IPCC Inventory Software

Virtual presentation

IPCC TFI TSU

ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

Background

- ✓**produced**, since 2012, **by** the **IPCC Task Force on National Greenhouse Gas Inventories** (**IPCC TFI**) **to assist** inventory compilers **in using the 2006 IPCC Guidelines**

- ✓**based on MS-Access for WindowsOS**

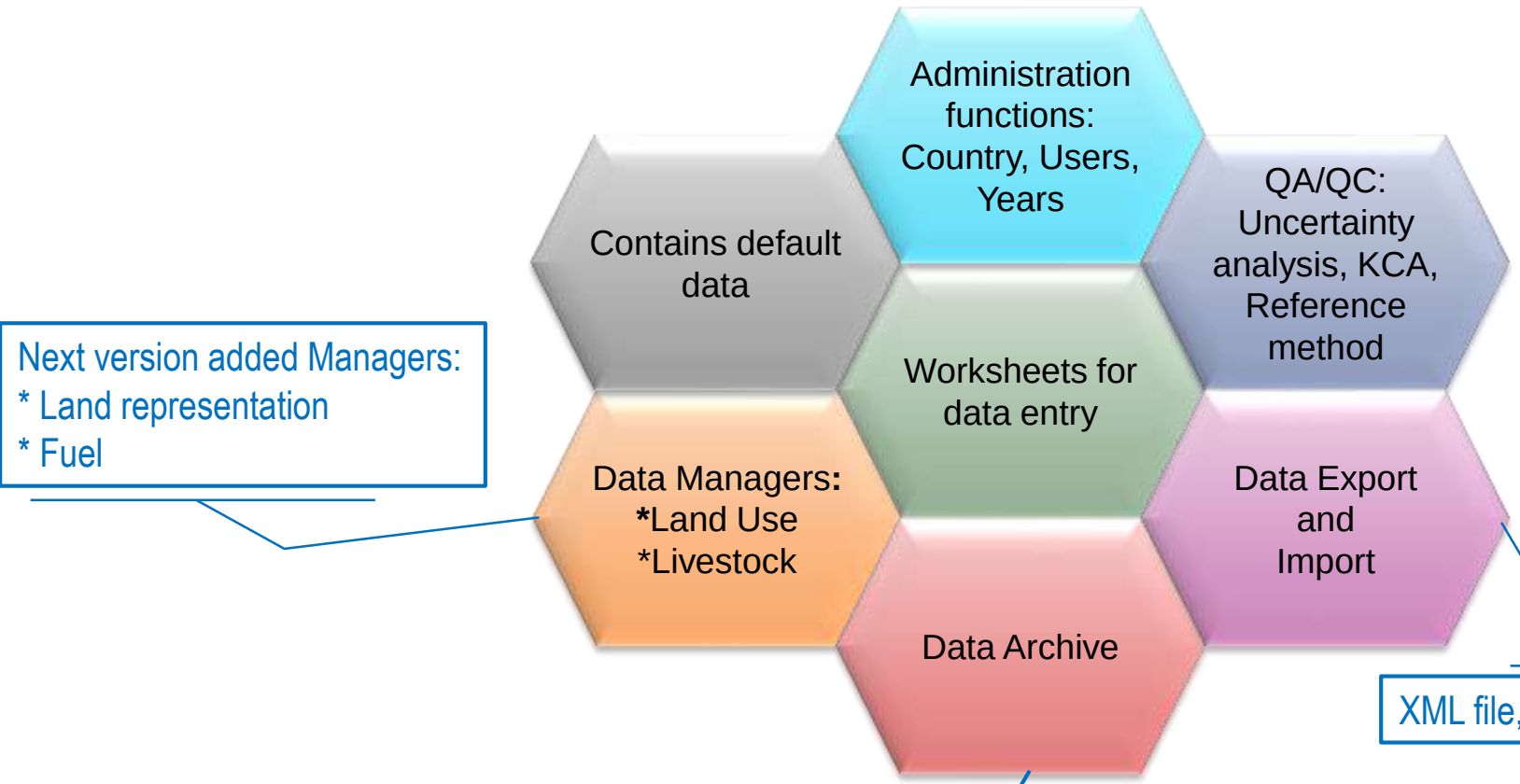
Background

- ✓ Free to use
  (download at https://www.ipcc-nggip.iges.or.jp/software/index.html)
- ✓ Support to users provided by IPCC TFI TSU
- ✓ Plan for updating to full methods/tiers/approaches within the 2006 IPCC Guidelines

