United Nations Environment Programme

UNEP

UNEP's work on Hg release inventories

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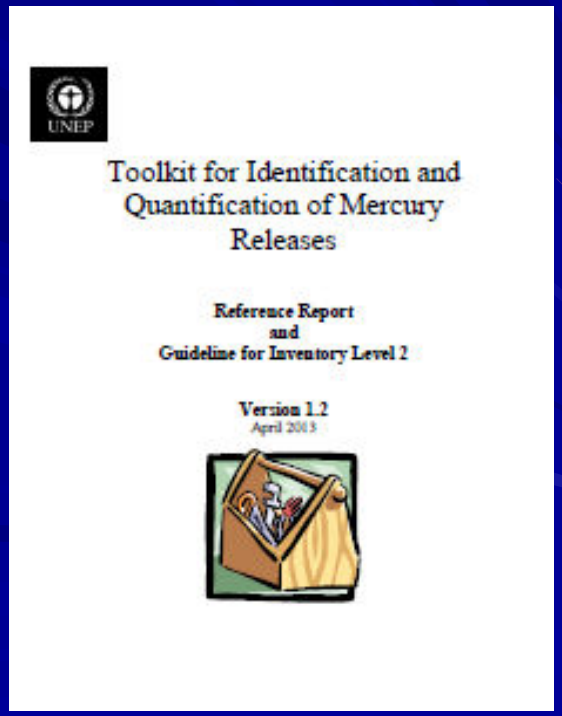
Types of inventories

- Global Hg release inventories
- National Hg release inventories

Tools:

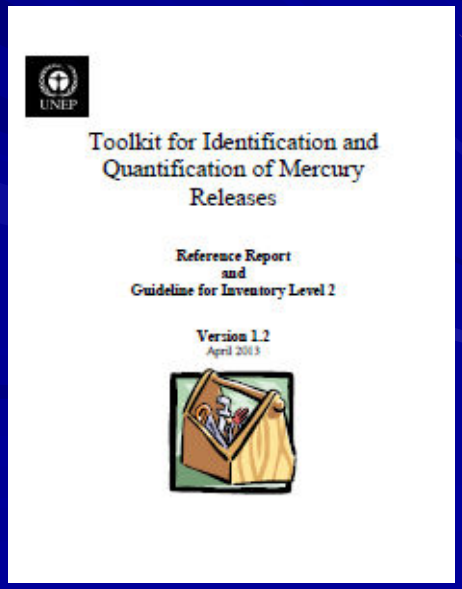
- UNEP Toolkit for the Identification and Quantification of Hg Releases



Main challenge: obtain data

Why national inventories ?

- **Inventories are the basis for prioritizing actions**
- Identify key sectors and stakeholders
- Initiate Hg communication with stakeholders
- Helps identifying environments and populations at risk
- Monitoring progress in reduction efforts



UNEP's Mercury Inventory Toolkit – 2 levels of detail

Level 1:

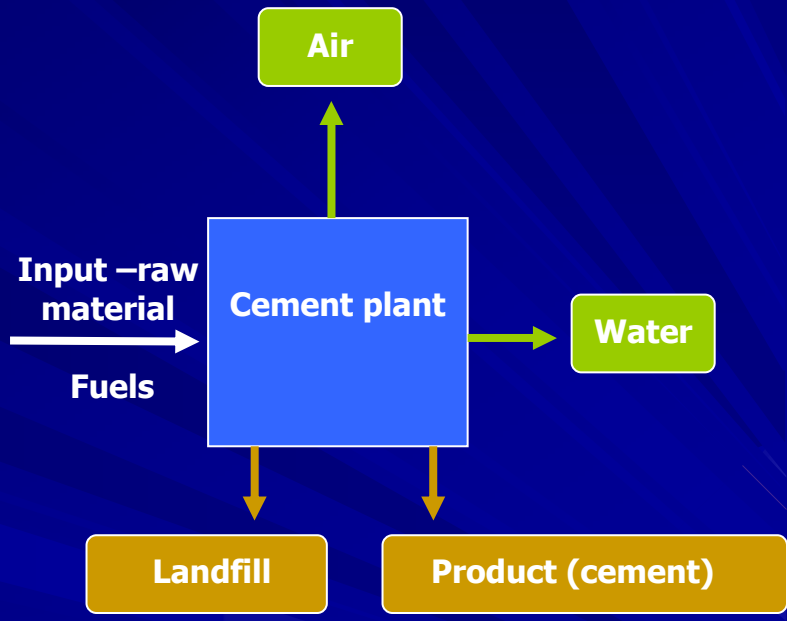
- Default factors and guidance provided;
- Simplified and standardised procedure and tools for basic inventories

