


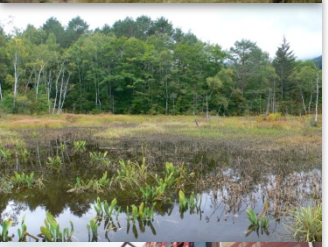

Task Force on National Greenhouse Gas Inventories

IPCC TFI: Recent Activities

Baasansuren Jamsranjav, IPCC TFI TSU

The 11th Workshop on GHG Inventories in Asia (WGIA11)

- Capacity building for measurability, reportability and verifiability -

5-7 July 2013, Tsukuba, Japan

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Outline

- Introduction to IPCC TFI
- IPCC Inventory Software
- Emission Factor Database (EFDB)
- Other Activities of IPCC TFI
- Future IPCC TFI Products

IPCC Task Force on National Greenhouse Gas Inventories (TFI)

- TFI is established in 1998 by the IPCC
- The objectives of the TFI are:
  - ✓ to develop and refine an internationally-agreed methodology for calculation and reporting of national GHG emissions and removals
  - ✓ to encourage the widespread use of this methodology by countries participating in the IPCC and by parties of the United Nations Framework Convention on Climate Change (UNFCCC)
- Technical Support Unit (TSU) provides support to the TFI under the overall supervision of the Bureau of TFI

IPCC Inventory Software

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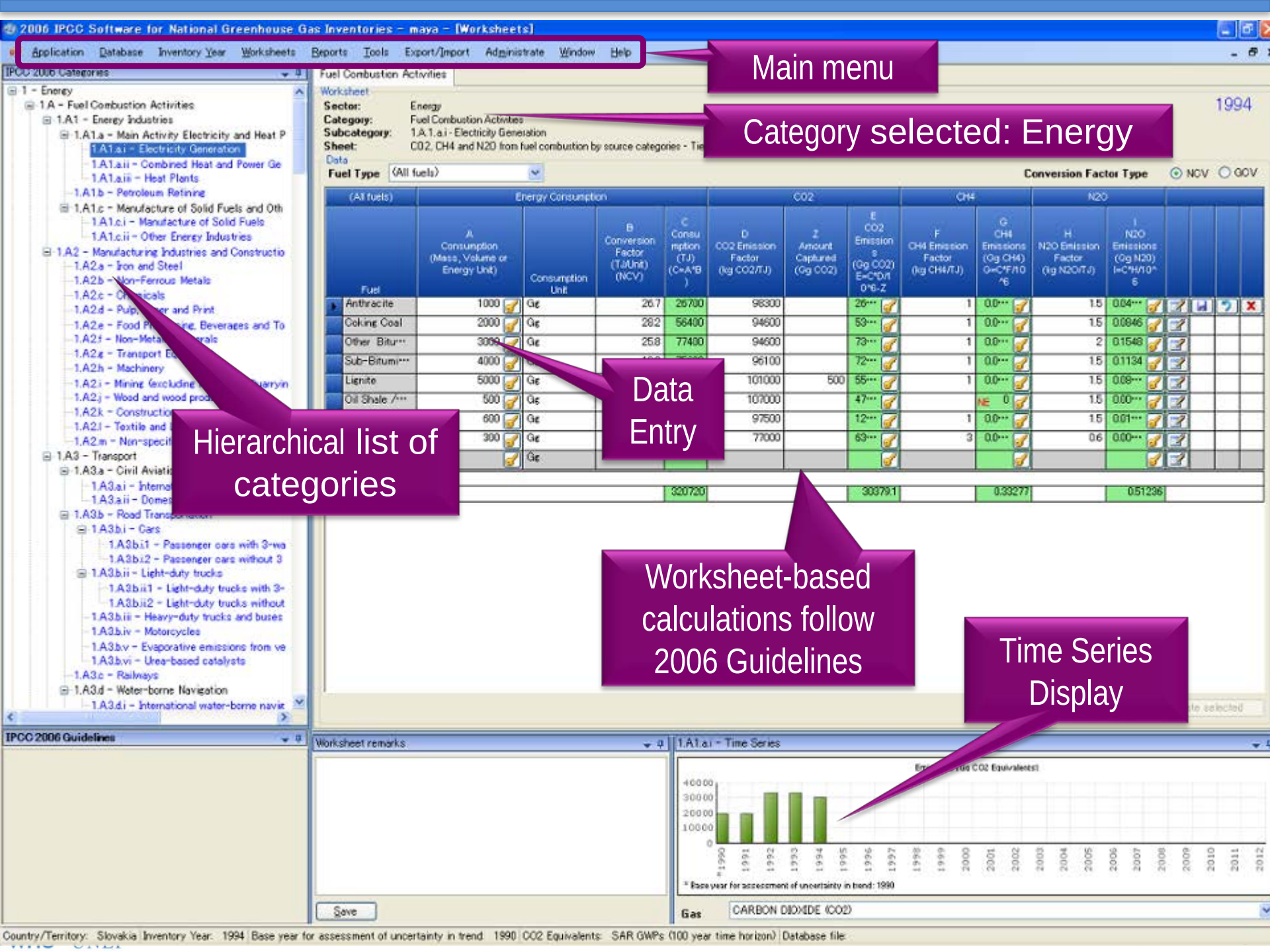
IPCC Inventory Software