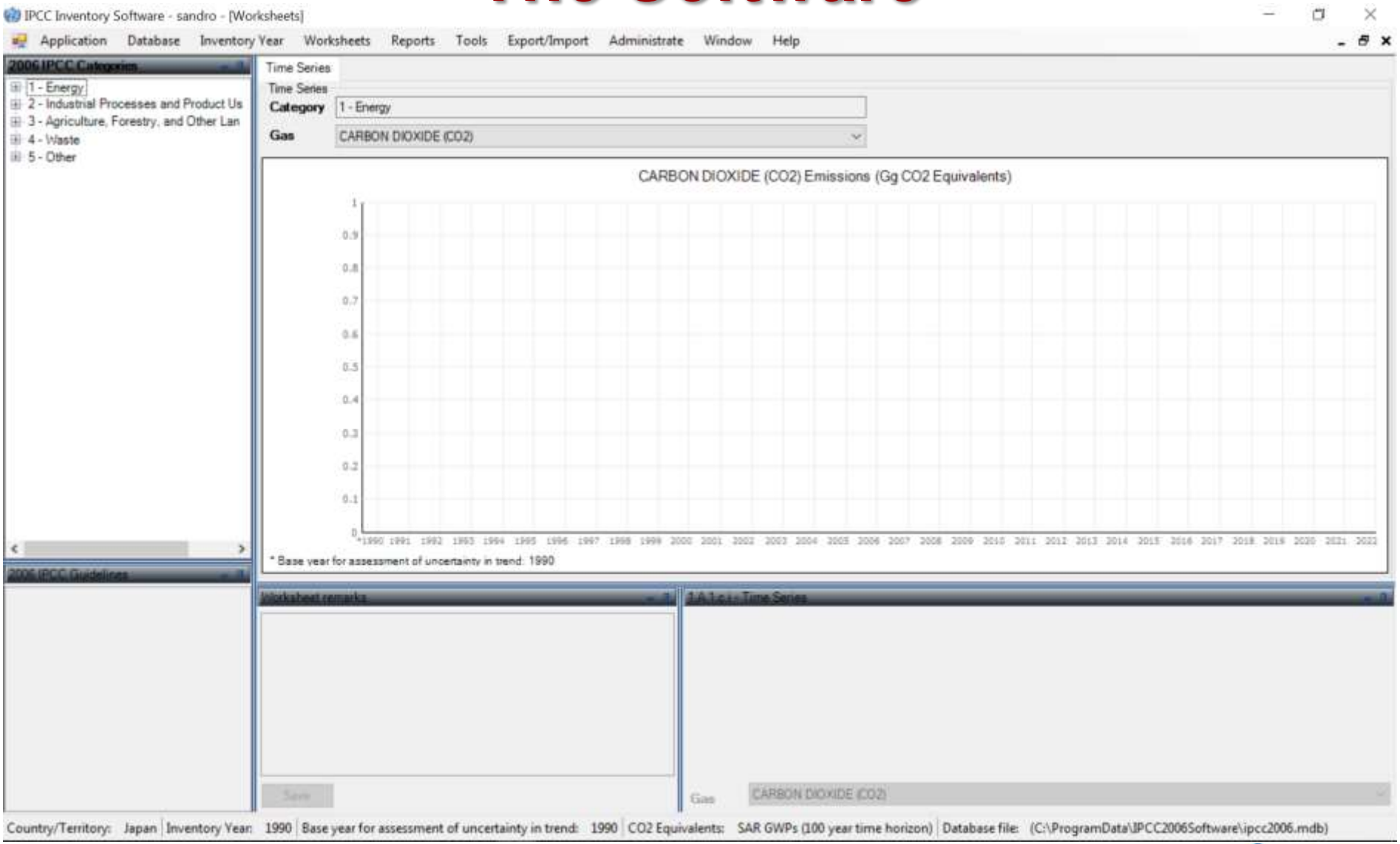
Background

- ✓ originally designed to implement Tier 1 Worksheets only **provides default data from the *2006 IPCC Guidelines***
- ✓ current **version 2.691 allows input** of **user-specific values** for **EFs** and **parameters** (**Tier 2**) for **Energy**, **IPPU**, **Agriculture**, **Waste** categories
- ✓ can be **used for** the **whole inventory or** just **individual categories**
- ✓ **allows different sectors to be developed simultaneously**
- ✓ **can report outputs in non-Annex I National Communications format** *(reporting tables, consistent with Tables 1 and 2 in Annex to Decision 17/CP.8)*

Software Functions



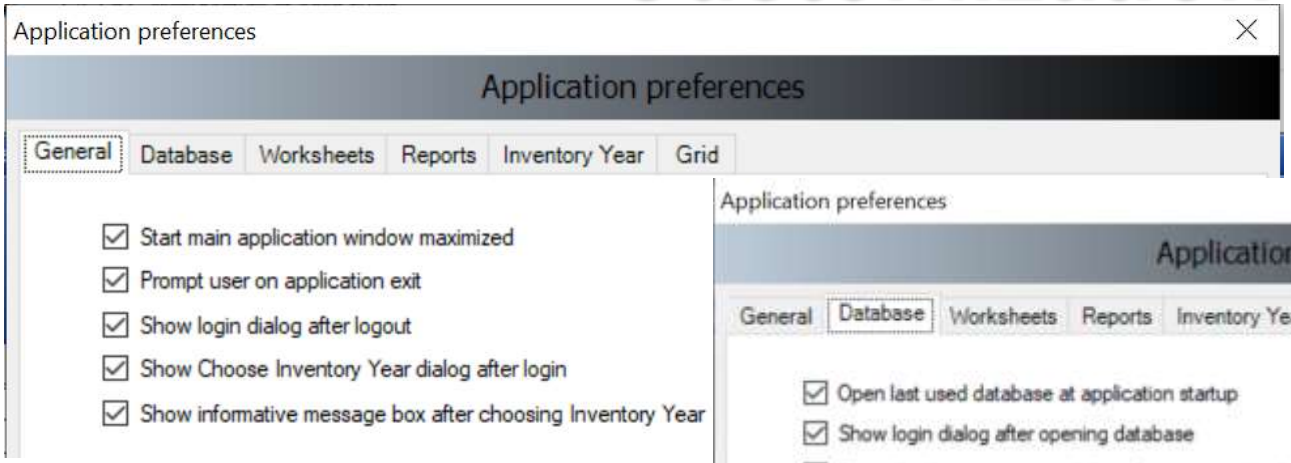
The Software

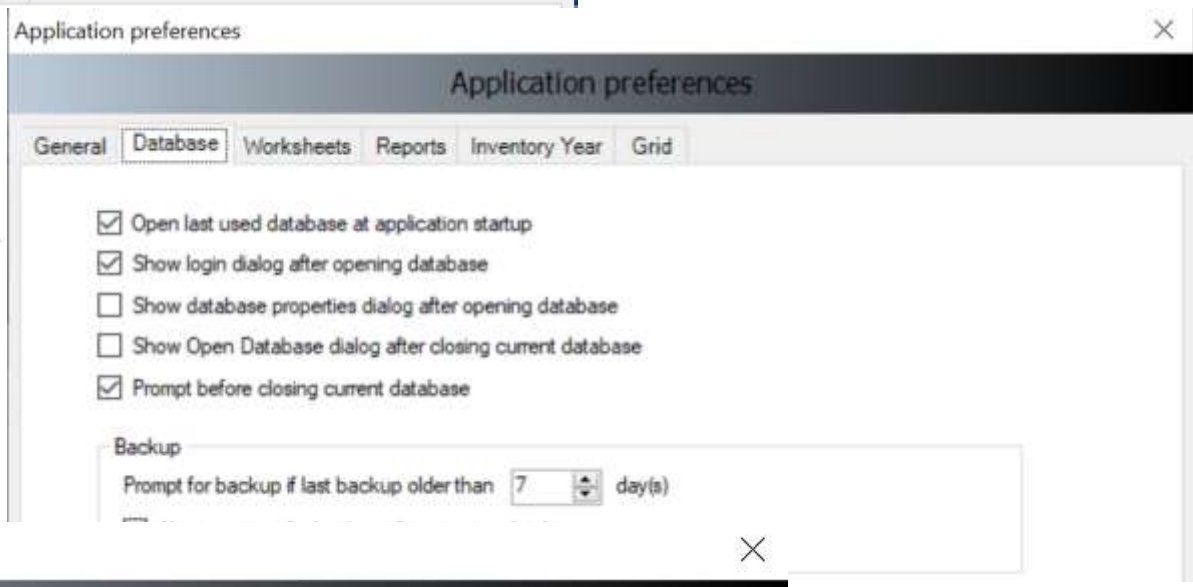


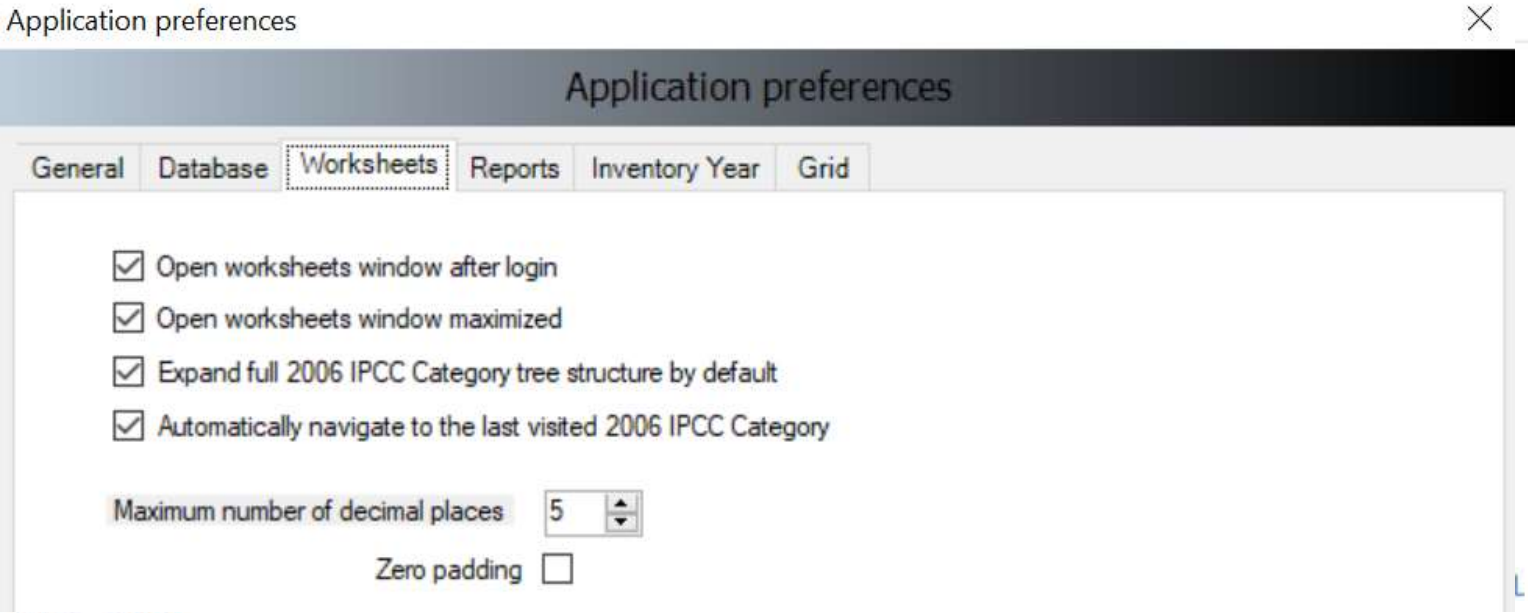
WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Customization



