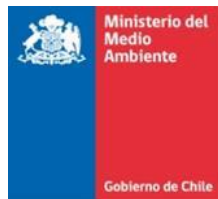


Gaps, challenges and possible way forward to black carbon inventory development from Chile's perspective



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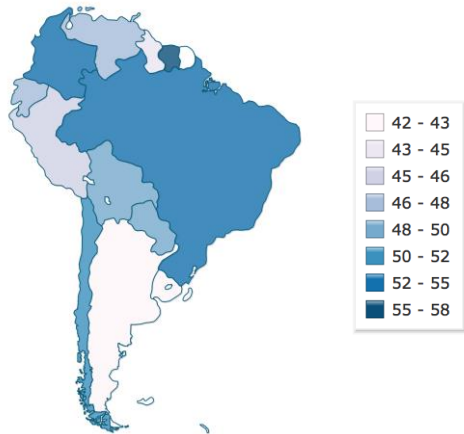


UNIVERSIDAD TECNICA
FEDERICO SANTA MARIA



Climate and Clean Air Coalition
Scientific Advisory Panel Expert Workshop
“Metrics for Evaluating and Reporting on Black Carbon and Methane Interventions”
16-17 March 2017

Chile: population



| Total | Parameter | Value |
|--|---|------------|
| Economic Activity and Social Development | GDP per capita 2015 | 22,316 USD |
| | Rural population 2013 | 12.7% |
| | Literacy rate 2012 | 98.9% |
| | Drinking water and treated waste water 2014 | 99.9% |
| 18,191,884 Estimated 2016 | Population in extreme poverty 2015 | 3.5% |
| | Population in poverty 2015 | 11.7% |
| | Gini coefficient 2015 | 0.495 |

Chile: energy



| Total | Parameter | Value | |
|---|---|------------------------------------|-------|
| Economic Activity and Social Development | GDP per capita 2015 | 22,316 USD | |
| | Rural population 2013 | 12.7% | |
| | Literacy rate 2012 | 98.9% | |
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| | | Gini coefficient 2015 | 0.495 |
| Energy Generation | Non-renewable sources 2015 | 55% | |
| | Hydroelectricity 2015 | 34% | |
| Electricity production capacity 2015 20,375 MW | Non Conventional Renewable Energy 2015 | 11% | |
| | Projected NCRE 2050 | 60% | |
| | National electric coverage 2015 | 99% | |

Chile: land use



| Total | Parameter | Value |
|--|---|------------|
| Economic Activity and Social Development 18,191,884 Estimated 2016 | GDP per capita 2015 | 22,316 USD |
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| | Projected NCRE 2050 | 60% |
| | National electric coverage 2015 | 99% |
| Land Use 756,102 km ² | Urban and industrial areas | 0.5% |
| | Forest plantations and mixed forests | 4.2% |
| | Agricultural areas | 4.4% |
| | Native forests | 18.9% |
| | Meadows and thickets | 27.1% |
| | Areas cleared of vegetation | 32.5% |

Institutional framework and climate change policies in Chile

International commitment:

- 1994: UNFCCC
- 2002: Kyoto Protocol
- 2016: Paris Agreement

International Consultation Analysis (ICA):

- 2014: First Biennial Update Report at COP20
- 2016: Second Biennial Update Report at COP22

UNFCCC:

- First (2000), Second (2011) and Third (2016) National Communication on Climate Change

Governmental bodies:

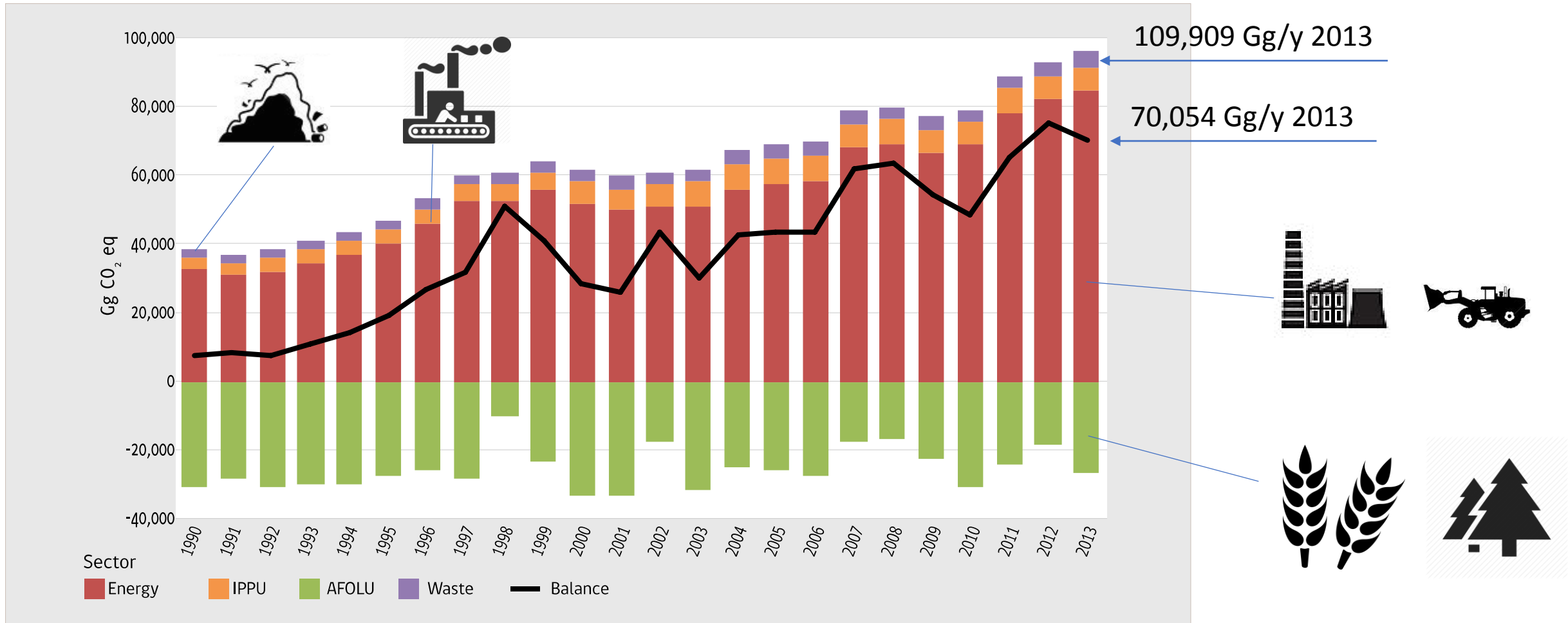
- Council of Ministers for Sustainability (CMS)
- Ministry of Environment (MMA) through the Climate Change Division (DCC)
- Ministry of Foreign Affairs through the Environment and Oceanic Affairs Directorate (DIMA)
- Coordination among ministries and specific climate units (ETICC)

Legal instruments:

- National Action Plan on Climate Change (PANCC) 2017-2022
- Law 20,698 (2013), 20% energy production by renewable sources in 2050
- Intended Nationally Determined Contribution (INDC 2015): mitigation as emissions intensity
- National Climate Change Adaptation Plan (2014): forestry, agriculture, biodiversity, fishing

Chile's National Greenhouse Gas Inventory 2013 (2006 IPCC guidelines)

Figure 4. Chile's NGHGI: GHG emissions and removals (Gg CO₂ eq) by sector, 1990-2013



Source: MMA's Coordinating Technical Team

IPPU= Industrial processes and product use; AFOLU= Agriculture, forestry and other land use; FOLU= Forestry and other land use