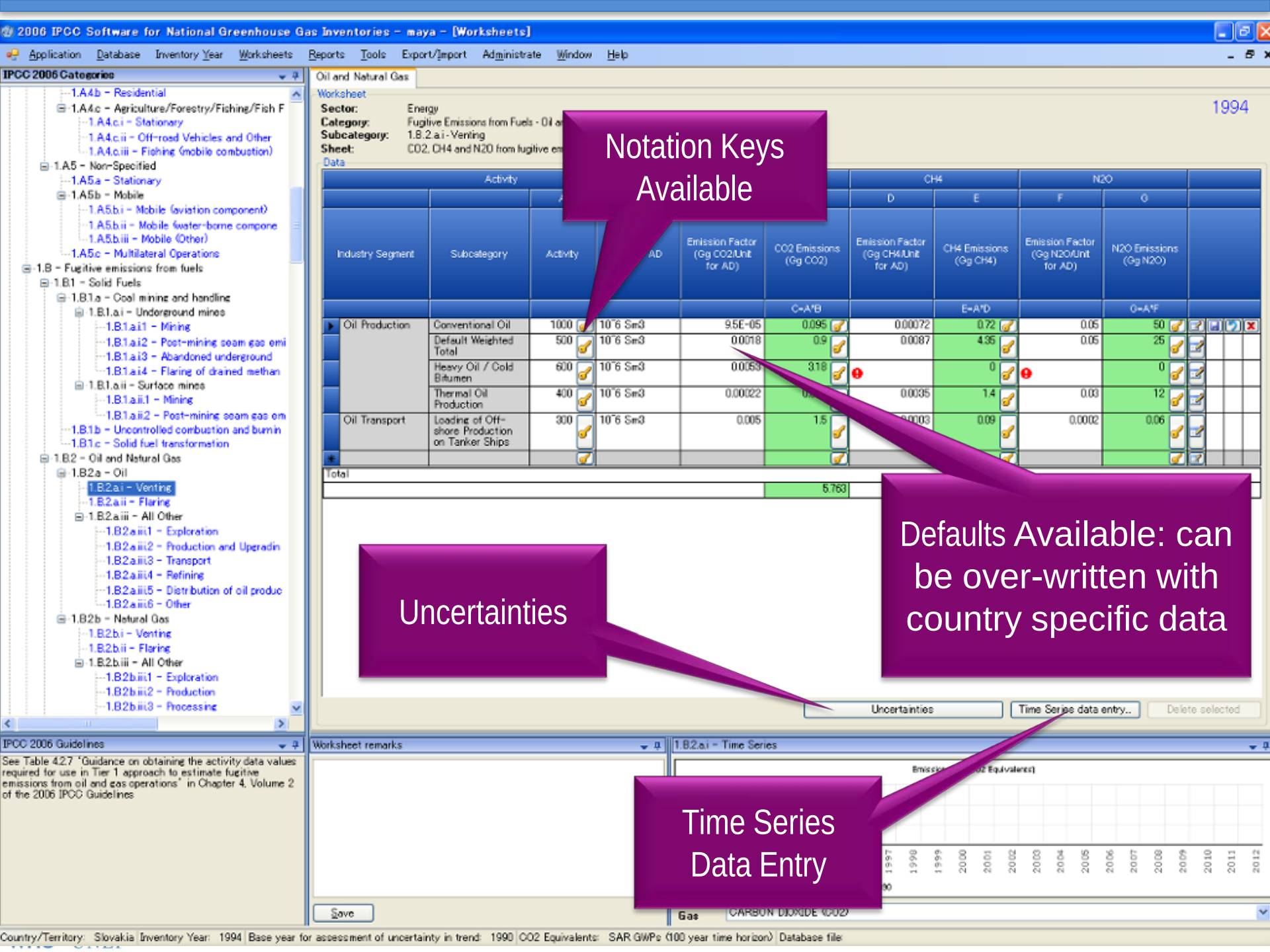
- Released in May 2012
  - ✓ Database based and stand alone software with modest hardware requirements
  - ✓ The latest version (ver. 2.11) is released in April 2013