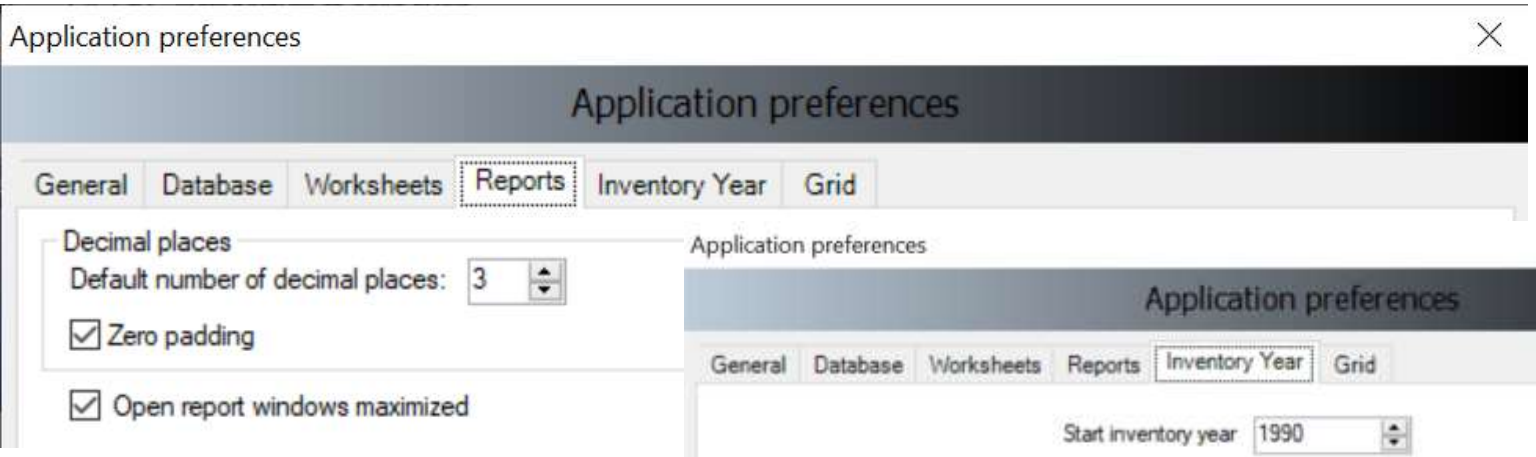


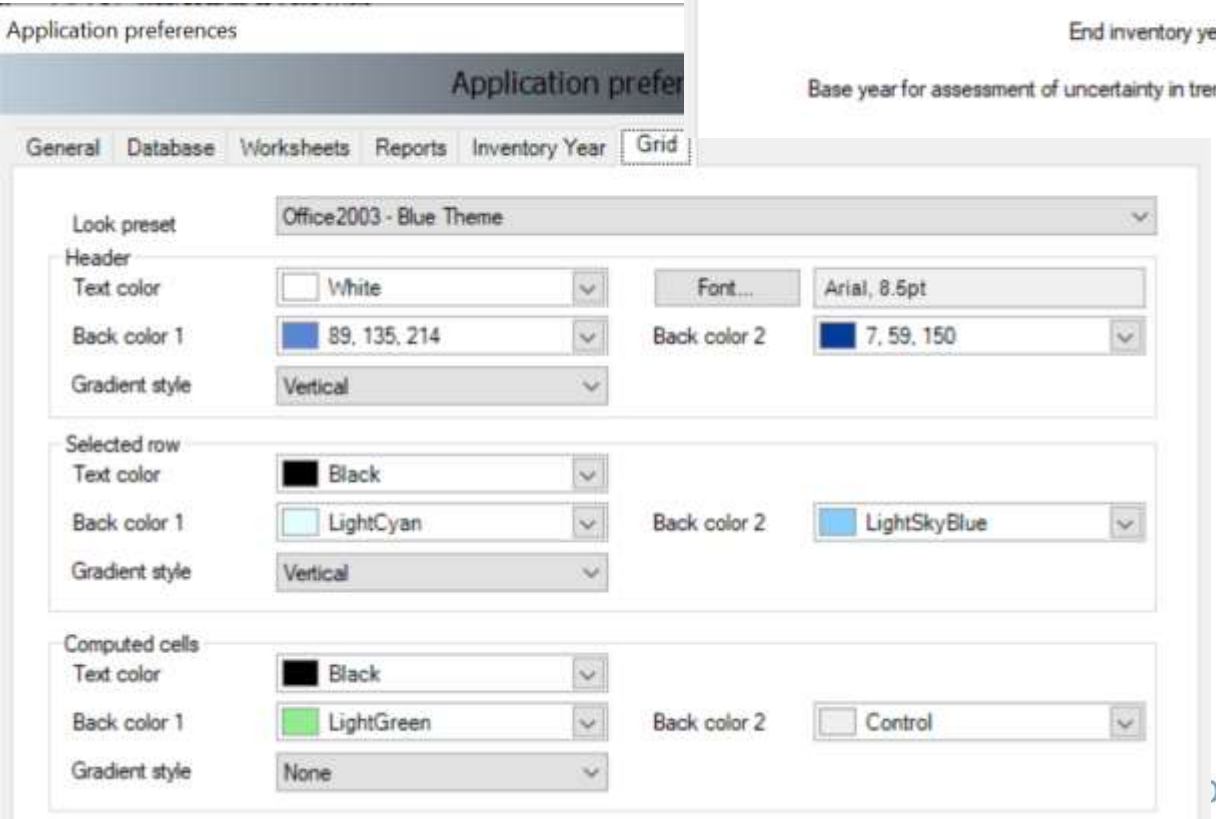


ipcc

L ON climate change

Customization

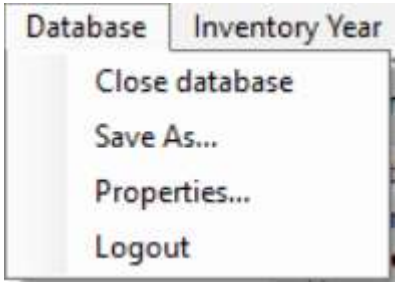


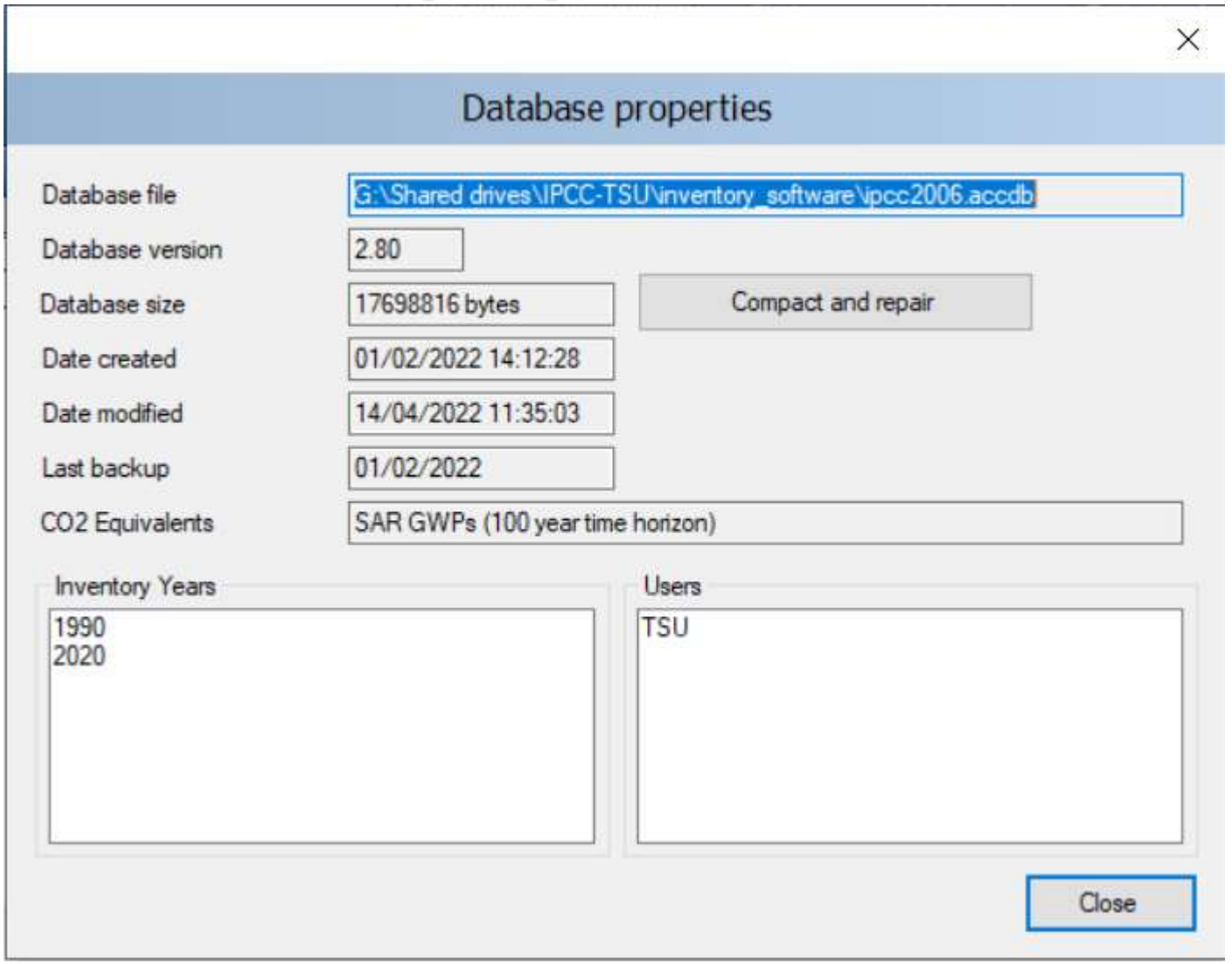