Level 2: Open framework; encourages use of specific national data

THE TOOLKIT IS FOR GUIDANCE ONLY

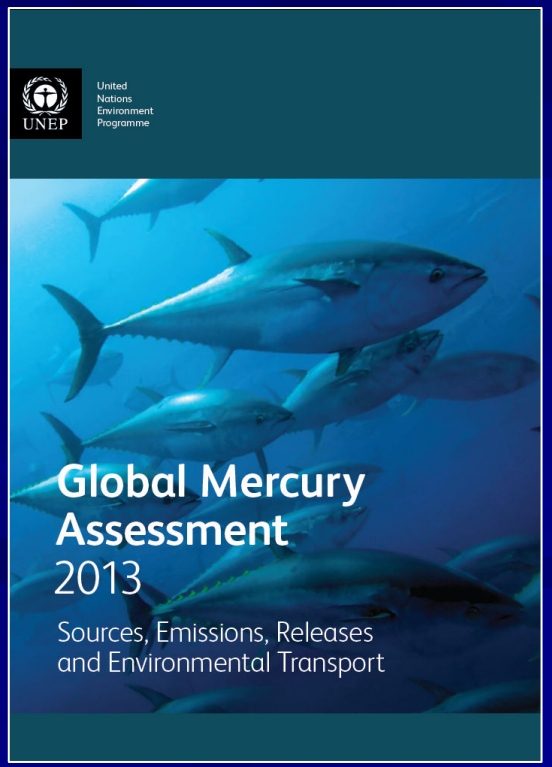
Toolkit key principle

- Mass balance principle used:
  - Hg inputs
  - Hg output distribution
- Hg releases in the whole life cycle of product/material
- Hg releases to all media/pathways



Global Mercury Assessment 2013

- Summary report for policy makers
- Technical Background Report



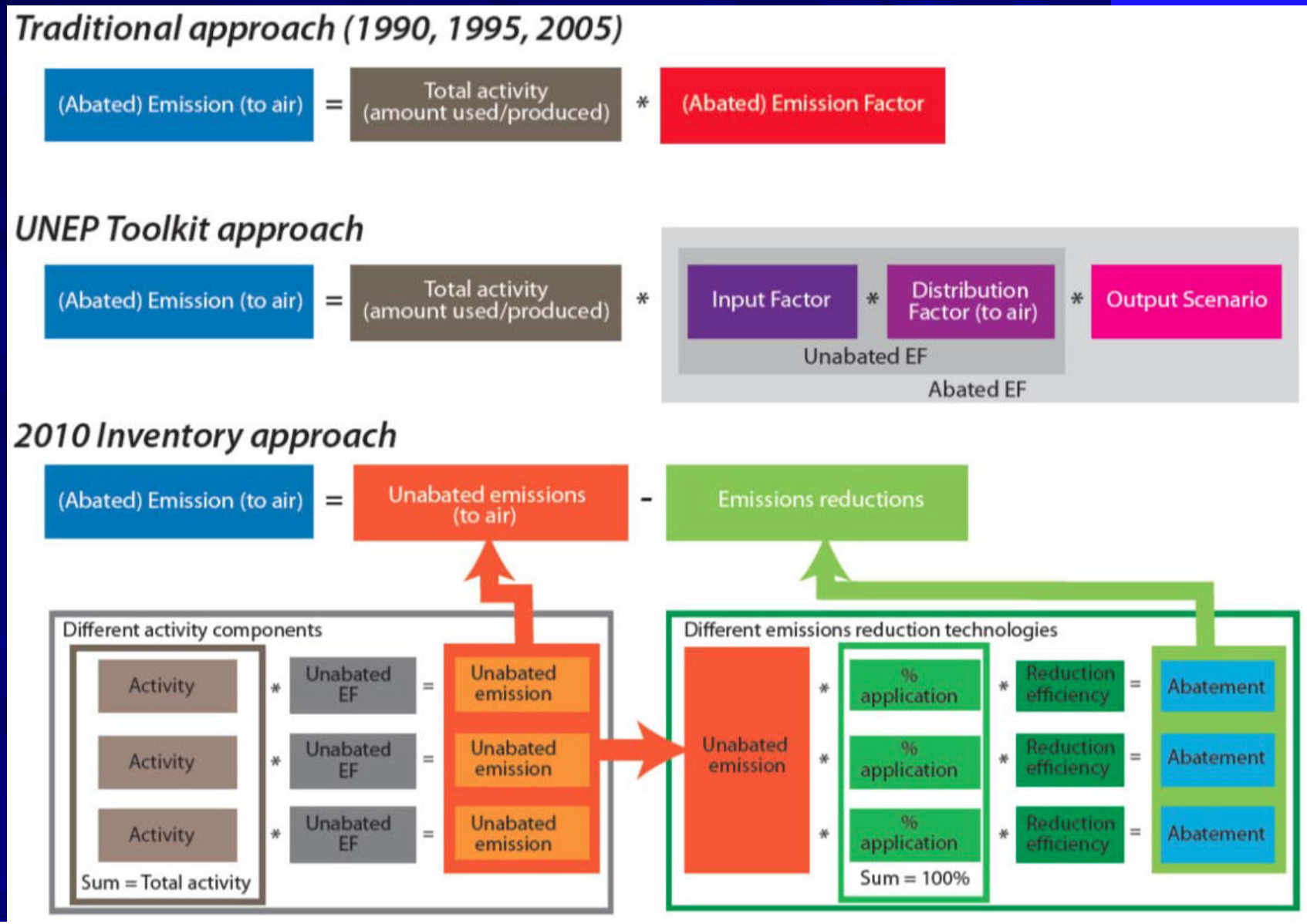
Global Hg Assessment 2013 - Emissions estimates

