



Task Force on National Greenhouse Gas Inventories

# IPCC Inventory Software

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# Introduction

- The IPCC has launched its *IPCC Inventory Software* in May 2012
- The Software implements the 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- However it can also be used for reporting under the 1996 Guidelines
  - This allows countries to utilise the improvements in the methodologies and default values since 1996

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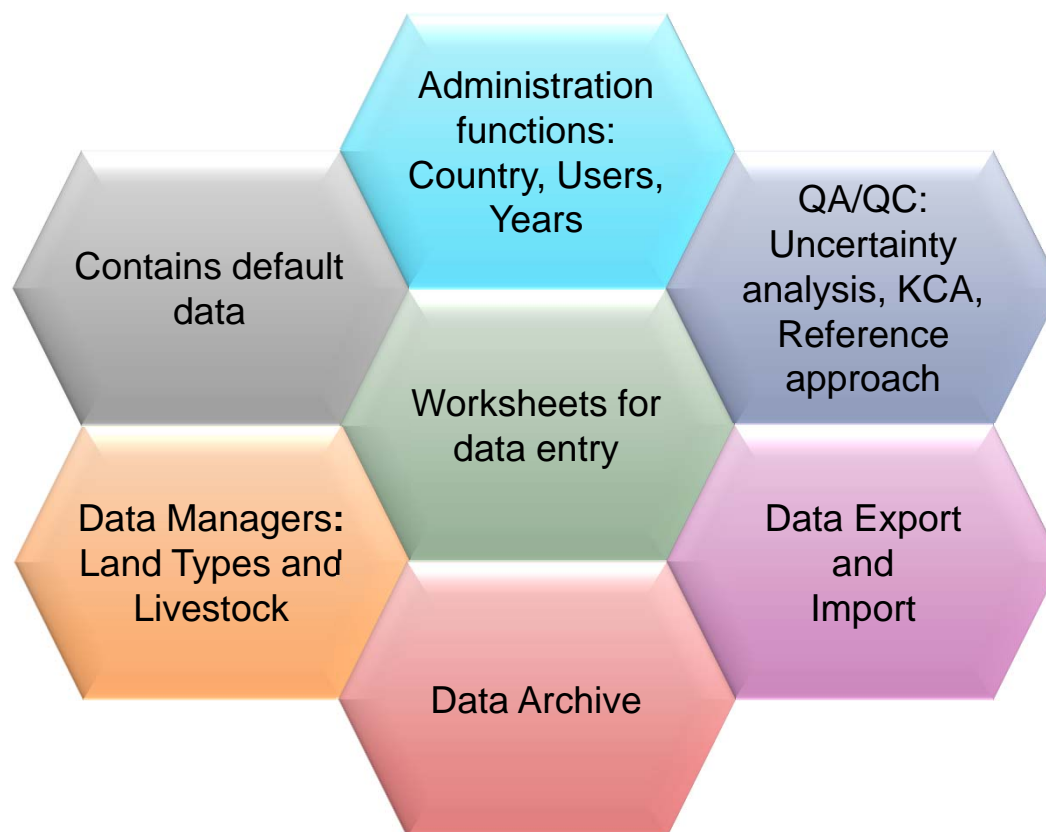
# IPCC Guidelines

- IPCC Guidelines consist of:
  1. Methods
  2. Default data
  3. Good Practice Guidance
  4. Reporting Instructions
- 1,2 & 3 can be used whatever reporting is agreed on
  - IPCC or otherwise
- Thus the methods and data in the 2006 Guidelines can be used however emissions and removals are reported
  - 1996 Guidelines, GPG or 2006 Guidelines

# IPCC Inventory Software

- Inventory Software that can assist in using the IPCC Guidelines
  - ❖ Stand alone software with modest hardware requirements
  - ❖ It is database based
  - ❖ It can be used for the whole inventory or just individual categories
  - ❖ Will output in non-Annex 1 National Communications format
  - ❖ FREE!
- ❖ The latest version is Ver.2.11 (released in April 2013)
  - > Download from <http://www.ipcc-nggip.iges.or.jp/software/index.html>
- ❖ A newer software is backwards compatible with Ver. 2.00

# Software Functions





2006 IPCC Software for National Greenhouse Gas Inventories - maya - [Worksheets]

Application Database Inventory Year Worksheets Reports Tools Export/Import Administrate Window Help