ipcc

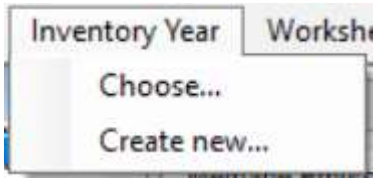
OVERNMENTAL PANEL ON climate change

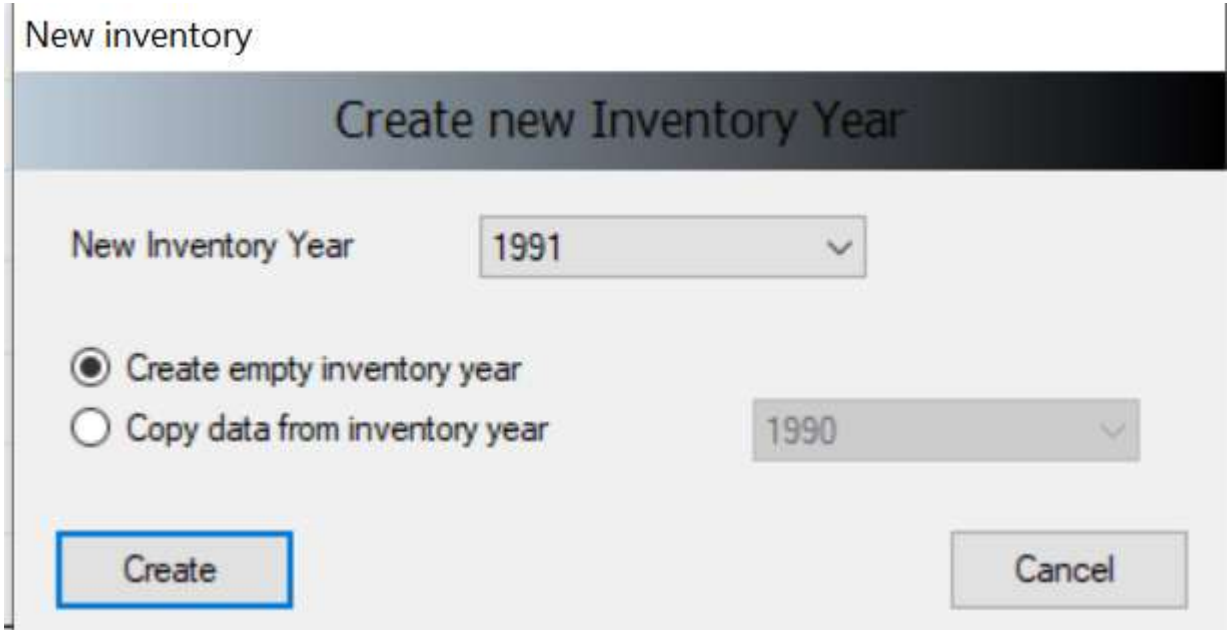
Database properties



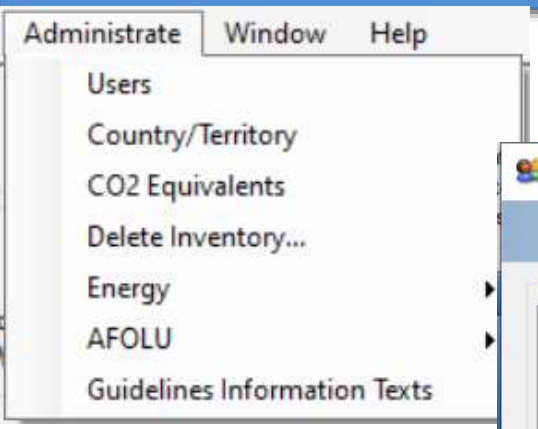