Chile's National Black Carbon Inventory 2013

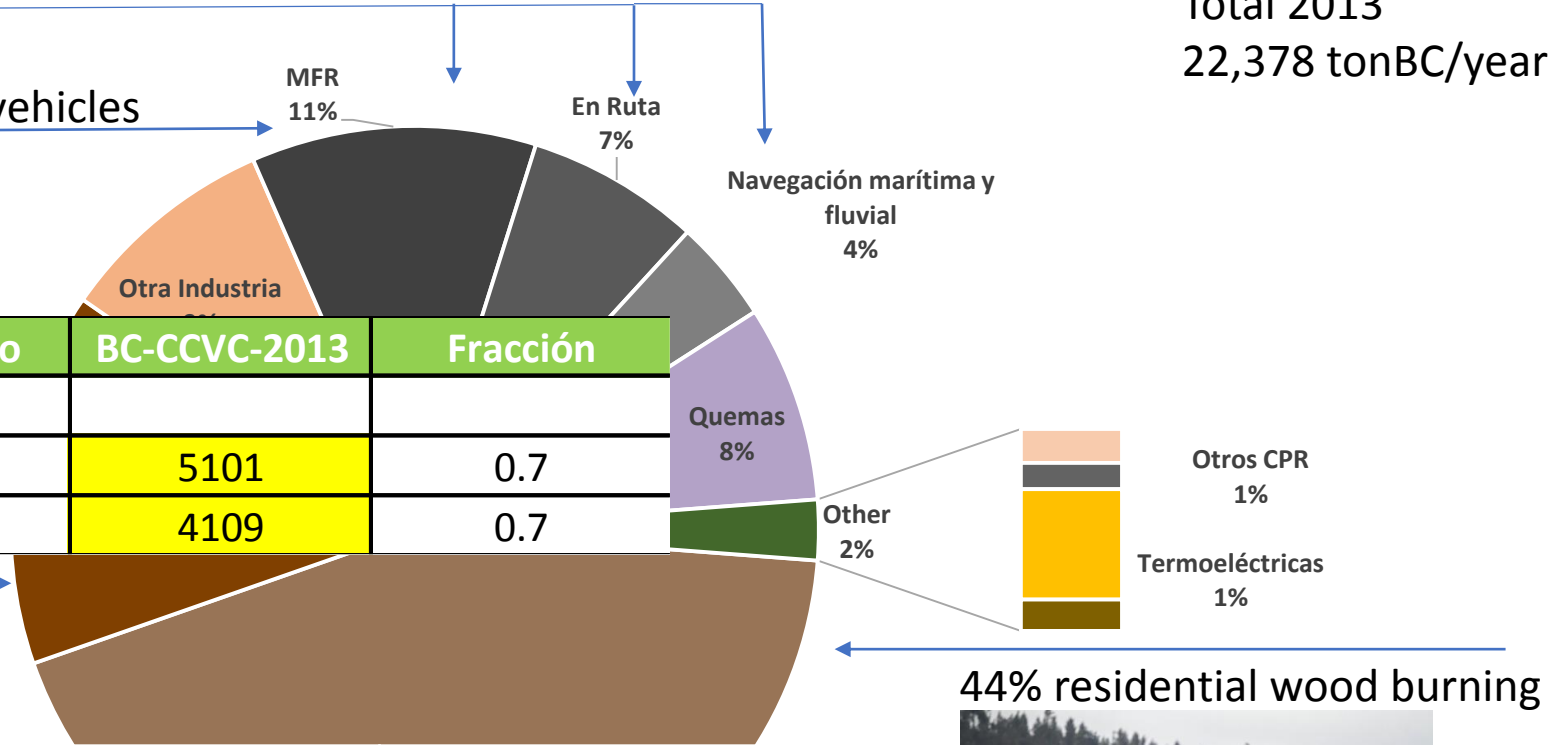


22% mobile sources

11% off-road vehicles

Total 2013
22,378 tonBC/year

| Chile BC | Desagregación | BC ton/año | BC-CCVC-2013 | Fracción |
|------------------|----------------|------------|--------------|----------|
| VOCALS 2008 | Mobile | 16873 | | |
| VOCALS 2008 corr | Mobile | 7199 | 5101 | 0.7 |
| EDGAR 2010 | Road transport | 6210 | 4109 | 0.7 |



15% paper and cellulose



| EDGAR v4.3.1 (2010) | Nivel 1 | | Nivel 2 | |
|---------------------|-----------|-------------------|-----------|-------------------|
| | EMEP/ EEA | SICAM + EMEP/ EEA | EMEP/ EEA | SICAM + EMEP/ EEA |
| 5,9 | 4,7 | 11,2 | 9,4 | |

44% residential wood burning



Way forward?

Short term:

- Presentation of final results for SLCP's national inventory, late April 2017 (WG CCAC in Santiago)
- Review of proposals for SLCP's mitigation; uncertainty analysis; 2030 projection
- Cooperative work among LA Universities (workshop in Santiago last week of march)

Medium term (DCC-MMA):

- ***Institutional validation*** through international participation, governmental bodies and legal instruments
- ***Scientific support*** on local and general issues (emission factors, GWP, metrics, reporting protocols)
- ***Integration*** between national inventories of GHG and SLCP

Medium term (universities):

- Spatial disaggregation of BC transport emissions at national level (1x1 km)
- Adding biomass burning and other sources to the grid
- Argentina (CNEA), Brazil (USP), Chile (UCH-USM), Colombia (UNAL) and Mexico (UNAM) will join efforts (seeking for collaborative project with Europe)