    http://www.ipcc-nggip.iges.or.jp/software/index.html
- The software is based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- However, it can also be used for reporting under the Revised 1996 IPCC Guidelines
  - ✓ Output in NAI Reporting Format
- It can be used for the whole inventory or just individual categories

Major Features

- Software assists countries in the compilation, documentation and archiving of the national GHG emission inventories
- Implements
  - ✓ Reference Approach (Energy Sector)
  - ✓ Uncertainty analysis
  - ✓ Key category analysis
- Can export and import inventory data (e.g. worksheet data)
- Generates reporting tables (e.g. sectoral and background)
- Will be developed to include more input/output and reporting options and complete Tier 2 coverage


2006 IPCC Software for National Greenhouse Gas Inventories - maya - [Worksheets]
Application Database Inventory Year Worksheets Reports Tools Export/Import Administrate Window Help
Main menu
Category selected: Energy
Hierarchical list of categories
Data Entry
Worksheet-based calculations follow 2006 Guidelines
Time Series Display
1 - Energy
1.A - Fuel Combustion Activities
1.A.1 - Energy Industries
1.A.1.a - Main Activity Electricity and Heat P
1.A.1.a.i - Electricity Generation
1.A.1.a.ii - Combined Heat and Power Ge
1.A.1.a.iii - Heat Plants
1.A.1.b - Petroleum Refining
1.A.1.c - Manufacture of Solid Fuels and Oth
1.A.1.c.i - Manufacture of Solid Fuels
1.A.1.c.ii - Other Energy Industries
1.A.2 - Manufacturing Industries and Constructio
1.A.2.a - Iron and Steel
1.A.2.b - Non-Ferrous Metals
1.A.3 - Transport
1.A.3.a - Civil Aviati
1.A.3.b - Road Transp
1.A.3.b.i - Cars
1.A.3.b.i.1 - Passenger cars with 3-wa
1.A.3.b.i.2 - Passenger cars without 3
1.A.3.b.ii - Light-duty trucks
1.A.3.b.ii.1 - Light-duty trucks with 3-
1.A.3.b.ii.2 - Light-duty trucks without
1.A.3.b.iii - Heavy-duty trucks and buses
1.A.3.b.iv - Motorcycles
1.A.3.b.v - Evaporative emissions from ve
1.A.3.b.vi - Urea-based catalysts
1.A.3.c - Railways
1.A.3.d - Water-borne Navigation
1.A.3.d.i - International water-borne navig
Fuel Combustion Activities
Worksheet
Sector: Energy
Category: Fuel Combustion Activities
Subcategory: 1.A.1.a.i - Electricity Generation
Sheet: CO2, CH4 and N2O from fuel combustion by source categories - Tie
1994
Data
Fuel Type (All fuels)
Conversion Factor Type NCV GCV
(All fuels) Energy Consumption CO2 CH4 N2O
Fuel
A Consumption (Mass, Volume or Energy Unit)
Consumption Unit
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/10^6-Z
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 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···
Gg
320720 303791 0.33277 0.51236
IPCC 2006 Guidelines
Worksheet remarks
Save
1.A.1.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.A.4.b – Residential
1.A.4.c – Agriculture/Forestry/Fishing/Fish F
1.A.4.c.i – Stationary
1.A.4.c.ii – Off-road Vehicles and Other
1.A.4.c.iii – Fishing (mobile combustion)
1.A.5 – Non-Specified
1.A.5.a – Stationary
1.A.5.b – Mobile
1.A.5.b.i – Mobile (aviation component)
1.A.5.b.ii – Mobile (water-borne compone
1.A.5.b.iii – Mobile (Other)
1.A.5.c – Multilateral Operations
1.B – Fugitive emissions from fuels
1.B.1 – Solid Fuels
1.B.1.a – Coal mining and handling
1.B.1.a.i – Underground mines
1.B.1.a.i.1 – Mining
1.B.1.a.i.2 – Post-mining seam gas emi
1.B.1.a.i.3 – Abandoned underground
1.B.1.a.i.4 – Flaring of drained methan
1.B.1.a.ii – Surface mines
1.B.1.a.ii.1 – Mining
1.B.1.a.ii.2 – Post-mining seam gas em
1.B.1.b – Uncontrolled combustion and burnin
1.B.1.c – Solid fuel transformation
1.B.2 – Oil and Natural Gas
1.B.2.a – Oil
1.B.2.a.i – Venting
1.B.2.a.ii – Flaring
1.B.2.a.iii – All Other
1.B.2.a.iii.1 – Exploration
1.B.2.a.iii.2 – Production and Upgradin
1.B.2.a.iii.3 – Transport
1.B.2.a.iii.4 – Refining
1.B.2.a.iii.5 – Distribution of oil produc
1.B.2.a.iii.6 – Other
1.B.2.b – Natural Gas
1.B.2.b.i – Venting
1.B.2.b.ii – Flaring
1.B.2.b.iii – All Other
1.B.2.b.iii.1 – Exploration
1.B.2.b.iii.2 – Production
1.B.2.b.iii.3 – Processing
Oil and Natural Gas
Worksheet
Sector: Energy
Category: Fugitive Emissions from Fuels - Oil a
Subcategory: 1.B.2.a.i - Venting
Sheet: CO2, CH4 and N2O from fugitive em
1994
Data
Activity
CH4
N2O
D
E
F
G
Industry Segment
Subcategory
Activity
AD
Emission Factor (Gg CO2/Unit for AD)
CO2 Emissions (Gg CO2)
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
G=A*F
Oil Production
Conventional Oil
1000
10^6 Sm3
9.5E-05
0.095
0.00072
0.72
0.05
50
Default Weighted Total
500
10^6 Sm3
0.0018
0.9
0.0087
4.35
0.05
25
Heavy Oil / Cold Bitumen
600
10^6 Sm3
0.0053
3.18
0
0
Thermal Oil Production
400
10^6 Sm3
0.00022
0.0035
1.4
0.03
12
Oil Transport
Loading of Off-shore Production on Tanker Ships
300
10^6 Sm3
0.005
1.5
0.0003
0.09
0.0002
0.06
Total
5.763
Notation Keys Available
Defaults Available: can be over-written with country specific data
Uncertainties
Time Series Data Entry
Uncertainties
Time Series data entry..
Delete selected
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.B.2.a.i - Time Series
Save
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:

Support to Software Users

- The TSU is supporting users of the software:
  - ✓ Help Desk: ipcc-software@iges.or.jp
  - ✓ Web Forum: https://discussions.zoho.com/ipccinventorysoftware/
  - ✓ User Manual (Contained in the software)

Emission Factor Database (EFDB)

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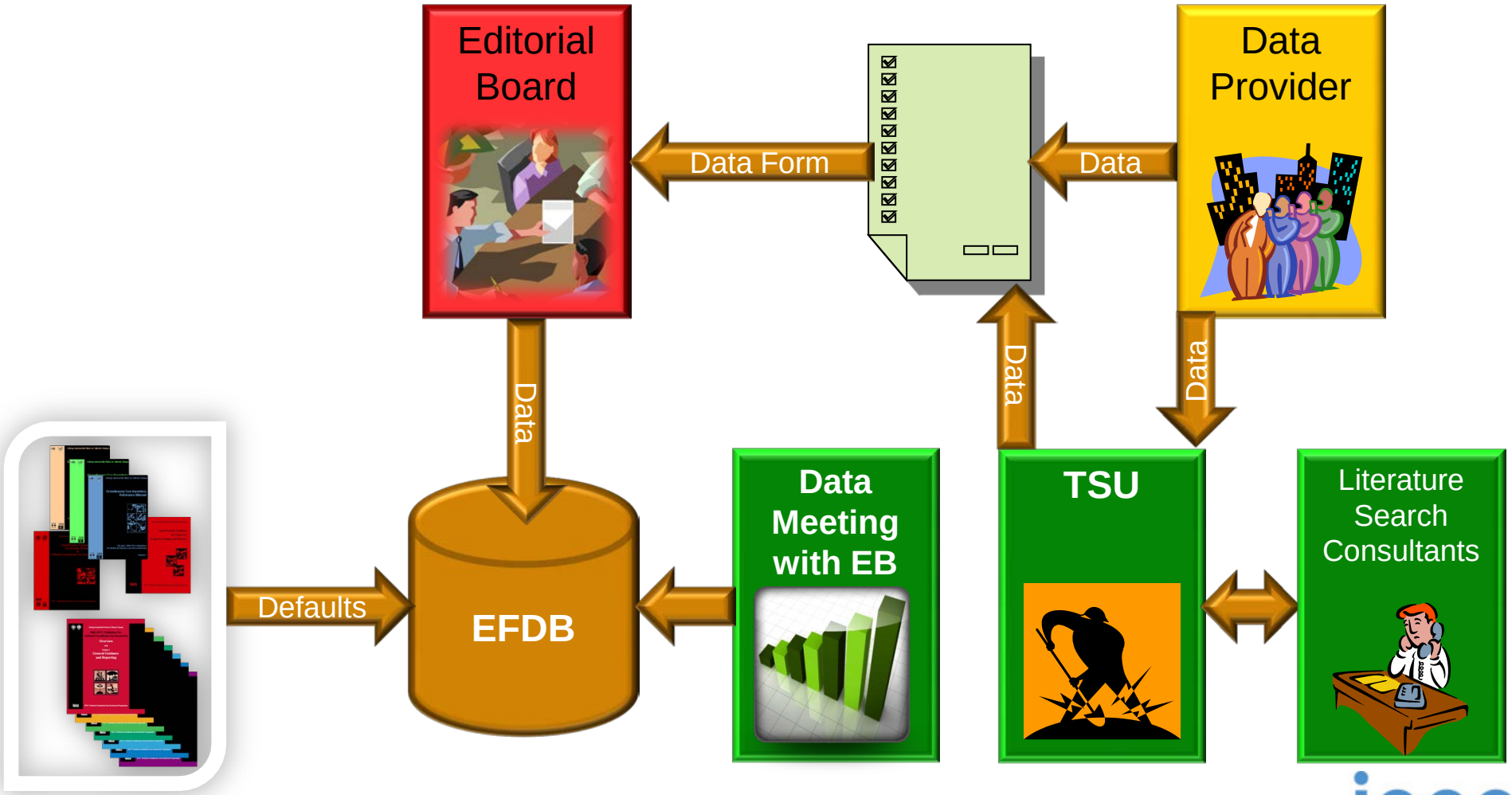
EFDB – Dynamically Evolving Library

- Documented Emission Factors (interpreted broadly – all parameters)
  - ✓ Peer-reviewed papers
  - ✓ Non-peer reviewed publications (government reports, industry studies etc.)
- Information about when and where this data may be applicable
- Evolves dynamically - new data from inventory compilers, researchers, industry...
- Data evaluated by Editorial Board (EB)
- Communication platform for distribution of new research and measurement data
- Users decide if data is suitable in their specific situation
- Available at our website (http://www.ipcc-nggip.iges.or.jp/EFDB/) as well as in the form of CDROM

Populating EFDB



Further Growing Importance of EFDB

- In the context of revision of the UNFCCC reporting guidelines for Annex I Parties, the SBSTA32 welcomed the work of the IPCC to facilitate the use of the 2006 IPCC Guidelines, including its efforts to develop inventory software and the *Emission Factor Database*. It invited the IPCC and other relevant organizations to strengthen their efforts in this area (FCCC/SBSTA/2010/6, paragraph 76)