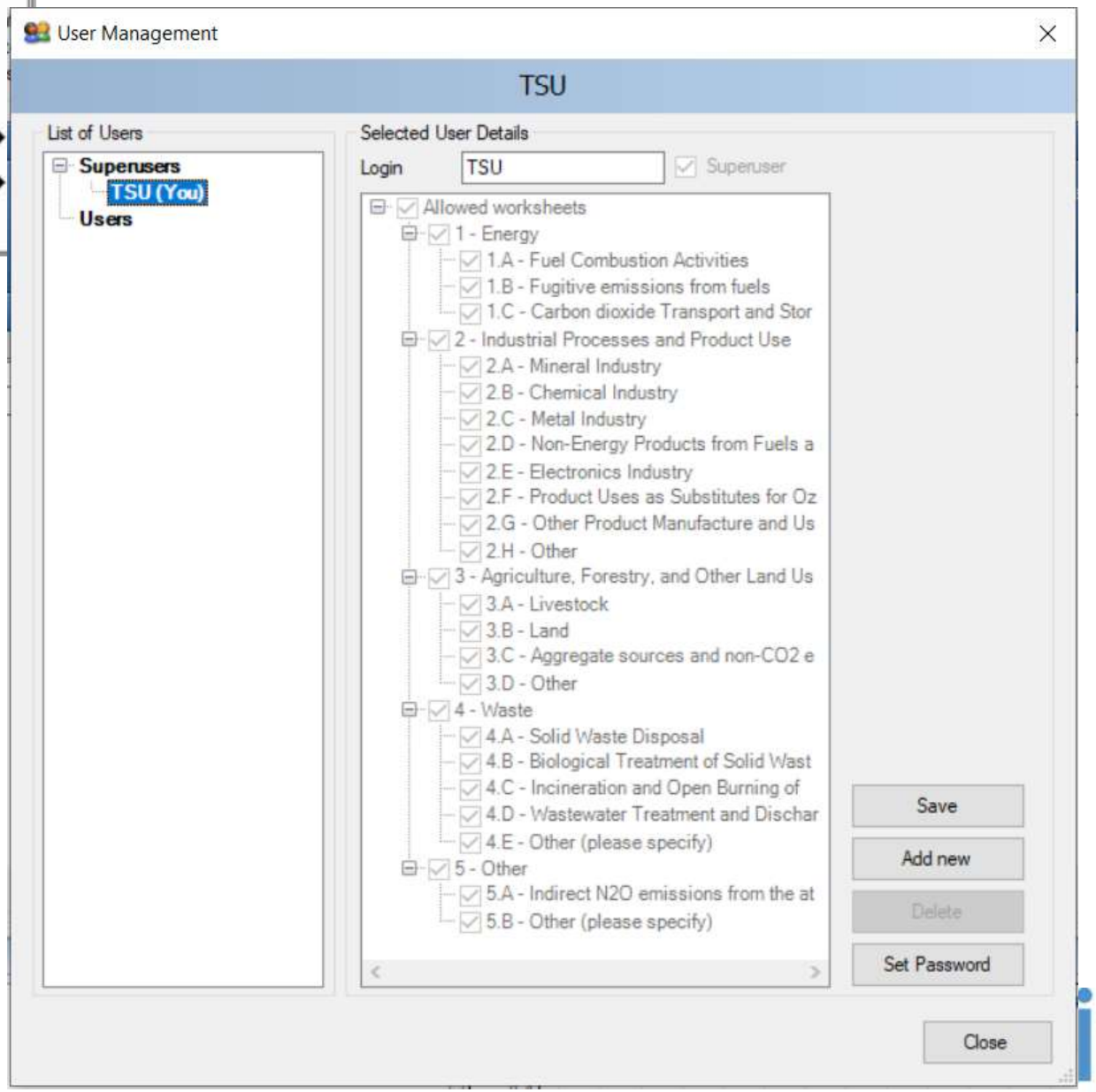
Database properties





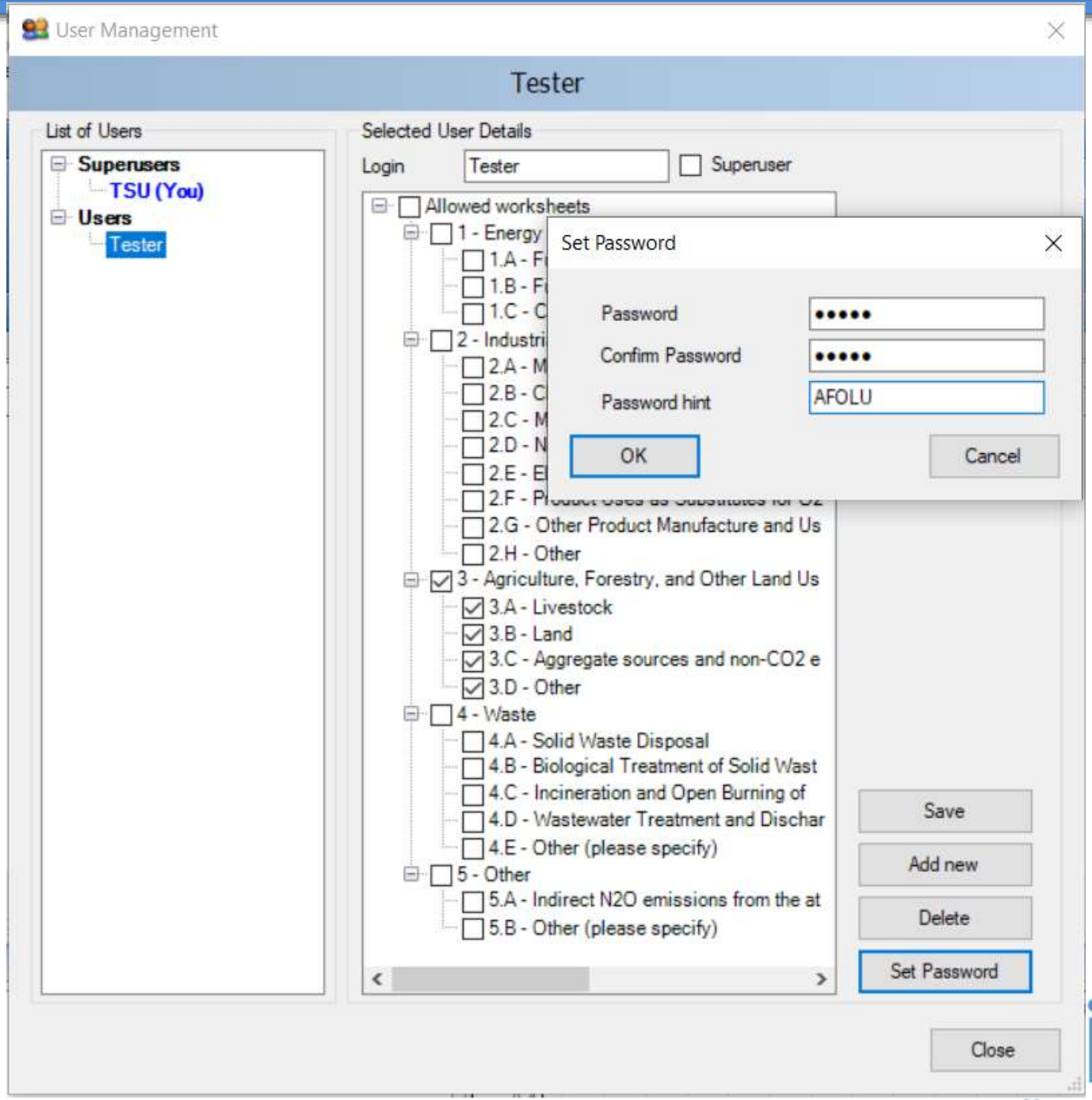
Administrate





WMO UNEP

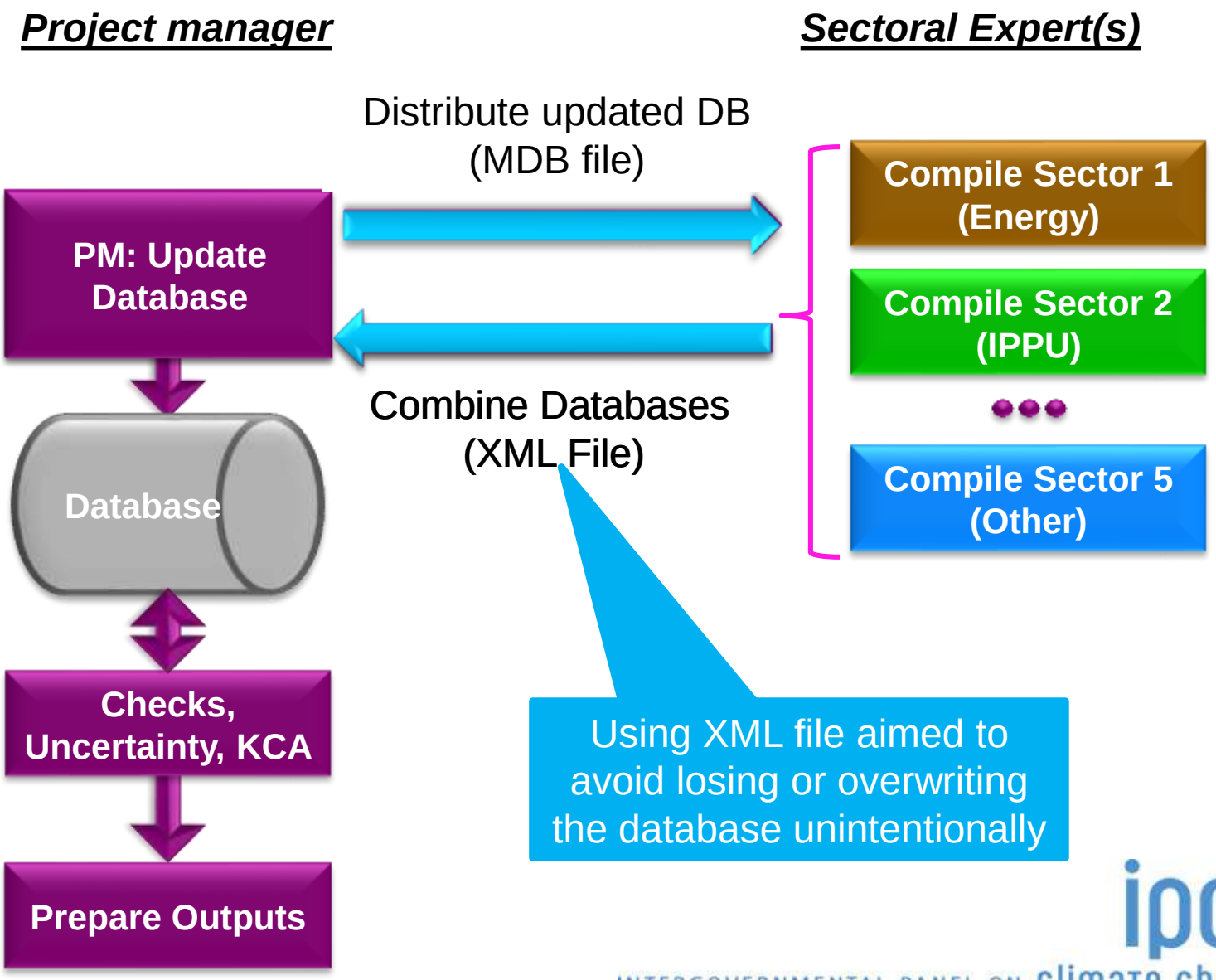
ipcc
INTERGOVERNMENTAL PANEL ON climate change



WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Multiple Users

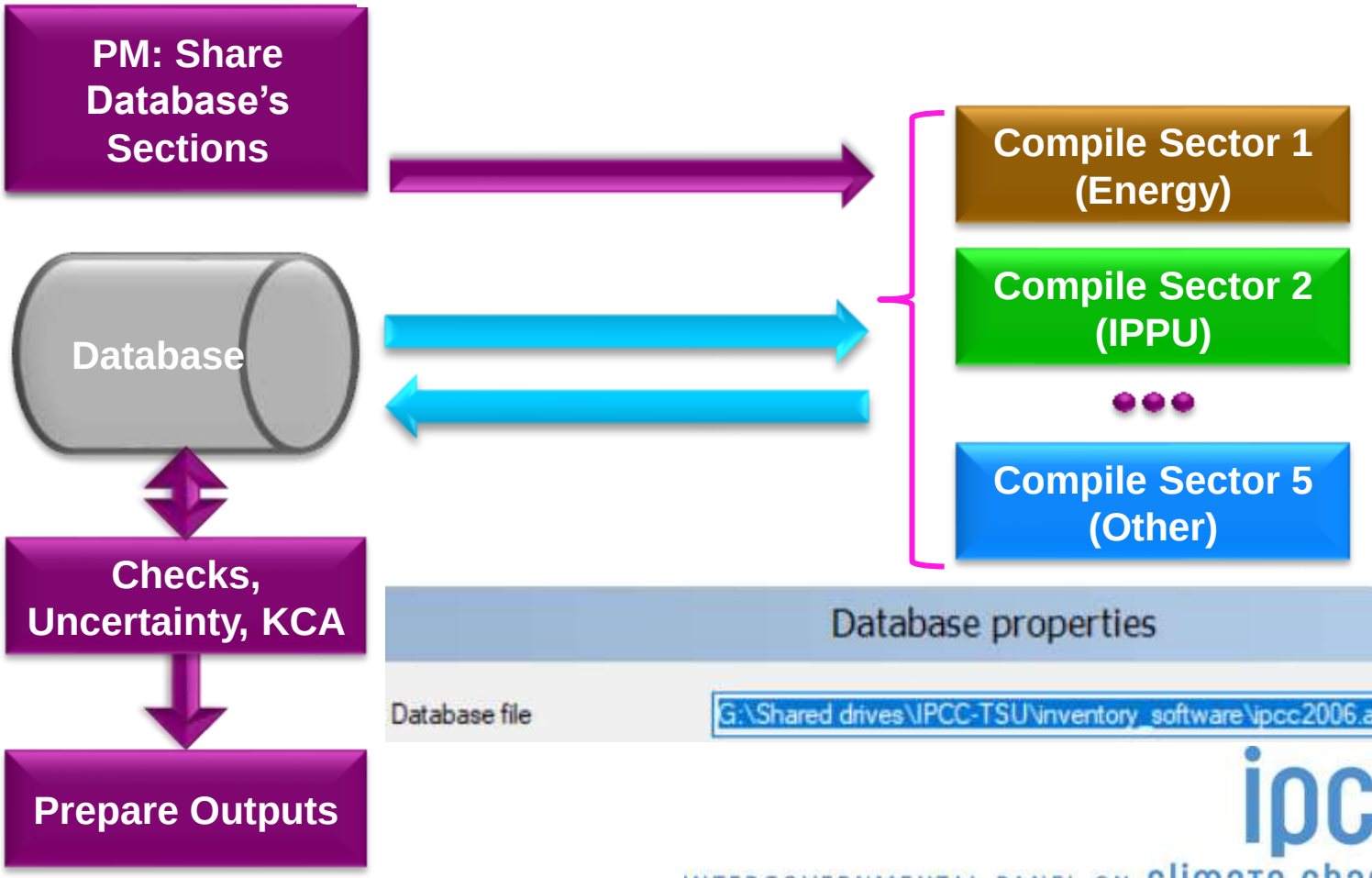


Multiple Users

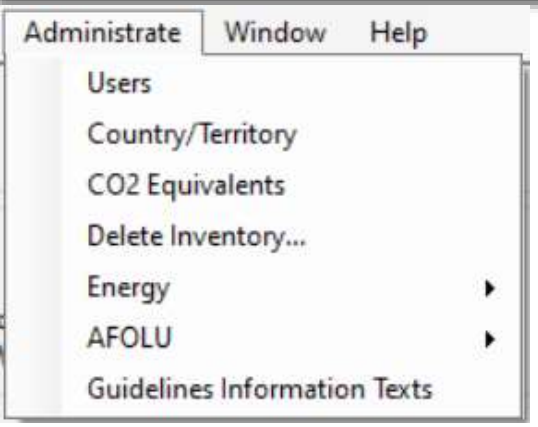
Project manager

Sectoral Expert(s)