New and improved methodology:

- Differences in pollution control technologies factored into the calculations
- Differences in Hg content in fuels and raw material factored into the calculations.
- A more detailed analysis of some major sectors (e.g. ASGM, combustion of fossil fuels, oil refineries, aluminium production)

Extensive expert engagement

Methodology



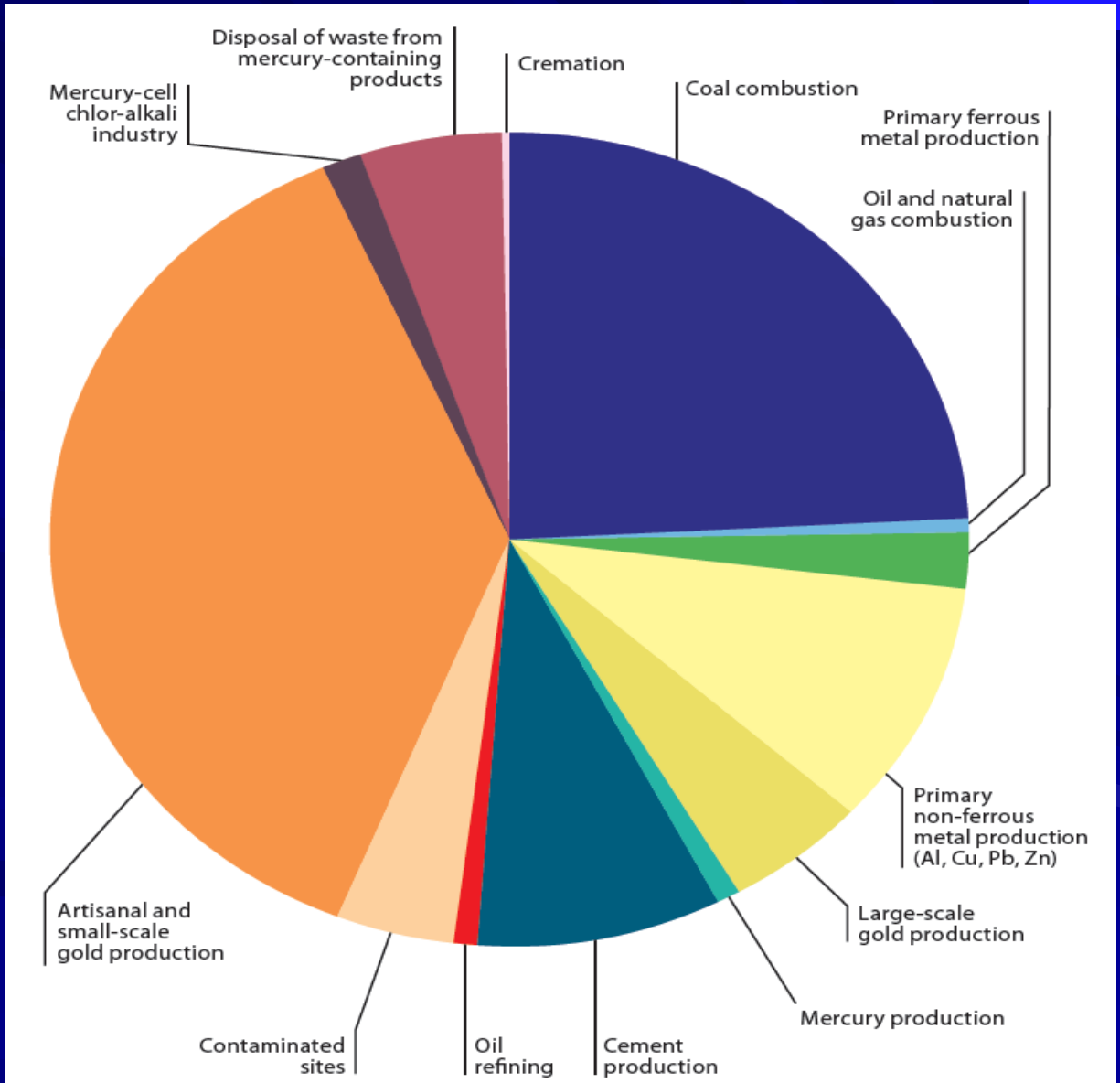
Why this complex methodology ?

