracción y uso de combustibles/ fuentes de energía

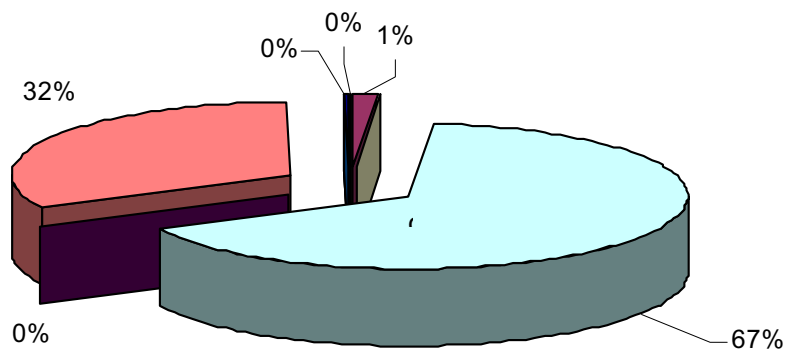


- |  |   |
|--|---|
| ■ Combustión carbón en centrales de energía        | ■ Otros usos carbón                               |
| ■ Aceites minerales (extracción, refinación y uso) | ■ Gas natural (extracción, refinación y uso)      |
| ■ Otros combustibles fósiles (extracción y uso)    | ■ Energía a base de biomasa y producción de calor |
| ■ Producción de energía geotérmica                 |   |

## Relevants Subcategories

### 5.2 Primary (virgin) metal production

Máximo Producción primaria (virgen) de metales

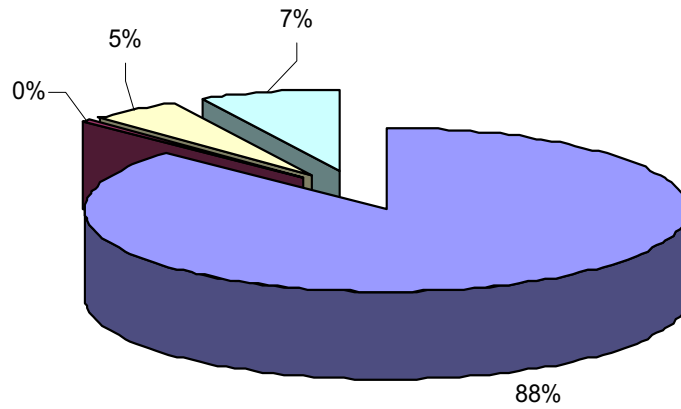


- |  |   |
|--|---|
| ■ Extracción y procesamiento inicial de Hg   | ■ Extracción de Au y Ag con amalgamación de Hg                |
| ■ Extracción y procesamiento inicial de Zn   | ■ Extracción y procesamiento inicial de Cu                    |
| ■ Extracción y procesamiento inicial de Pb   | ■ Extr. y proc. inicial de oro con proc. Dif. amalgamación Hg |
| ■ Extracción y procesamiento inicial del Al  | ■ Extracción y procesamiento de otros metales no ferrosos     |
| ■ Producción primaria de metales no ferrosos |   |

## Relevants Subcategories

### 5.3 Production of other minerals and materials with mercury impurities

Máximo Producción de otros minerales y materiales con impurezas de Mercurio

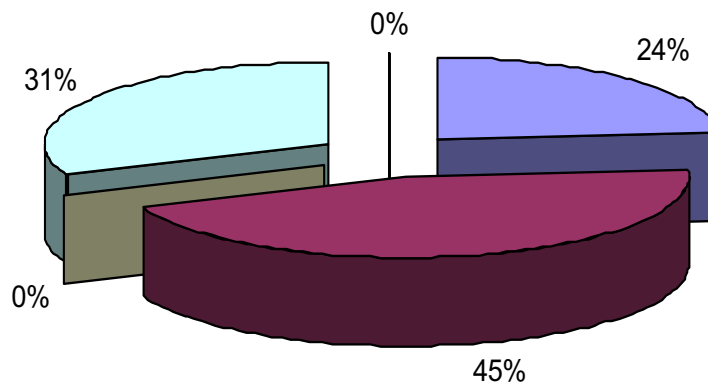


■ Producción de cemento  
■ Producción de Pulpa y papel  
■ Producción de cal y hornos de agregados ligeros  
■ Otros minerales y materiales

## Relevants Subcategories

### 5.5 Consumer products with intentional use of mercury

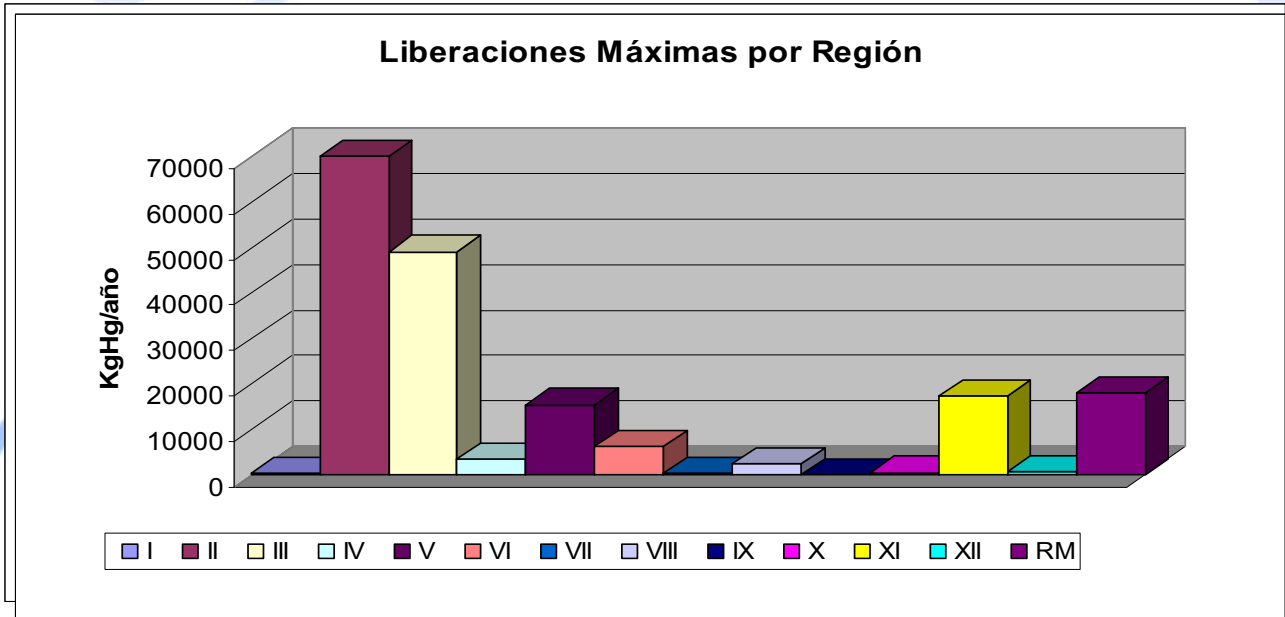
Máximo Productos consumo con uso deliberado de Mercurio