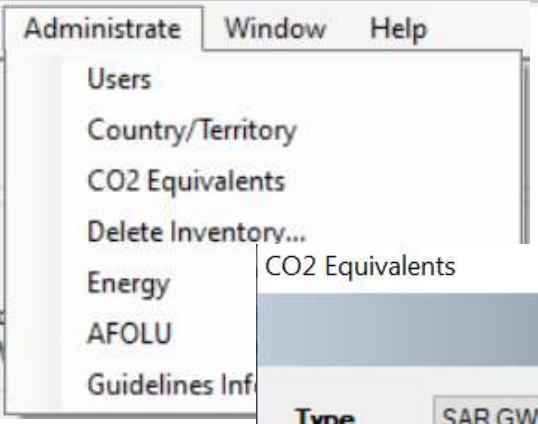
Share Database' sections

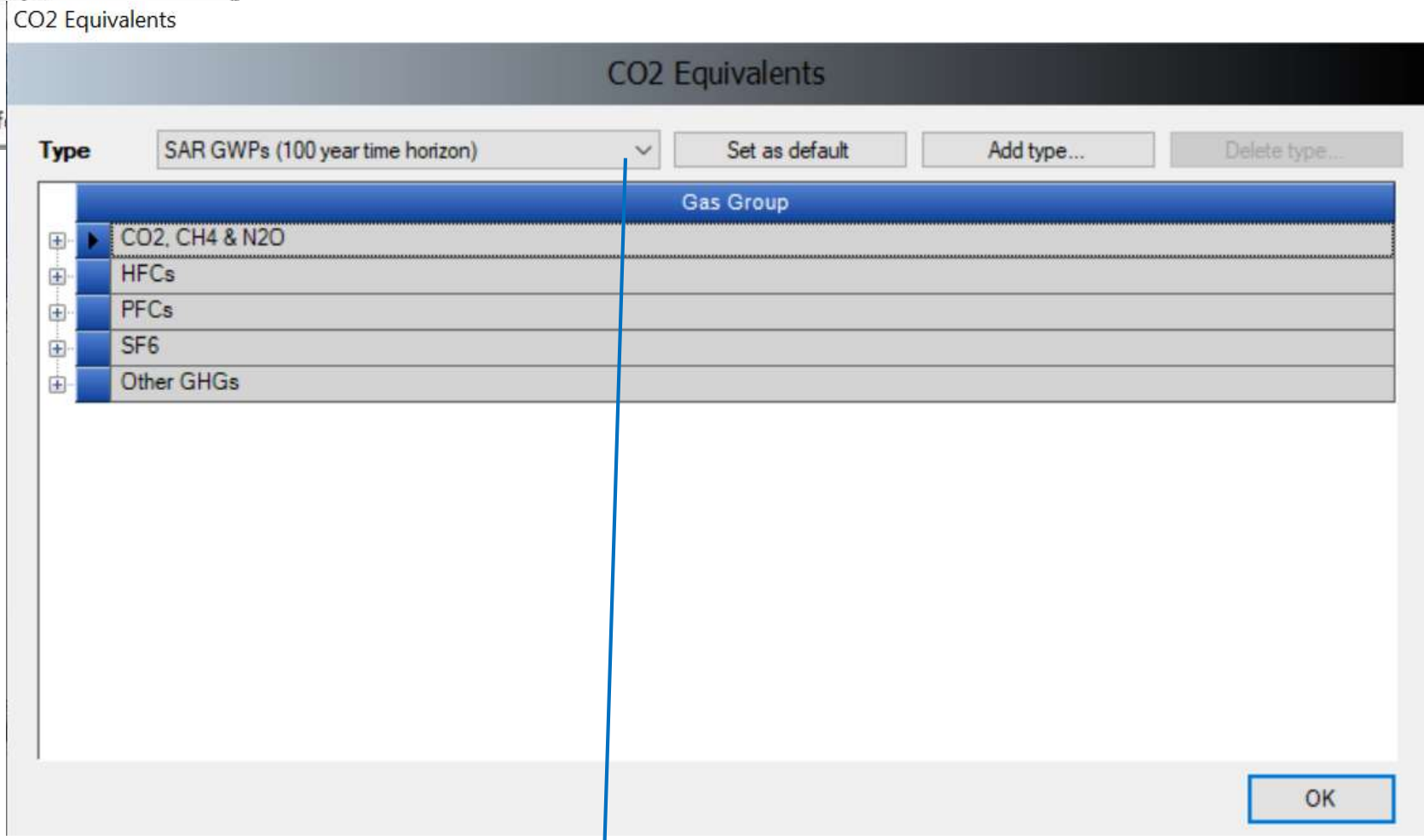


Administrate



Administrate

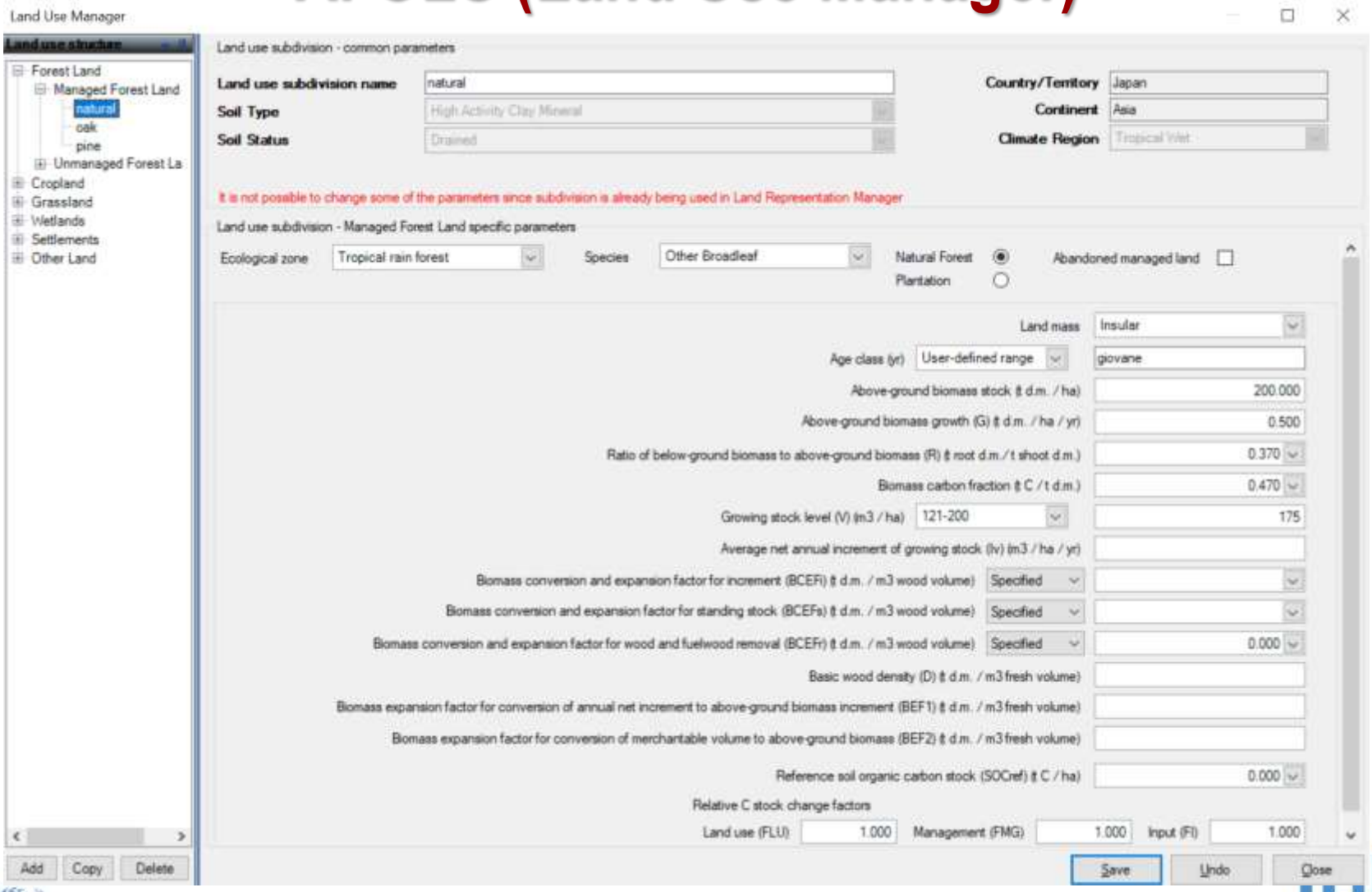




Planned to add AR5 GWP_{100}

Administrate

AFOLU (Land Use Manager)

