South Africa

National GHG Inventory Management System and Use of the 2006 IPCC Guidelines

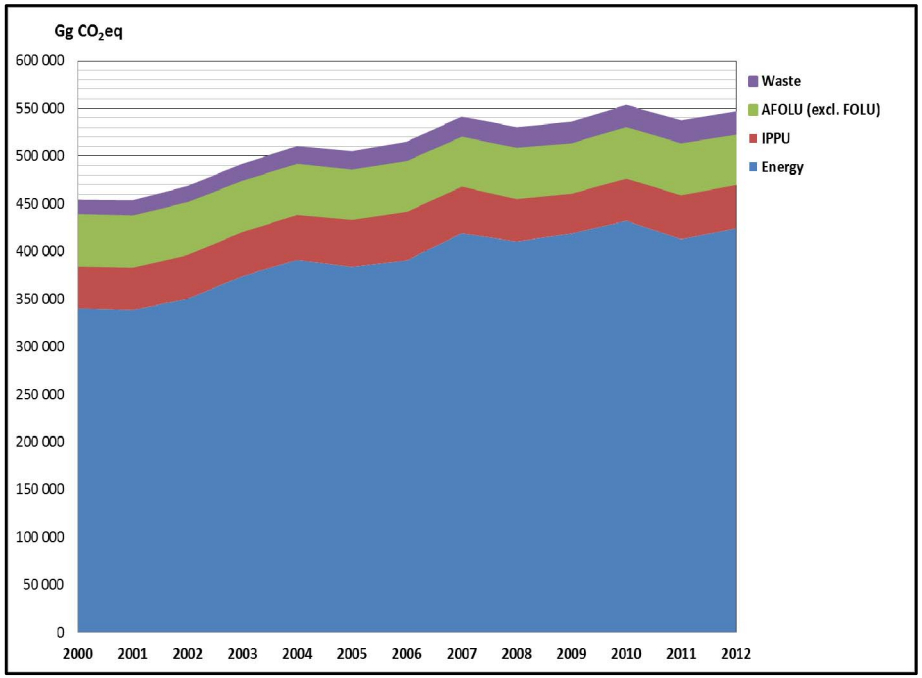
Experiences, challenges and lessons learned in setting up the national GHG inventory system and use of the 2006 IPCC Guidelines

14 - 18 March 2016, Maseru, Lesotho

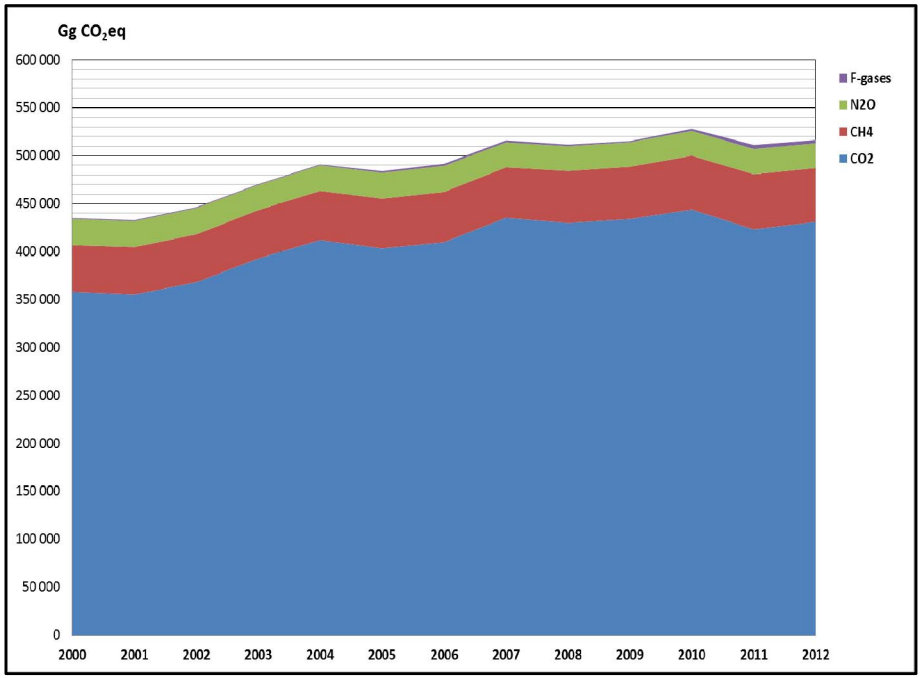
GHG Profile

National GHG inventories:

Analysis by Sector



Analysis by Gas



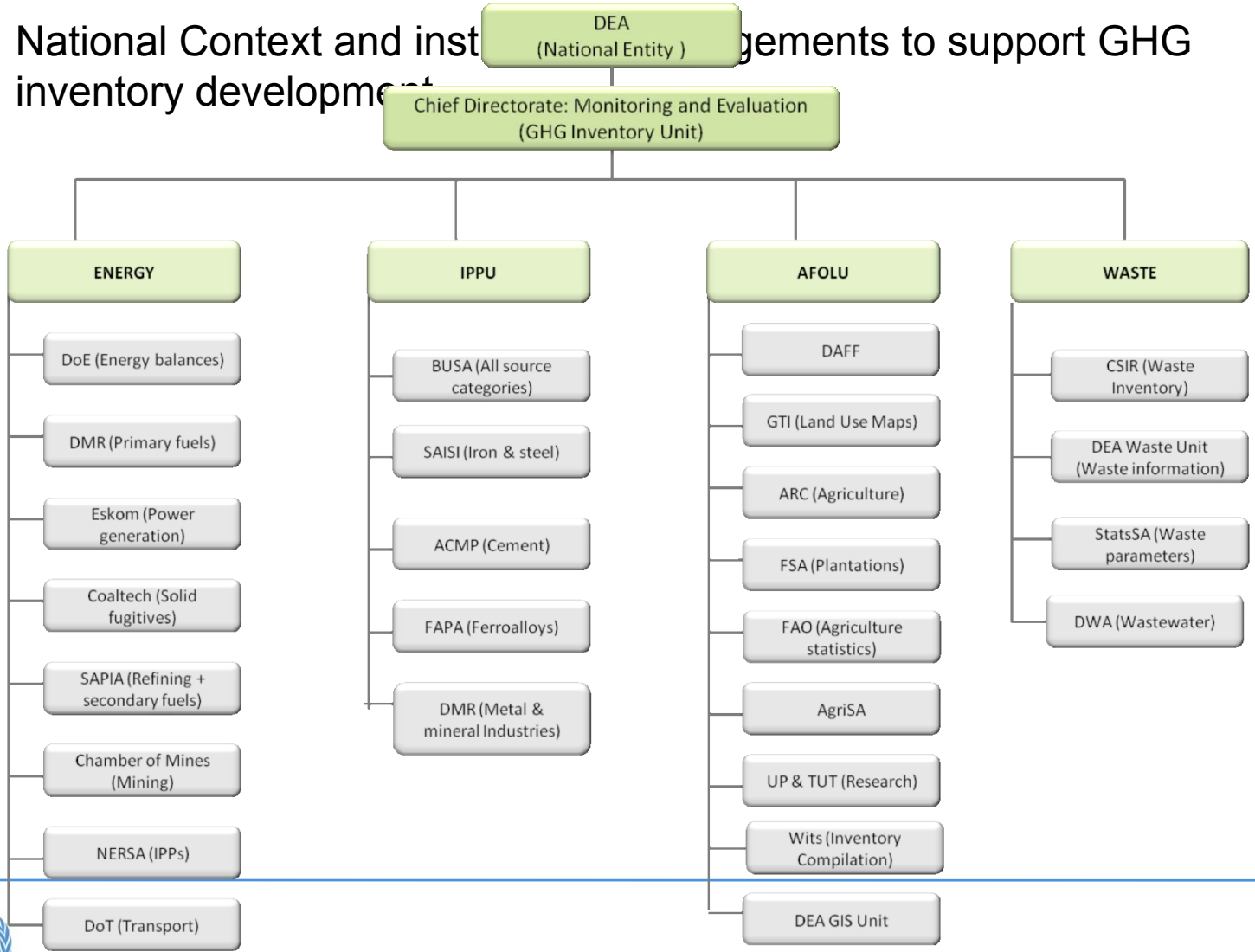
GHG Profile

Trends and levels in GHG emissions for South Africa (2000-2012):