1994

**Main menu**

**Category selected: Energy**

**Hierarchical list of categories**

**Data Entry**

**Worksheet-based calculations follow 2006 Guidelines**

**Time Series Display**

Fuel	Energy Consumption		B Conversion Factor (TJ/Unit) (NCV)	C Consumption (TJ) (C=A*B)	D CO2 Emission Factor (kg CO2/TJ)	Z Amount Captured (Gg CO2)	E CO2 Emissions (Gg CO2) E=C-D/0*6-Z	Conversion Factor Type			
	A Consumption (Mass, Volume or Energy Unit)	Consumption Unit						F CH4 Emission Factor (kg CH4/TJ)	G CH4 Emissions (Gg CH4) G=C*F/10*6	H N2O Emission Factor (kg N2O/TJ)	I N2O Emissions (Gg N2O) I=C*H/10*6
Anthracite	1000	Gg	26.7	26700	98300		26...	1	0.0...	1.5	0.04...
Coking Coal	2000	Gg	28.2	56400	94600		53...	1	0.0...	1.5	0.0846
Other Bitu...	3000	Gg	25.8	77400	94600		73...	1	0.0...	2	0.1548
Sub-Bitumi...	4000	Gg	19.0	76000	96100		72...	1	0.0...	1.5	0.1134
Lignite	5000	Gg			101000	500	55...	1	0.0...	1.5	0.08...
Oil Shale /...	500	Gg			107000		47...		NE 0	1.5	0.00...
	600	Gg			97500		12...	1	0.0...	1.5	0.01...
	300	Gg			77000		63...	3	0.0...	0.6	0.00...
				320720			303791			0.33277	0.51236

Worksheet remarks

1.A1.a.i - Time Series

Gas: CARBON DIOXIDE (CO2)

Country/Territory: Slovakia | Inventory Year: 1994 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file:

2006 IPCC Software for National Greenhouse Gas Inventories - maya - [Worksheets]

Application Database Inventory Year Worksheets Reports Tools Export/Import Administrate Window Help

IPCC 2006 Categories

- 1.A4b - Residential
- 1.A4c - Agriculture/Forestry/Fishing/Fish F
  - 1.A4.c.i - Stationary
  - 1.A4.c.ii - Off-road Vehicles and Other
  - 1.A4.c.iii - Fishing (mobile combustion)
- 1.A5 - Non-Specified
  - 1.A5a - Stationary
  - 1.A5b - Mobile
    - 1.A5b.i - Mobile (aviation component)
    - 1.A5b.ii - Mobile (water-borne component)
    - 1.A5b.iii - Mobile (Other)
  - 1.A5c - Multilateral Operations
- 1.B - Fugitive emissions from fuels
  - 1.B1 - Solid Fuels
    - 1.B1.a - Coal mining and handling
      - 1.B1.a.i - Underground mines
        - 1.B1.a.i.1 - Mining
        - 1.B1.a.i.2 - Post-mining seam gas emission
        - 1.B1.a.i.3 - Abandoned underground
        - 1.B1.a.i.4 - Flaring of drained methane
      - 1.B1.a.ii - Surface mines
        - 1.B1.a.ii.1 - Mining
        - 1.B1.a.ii.2 - Post-mining seam gas emission
    - 1.B1.b - Uncontrolled combustion and burning
    - 1.B1.c - Solid fuel transformation
  - 1.B2 - Oil and Natural Gas
    - 1.B2.a - Oil
      - 1.B2.a.i - Venting
      - 1.B2.a.ii - Flaring
      - 1.B2.a.iii - All Other
        - 1.B2.a.iii.1 - Exploration
        - 1.B2.a.iii.2 - Production and Upgrading
        - 1.B2.a.iii.3 - Transport
        - 1.B2.a.iii.4 - Refining
        - 1.B2.a.iii.5 - Distribution of oil products
        - 1.B2.a.iii.6 - Other
    - 1.B2.b - Natural Gas
      - 1.B2.b.i - Venting
      - 1.B2.b.ii - Flaring
      - 1.B2.b.iii - All Other
        - 1.B2.b.iii.1 - Exploration
        - 1.B2.b.iii.2 - Production
        - 1.B2.b.iii.3 - Processing

Oil and Natural Gas

Worksheet

Sector: Energy  
 Category: Fugitive Emissions from Fuels - Oil and Gas  
 Subcategory: 1.B.2.a.i - Venting  
 Sheet: CO2, CH4 and N2O from fugitive emissions