- To develop realistic estimates, not just for the global total, but for individual countries
- Our approach is designed to reflect that individual countries can be very different from the ‘global average’

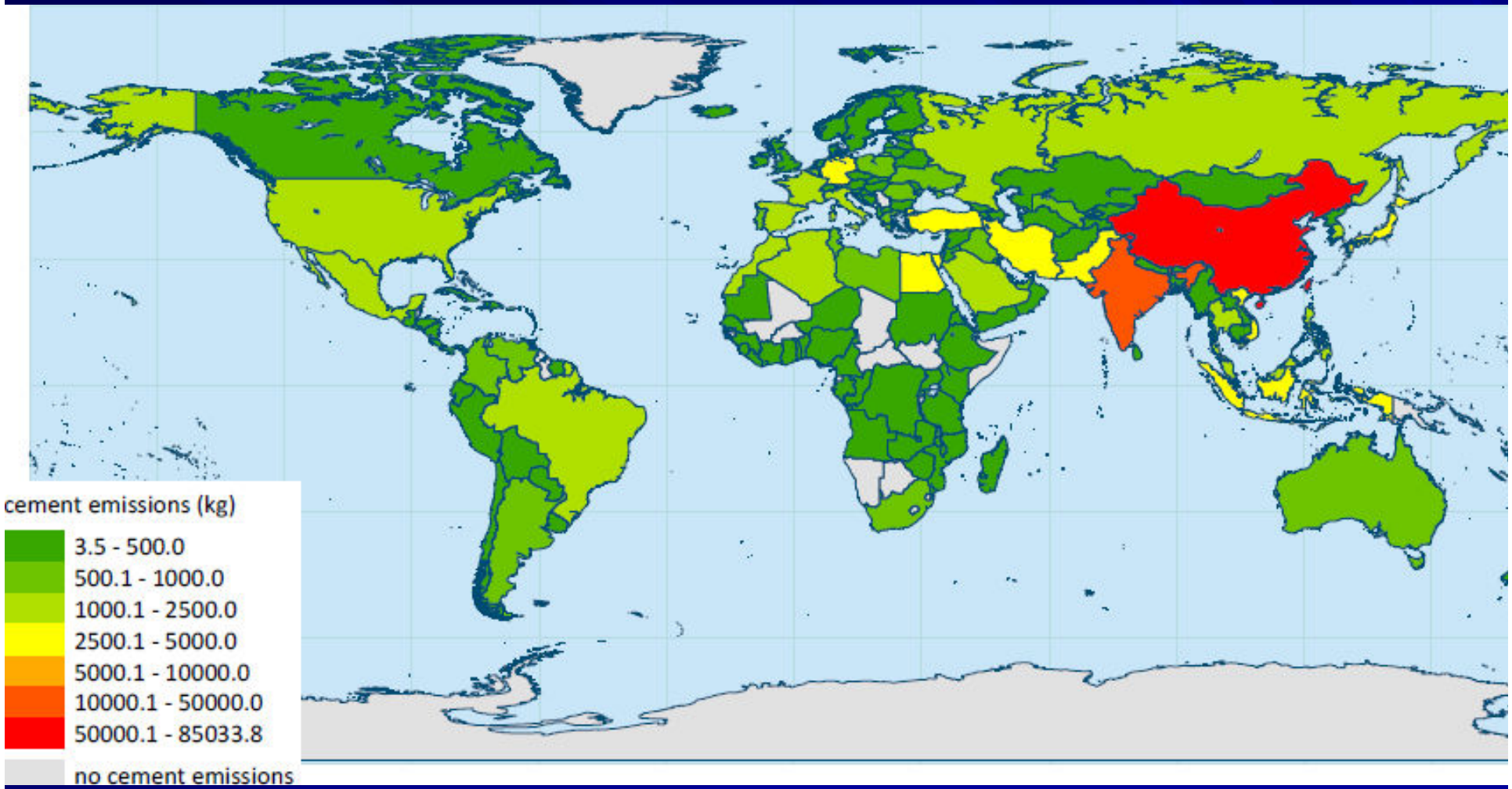
GMA 2013: emissions to air

Similar patterns to the 2005 … with some new features

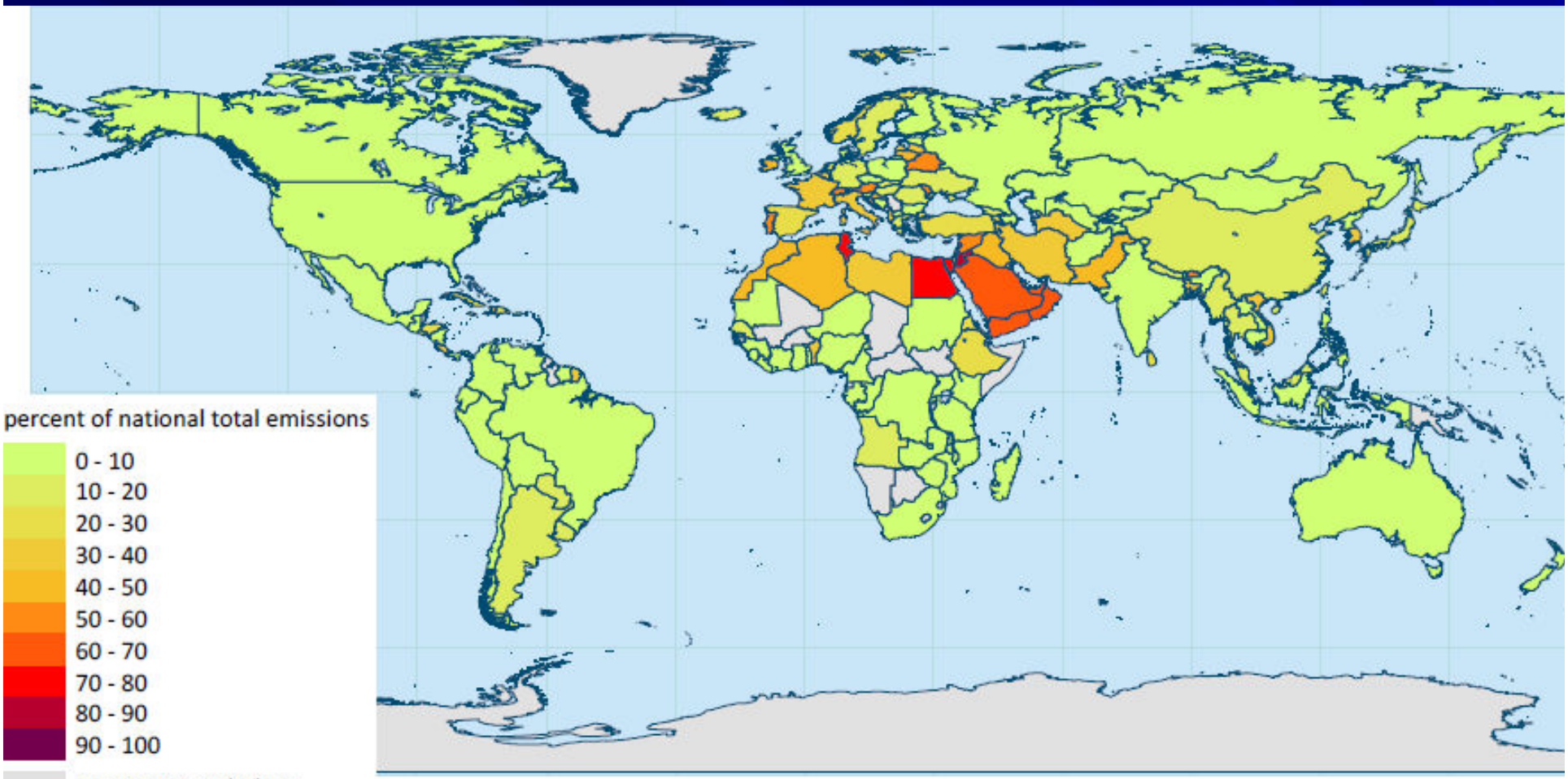
Regional differences



Cement production: Total Global Hg Emissions



Cement: Hg emissions from cement in % of the national total Hg emissions



Cement: Countries with cement emissions > 10% of their national total

Country	Cement emission (kg)	Total national emission (kg)	cement as % of national total
Reunion	32.6	32.7	99.6