	Energy	IPPU	AFOLU (excl. FOLU)	AFOLU (incl. FOLU)	Waste	Total (excl. FOLU)	Total (incl. FOLU)
	(Gg CO_2 eq)						
2000	340 300	44 907	55 287	37 500	12 288	452 782	434 994
2001	338 543	45 472	54 962	35 565	13 205	452 182	432 786
2002	350 061	47 416	55 503	34 788	14 088	467 069	446 353
2003	373 958	47 665	53 883	33 811	14 947	490 453	470 381
2004	391 037	48 460	53 835	35 640	15 780	509 111	490 917
2005	383 524	50 655	52 910	33 106	16 591	503 680	483 876
2006	390 557	52 347	53 459	31 308	17 381	513 744	491 593
2007	418 886	50 397	53 459	28 587	18 152	540 894	516 022
2008	410 361	45 809	53 895	36 545	18 905	528 970	511 620
2009	418 626	43 247	52 974	33 764	19 639	534 486	515 275
2010	431 994	45 737	54 197	30 034	20 354	552 282	528 119
2011	412 676	47 584	54 545	29 892	21 151	535 956	511 303
2012	423 988	46 897	52 818	23 603	21 929	545 632	516 417

Experiences – National Context/Inst. Arrangements

- National Context and inst gements to support GHG inventory developme



Experiences

Experience in the use of the 2006 IPCC guidelines

Published National Inventory	Years Covered	Status	IPCC Guidelines Used
1St National Communication	1990;1994	Finalised	Revised 1996 IPCC Guidelines + GPG
2nd National Communication	2000	Finalised	2006 IPCC Guidelines
1st Biennial Update Report	2000-2010	Finalised	2006 IPCC Guidelines
2nd Biennial Update Report 5th Inventory Report	2000-2012 2000-2012	Internal Draft Under review	2006 IPCC guidelines

We have also conducted training to all provinces on the use of the 2006 IPCC guidelines and the 2006 IPCC Software

2006 IPCC Guidelines – Volume 1 was used to develop cross-cutting tools such as uncertainty analysis, QA/QC, data Gap-filling methods

Key Challenges

- Collection of data and still a huge challenge:
  a) Data often collected at national aggregated levels rather than point or direct sources
     - Making it challenging to use higher tier methods
  b) Also difficult to perform data uncertainty analysis on already published data
  c) Availability of accurate activity data – particularly from individual plants and industry associations
  d) Challenges around country-specific methodologies and EFs

  e) Methodological challenges captured in the Second presentation on use of 2006 IPCC guidelines.

Key Challenges

- **Key challenges experienced in use of the 2006 IPCC guidelines**

- No fugitive CH4 emission factors from production of Charcoal – Charcoal production in South Africa is significant
- Country-specific significant sources (e.g. Coal-to-liquids, gas-to-chemicals and Gas-to-liquids processes are not accommodated by the 2006 IPCC guidelines both in terms of methodological guidance and allocation of emissions
- Methodological guidance and allocation of CO2 emissions from Hydrogen production are not covered by the guidelines.
- Emission factors for fugitive CO2 and N2O emissions from gas and oil transport are expressed in terms of volume of gas and oil transported as opposed to the length of the pipeline. This is rather difficult as volumes are often not readily available and also that the methodology is not accurate

Lessons Learned and/or Best Practices

- How key challenges were addressed in the use of the 2006 IPCC Guidelines
  a) South Africa used fugitive CH4 emission factors from the old 1996 IPCC guidelines to quantify emissions charcoal production
  b) Obtain guidance from the IPCC concerning allocation of emissions from country-specific sectors including CO2 from Hydrogen production and developed Tier3 (carbon-balance approaches) to quantify emissions from these sources
  c) Used the Revised 1996 IPCC methodology for quantification of emissions from pipeline transport which uses pipeline length.

Next Steps

- Share on your country's plan regarding the use of 2006 IPCC guidelines
- Development of a GHG emissions reporting regulations based on the 2006 IPCC Guidelines (to be finalised before December 2015)
- Development of a Technical Guideline for quantification of emissions using higher-tier methods for Energy, IPPU and Waste sectors (to be finalised in November)
- Development of a National System to manage the Inventory compilation process (Web-Based) as means to create institutional memory of the inventory compilation process.
- Conducting a HFC survey to implement a tier 2 methodology for quantification of emissions from use of F-gases
- Quantification of CO2, CH4 and N2O emissions from road transportation using the IPCC tier 2 methodology (modelled Vehicle Kilometres Travelled)
- Development of CO2 emission factors for the ferroalloy industry to enable South Africa to use a tier-2 2006 IPCC methodology for process emissions emanating from the Ferroalloy industry

Thank you