1994

Notation Keys Available

Industry Segment	Subcategory	Activity	AD	Emission Factor (Gg CO2/Unit for AD)	CO2 Emissions (Gg CO2)	CH4		N2O	
						Emission Factor (Gg CH4/Unit for AD)	CH4 Emissions (Gg CH4)	Emission Factor (Gg N2O/Unit for AD)	N2O Emissions (Gg N2O)
					$C=A*B$		$E=A*D$		$O=A*F$
Oil Production	Conventional Oil	1000	10 <sup>6</sup> Sm <sup>3</sup>	9.5E-05	0.095	0.00072	0.72	0.05	50
	Default Weighted Total	500	10 <sup>6</sup> Sm <sup>3</sup>	0.0018	0.9	0.0087	4.35	0.05	25
	Heavy Oil / Cold Bitumen	600	10 <sup>6</sup> Sm <sup>3</sup>	0.0053	3.18		0		0
	Thermal Oil Production	400	10 <sup>6</sup> Sm <sup>3</sup>	0.0022	0.88	0.0035	1.4	0.03	12
Oil Transport	Loading of Off-shore Production on Tanker Ships	300	10 <sup>6</sup> Sm <sup>3</sup>	0.005	1.5	0.0003	0.09	0.0002	0.06
Total									5.763

Uncertainties

Defaults Available: can be over-written with country specific data

Time Series Data Entry

IPCC 2006 Guidelines

See Table 4.2.7 'Guidance on obtaining the activity data values required for use in Tier 1 approach to estimate fugitive emissions from oil and gas operations' in Chapter 4, Volume 2 of the 2006 IPCC Guidelines

Worksheet remarks

1.B2.a.i - Time Series

Emissions (Gg CO2 Equivalent)

1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

Country/Territory: Slovakia Inventory Year: 1994 Base year for assessment of uncertainty in trend: 1990 CO2 Equivalents: SAR GWPs (100 year time horizon) Database file:

# Tool – Reference approach

IPCC Inventory Software - maya - [1.A - Reference Approach]

Application Database Inventory Year Worksheets Reports Tools Export/Import Administrate Window Help

Reference Approach Data Estimating Excluded Carbon Comparison

Sector Energy  
 Category Fuel Combustion activities  
 Category code 1.A  
 Sheet 1 of 1 (CO2 from energy sources - Reference Approach)

1991

		Step 1					Step 2	
		A	B	C	D	E	F	H
		Production	Imports	Exports	International Bunkers	Stock change	Apparent Consumption	Apparent Consumption (TJ)
Fuel Types							F=A+B-C-D-E	H=F*G
Liquid Fuels: 22 item(s)								
Primary Fuels	Crude Oil						0	42.3
	Orimulsion						0	27.5
	Natural Gas Liquids						0	44.2
Secondary Fuels	Motor Gasoline						0	44.3
	Aviation Gasoline						0	44.3
	Jet Gasoline						0	44.3
	Jet Kerosene						0	44.1
	Other Kerosene						0	43.8
	Shale Oil						0	38.1
	Gas/Diesel Oil						0	43
	Residual Fuel Oil						0	40.4
	Liquefied Petroleum Gases						0	47.3
	Ethane						0	46.4
	Naphtha						0	44.5
	Bitumen						0	40.2
	Lubricants						0	40.2
	Petroleum Coke						0	32.5
	Refinery Feedstocks						0	43
	Refinery Gas						0	49.5
	Paraffin Waxes						0	40.2
	White Spirit and SBP						0	40.2
	Other Petroleum Products						0	40.9

Reference approach

Comparison: reference vs sectoral approach

1) Values in column K are taken from column E of Estimating Excluded Carbon worksheet

Country/Territory: Japan | Inventory Year: 1991 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file:



# Tool – Reference approach

IPCC Inventory Software - maya - [1.A - Reference Approach]

Application Database Inventory Year Worksheets Reports Tools Export/Import Administrate Window Help

Reference Approach Data Estimating Excluded Carbon Comparison

Sector: Energy  
 Category: Fuel combustion activities  
 Category code: 1.A  
 Sheet: 1 of 1 - Comparison of CO2 Emissions from Fuel Combustion

1991

Fuel Types	Reference Approach				Sectoral Approach		Difference	
	Apparent Consumption (TJ)	Excluded consumption (TJ)	Apparent Consumption (excluding non-energy use and feedstocks) (TJ)	CO2 Emissions (Gg)	Energy Consumption (TJ)	CO2 Emission (Gg)	Energy Consumption (%)	CO2 Emissions (%)
Liquid Fuels: 22 item(s)	0	0	0	0	40055.1	2559.6082	-100	-100
Solid Fuels: 11 item(s)	0	0	0	0	0	0	0	0
Gaseous Fuels: 1 item(s)	0	0	0	0	15446.7	866.5598	-100	-100
Other Fossil Fuels: 3 item(s)	0	0	0	0	0	0	0	0
Peat: 1 item(s)	0	0	0	0	0	0	0	0
Total	0	0	0	0	55501.8	3426.168	-100	-100

Result of Reference approach

Result of Sectoral approach

Differece (%)

Country/Territory: Japan | Inventory Year: 1991 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file:

# Reports

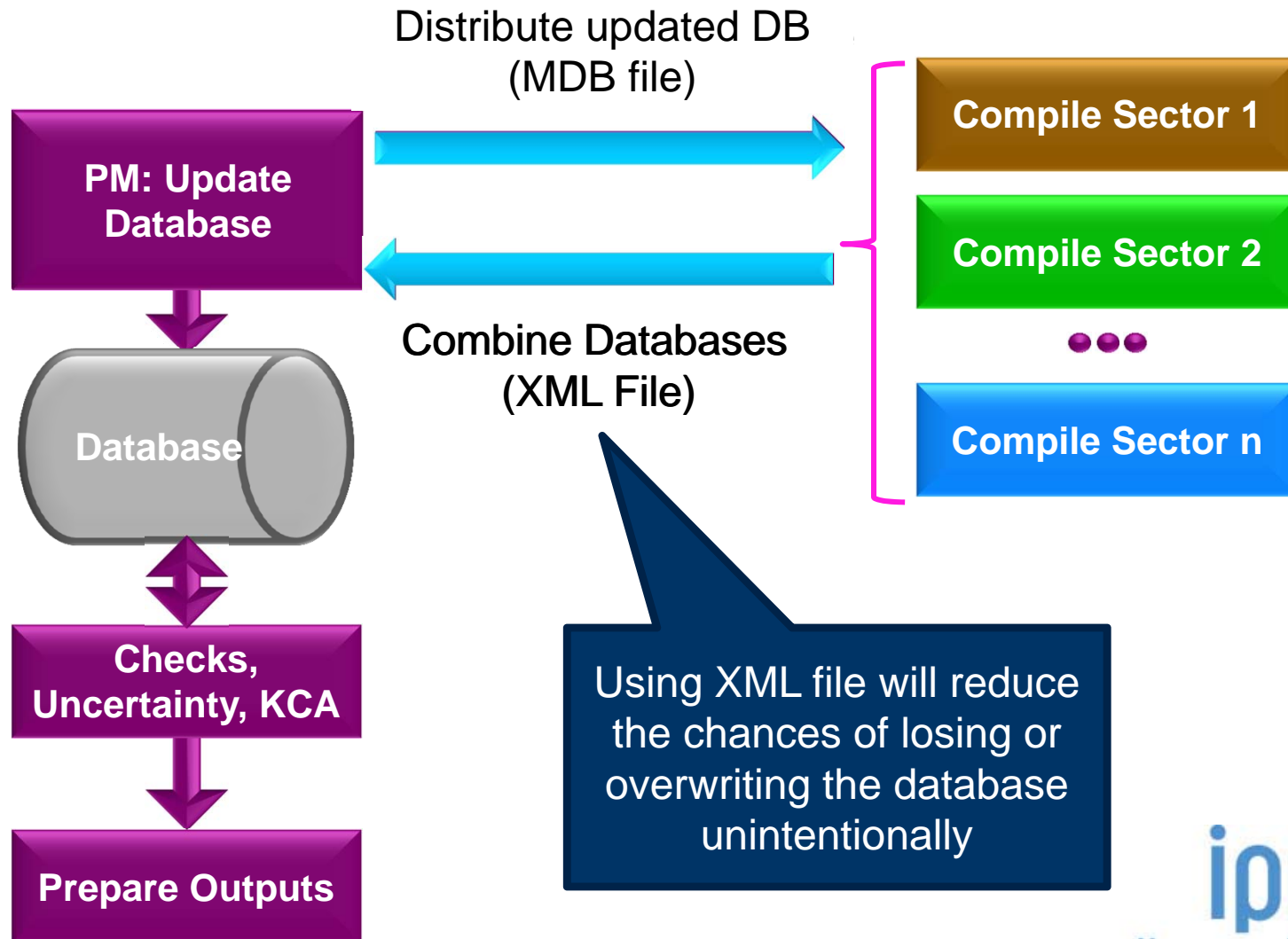
Report	Level	Contents
Summary	1.A.1	Emissions
Short summary	1.A	Emissions
Sectoral	1.A.1.a.ii (Most disaggregated level)	Emissions
Background	1.A.1.a.ii (Most disaggregated level)	Activity data Emissions

Note: All report can be exported as MS Excel file.

# Multiple Users

Project manager

Sectoral Experts(s)



# Support

- The TSU is supporting the software:
  - ❖ Help Desk: email [ipcc-software@iges.or.jp](mailto:ipcc-software@iges.or.jp)
  - ❖ Web Forum: <https://discussions.zoho.com/ipccinventorysoftware/>
- TSU is preparing User Guide including dummy data
- TSU will maintain software and is planning to add functions to the software:
  - ❖ Complete Tier 2 coverage
  - ❖ More output formats



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*Thank you*