Guadeloupe	16.0	16.3	98.2
Martinique	15.3	15.6	98.2
Cyprus	172.1	206.3	83.4
Jordan	348.0	421.1	82.6
Tunisia	696.0	903.6	77.0
Barbados	35.0	46.2	75.8
Egypt	4045.5	5380.2	75.2
Lebanon	348.0	493.8	70.5
Yemen	304.5	437.9	69.5
United Arab Emirates	943.8	1389.8	67.9
Luxembourg	58.9	86.8	67.8
Saudi Arabia	2359.4	3534.9	66.7
Qatar	244.8	384.9	63.6
Oman	235.9	385.2	61.2
New Caledonia	9.9	17.1	57.7
Portugal	555.8	981.2	56.6
Switzerland	299.8	533.5	56.2
Bhutan	15.7	28.7	54.7
Austria	469.7	893.0	52.6
Republic of Moldova	53.3	101.6	52.4
Syrian Arab Rep.	390.1	760.0	51.3
Belarus	323.5	632.8	51.1
Bahrain	47.2	93.4	50.5
Ireland	218.8	437.9	50.0
Algeria	1566.0	3197.3	49.0
Morocco	1092.0	2345.3	46.6
Croatia	213.2	459.8	46.4
Trinidad and Tobago	66.1	147.1	44.9
Haiti	22.8	54.2	42.1
Pakistan	2784.0	6613.6	42.1
Iraq	556.8	1330.2	41.9
Lithuania	48.1	120.2	40.1
Jamaica	48.7	127.5	38.2
Albania	56.3	149.5	37.7
Costa Rica	174.0	463.4	37.5
Italy	1698.9	4597.6	37.0
Turkmenistan	68.5	192.0	35.7
Belgium	672.3	1949.7	34.5
Korea- Rep. of	2490.5	7223.4	34.5
Iran	3480.0	10099.7	34.5
Benin	130.5	391.4	33.3
France	1592.4	4926.2	32.3
Vietnam	3646.4	11611.8	31.4
Bangladesh	435.0	1439.3	30.2
Libyan Arab Jamah	522.0	1730.9	30.2
Latvia	13.1	43.6	30.1
Eritrea	3.9	13.6	28.8
Sri Lanka	165.3	586.4	28.2
Dominican Republic	208.8	751.1	27.8
Honduras	125.3	456.9	27.4
Kuwait	118.0	455.0	25.9
Armenia	57.1	222.7	25.6