■ Termómetros con Hg  
■ Fuentes de luz con Hg  
■ Biocidas y Pesticidas  
■ Productos Farmacéuticos de uso humano y veterinario  
■ Interruptores eléctricos y relevadores con Hg  
■ Pilas con Hg  
■ Pinturas  
■ Cosméticos y productos relacionados



## Releases by Regions



## CONCLUSIONS

- ✓ The inventory developed constitutes the first effort for to have an approach to the problem of mercury at level country.
- ✓ The levels of uncertainty or in the “actors of entrance and distribution factors of exit” were improved in the measurement that the industries gave information with respect to their processes.
- ✓ In particular, with respect to the mining sector, this one still presents a high level of uncertainty, however COCHILCO has given information, specifically of measurements in some parts of the process of extraction and a pulp measurement of maining tails.



## CONCLUSIONS

- ✓ It is necessary to continue advancing in tables of work with different sectors to generate and to improve the access to information more precise and released by sector.
- ✓ The sector associated to the product use with mercury content represents one of the majors uncertainty levels.
- ✓ It is necessary to promote that the Private System of Health counts on a system of uniform declaration for the product entrance with mercury.
- ✓ A system of pursuit for products with mercury content is due to generate, from its entrance to the country to its final distribution to the consumer.

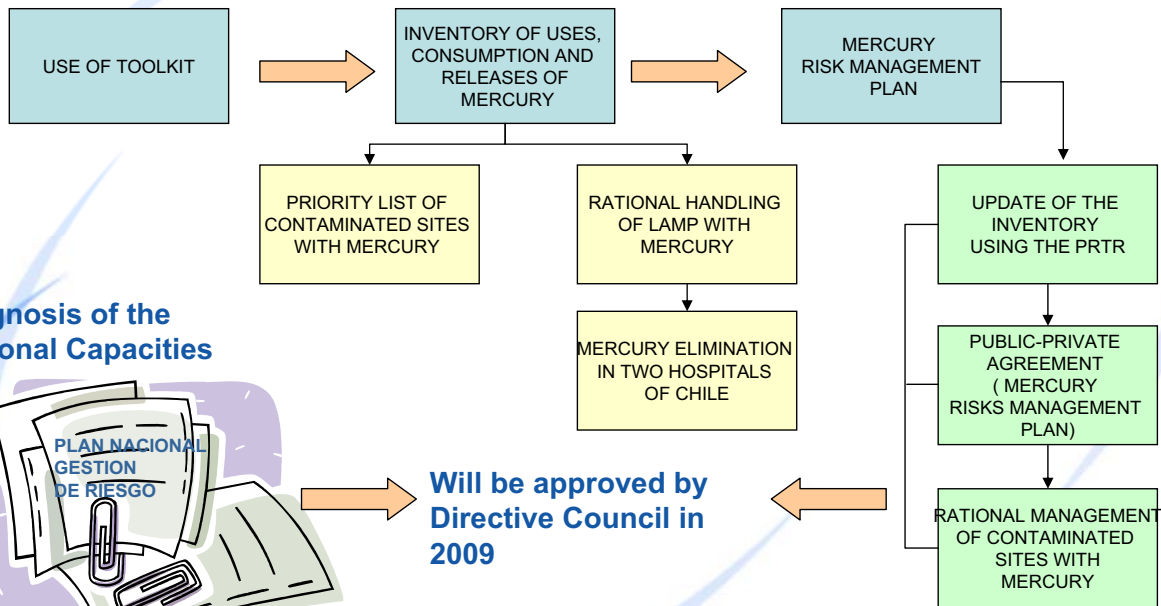


## CONCLUSIONS

- ✓ The values of the inventory for the mining area would be significantly overestimated. The assumptions considered by the used methodology of calculation do not say relation with the geologic reality of our country. The majority of operated mining deposits in our territory, would contain lowest natural mercury concentrations due to their temperatures of formation
- ✓ Updating of the inventory through the PRTR. There are measurements for mercury (mobile sources releases to the air). With respect to the tranferences the products with mercury content will be included
- ✓ Public-private agreement ( Mercury Risks Management Plan)



# Advances in the Management Mercury in Chile and Challenge 2009



## Diagnosis of the National Capacities



# CONCLUSIONS



Picture of the Andacollo Museum, in the Coquimbo Region”





**Thank you for your attention!**

**Alejandra Salas Muñoz**  
[asalas@conama.cl](mailto:asalas@conama.cl)