- In the context of REDD discussion, the SBSTA32 requested the UNFCCC secretariat to work with the IPCC on promoting the use of the IPCC *Emission Factor Database* (FCCC/SBSTA/2010/6, paragraph 40)
- In the context of national communications from non-Annex I Parties (NAI-NC), the Consultative Group of Experts (CGE):
  - ✓ Agreed on the usefulness of *Emission Factor Database*; and
  - ✓ Recommended improvement of data quality by enhancement of the sharing of country-specific emission factors through the *Emission Factor Database* among NAI Parties, as an element to be considered in a future revision of the NAI-NC Guidelines (FCCC/SBI/2011/5/Rev.1)

Enhancement and Improvement of EFDB

- Continuing efforts for data collection
  - ✓ Literature search
  - ✓ Meetings to collect data have been convened every year
    - Data on forestry, especially biomass expansion factors (Buenos Aires, November 2008)
    - Data on livestock (Santiago, June 2009)
    - Data on soil carbon (Santiago, June 2009)
    - Data on soil N_2O (São Paulo, December 2010)
    - Data on energy sector (Mumbai, October 2011)
    - Data on waste sector (Langkawi, October 2012)
    - Two data meetings are planned (Ghent, November 2013)
- Data can be proposed by anyone – welcomed!!
- User-interface is being further improved