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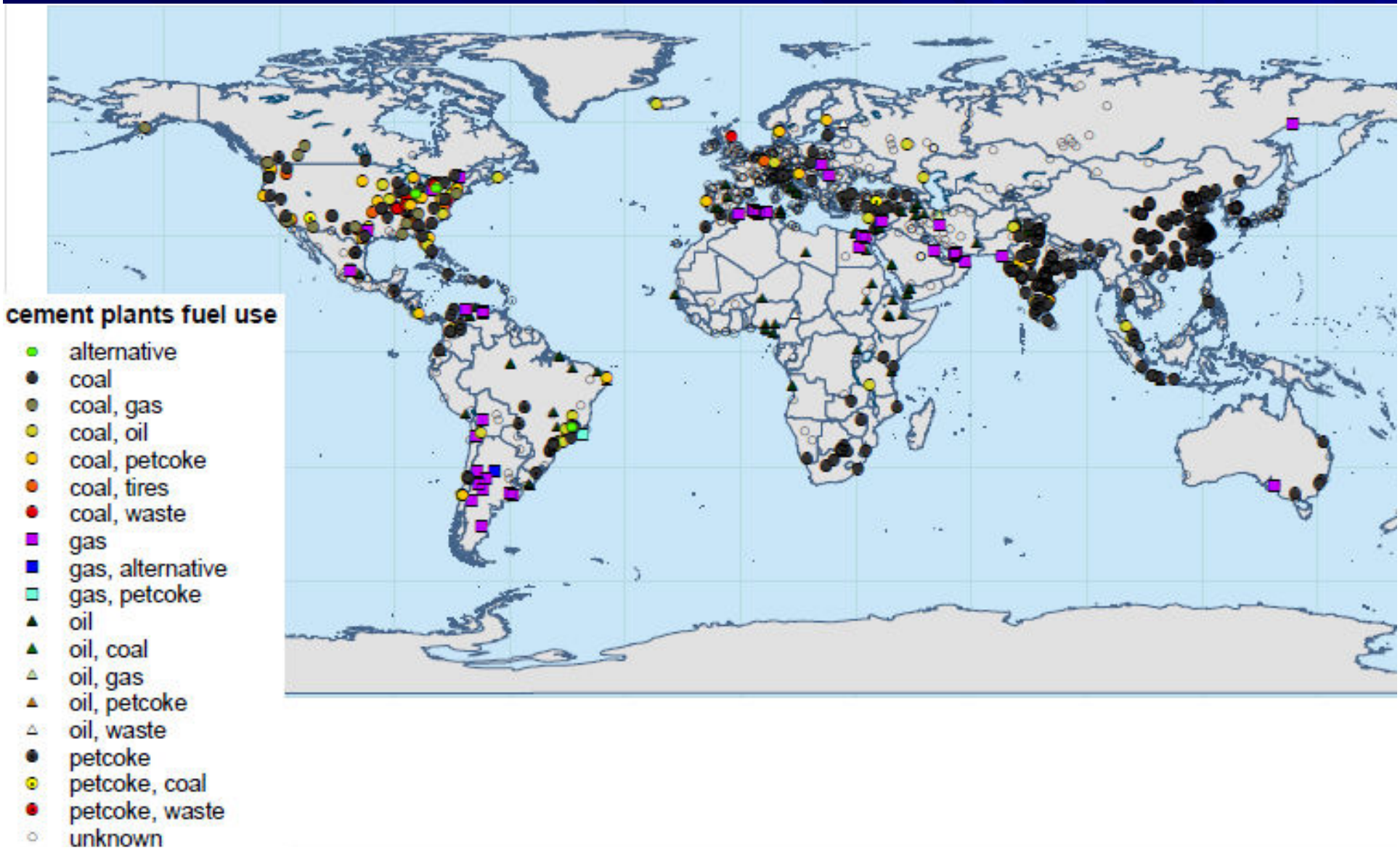
Fuels used


cement plants fuel use
alternative
coal
coal, gas
coal, oil
coal, petcoke
coal, tires
coal, waste
gas
gas, alternative
gas, petcoke
oil
oil, coal
oil, gas
oil, petcoke
oil, waste
petcoke
petcoke, coal
petcoke, waste
unknown

Accurate Hg emission estimates possible?

Depends on:

- Content in raw material,
- Fuels used (including waste)
- Efficiency of abatement technologies
- Operational conditions

Is it possible to provide reliable data on all issues?

Two approaches to estimate emission:

- Measurements of flue gases
- Mass balance

Thank you for your attention!