Other Activities

- Frequently Asked Questions (FAQs)
- Expert Meetings
- Inventory Internship Programme
- Support to Training Programmes on Inventories

Frequently Asked Questions (FAQs)

- Answers to FAQs http://www.ipcc-nggip.iges.or.jp/faq/faq.html
- Continuously updated – e.g., recently a new FAQ on bioenergy has been uploaded

Expert Meetings

- Supporting users of the IPCC Guidelines through expert meetings addressing various topics of concern, e.g.:
  - ✓ Revisiting the Use of Managed Land as a Proxy for Estimating National Anthropogenic Emissions and Removals
    (São Paulo, Brazil, 5-7 May 2009)
  - ✓ Uncertainty and Validation of Emission Inventories
    (Utrecht, the Netherlands, 23-25 March 2010)
  - ✓ Use of Models and Measurements in GHG Inventories
    (Sydney, Australia, 9-11 August 2010), followed by:
    Use of Facility and Project Information in National Inventories
    (Wellington, New Zealand, 18-20 July 2011)
- Relevant Supporting Materials (meeting reports, technical bulletins) are available at:

  http://www.ipcc-nggip.iges.or.jp/meeting/meeting.html

Expert Meetings Planned

- Fugitive Emissions from Oil and Natural Gas Systems (including shale gas, coal bed methane, etc.), 20-22 August 2013, Washington D.C., USA
- Improving National Greenhouse Gas Inventories Using the 2006 IPCC Guidelines and Related Tools, December 2013, Sapporo, Japan
- Open Seminar, December 2013, Sapporo, Japan

Inventory Internship Programme

- Launched in 2003
- Aims to provide young scientists with opportunities to familiarize with the IPCC work on methodologies for national GHG inventories as well as to contribute to the work of TSU through applied studies in relevant inventory-related science
- Have accepted young scientists from Ukraine, Benin, China, Czech Republic, Belarus, Philippines, Russia, Romania and Ireland/Canada so far
- For details, visit the TFI website
  http://www.ipcc-nggip.iges.or.jp/tsu/tsu-intern.html

Support to Training Programmes on Inventories

- TFI itself does not organize training programmes
- However, it actively provides technical support to those hosted by others through attendance of TSU staff as resource persons, e.g.;
  - ✓ Hands-on training workshop held by UNFCCC Consultative Group of Experts (CGE), for:
    - Latin America and Caribbean region (Santiago, Chile, September 2011)
    - Asia and the Pacific region (Colombo, Sri Lanka, January-February 2012)
    - Africa region (Swakopmund, Namibia, April 2012)
  - ✓ Latin American Workshop on National GHG Inventories Systems (Santiago, Chile, May 2013)
  - ✓ Second FAO Workshop on Statistics for Greenhouse Gas Emissions (Trinidad & Tobago, June 2013)

Future IPCC TFI Products

Methodological Reports

- The TFI is developing two additional methodological reports in response to the invitation from UNFCCC
  - ✓ 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Supplement)
  - ✓ 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol (KP Supplement)
- To complete this work by October 2013

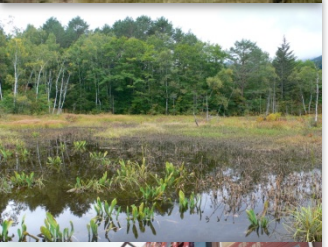
Wetlands Supplement

- To fill gaps in the coverage of wetlands and organic soils in the 2006 IPCC Guidelines
- Four Lead Author (LA) meetings and two rounds of review completed
  - ✓ Government/Expert Review (the second review) completed on 14 April 2013
  - ✓ The 4th LA meeting concluded in Manaus, Brazil on 24 May 2013
- The draft is currently undergoing revision by the authors
- Final Draft will be considered by Governments in August-September 2013 and presented at 37th Session of the IPCC (IPCC37) for adoption and acceptance in October 2013

KP Supplement

- The overall aim of the work is to update and augment the existing Chapter 4 of the *GPG- LULUCF*
- Three LA meetings and two rounds of review completed
  - ✓ Government/Expert Review (the second review) completed on 2 June 2013
  - ✓ The 4th LA Meeting towards producing a Final Draft will take place in Chiang Mai, Thailand in July 2013
- Final Draft will be considered by governments in September 2013 and presented at IPCC37 for adoption and acceptance in October 2013



Thank you

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