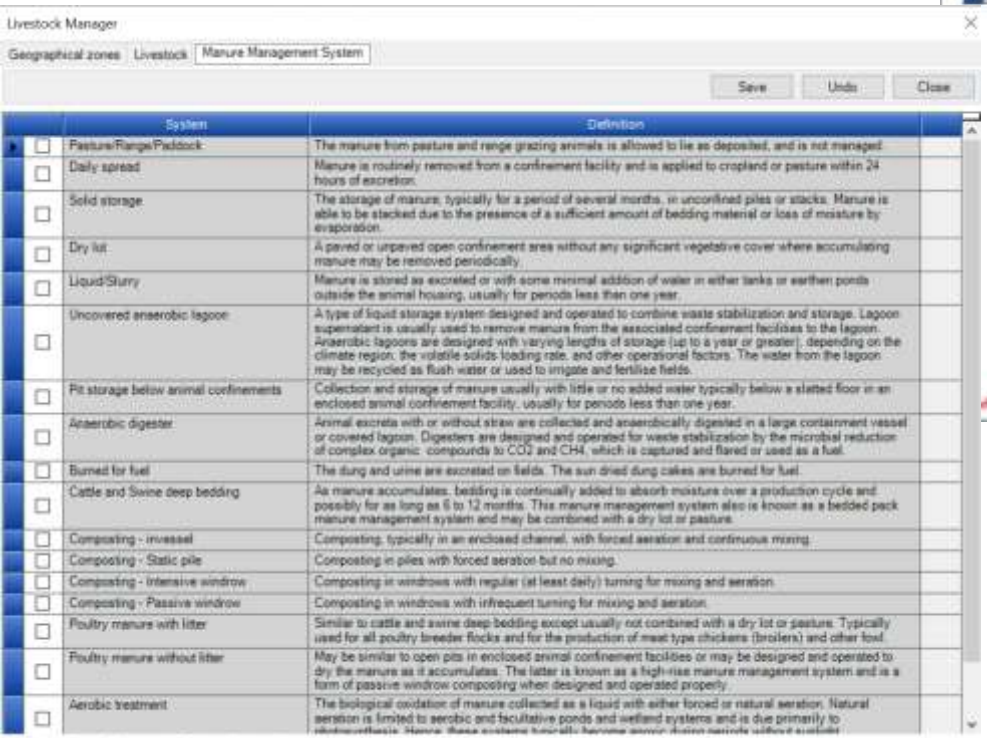


WMO UNEP

INTERGOVERNMENTAL PANEL ON climate change

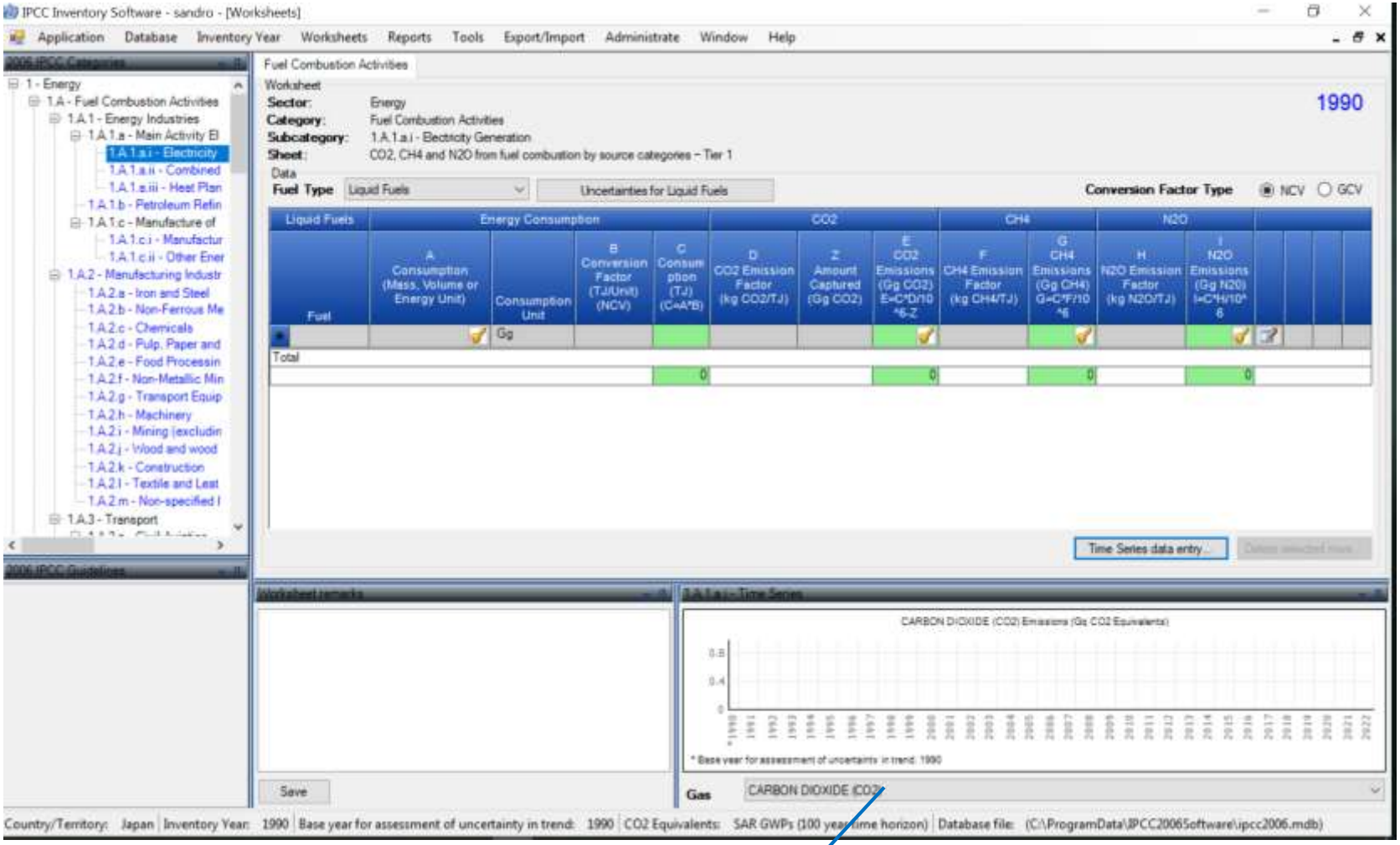
Administrate

AFOLU (Livestock Manager)



ipcc
INTERGOVERNMENTAL PANEL ON climate change

Worksheets

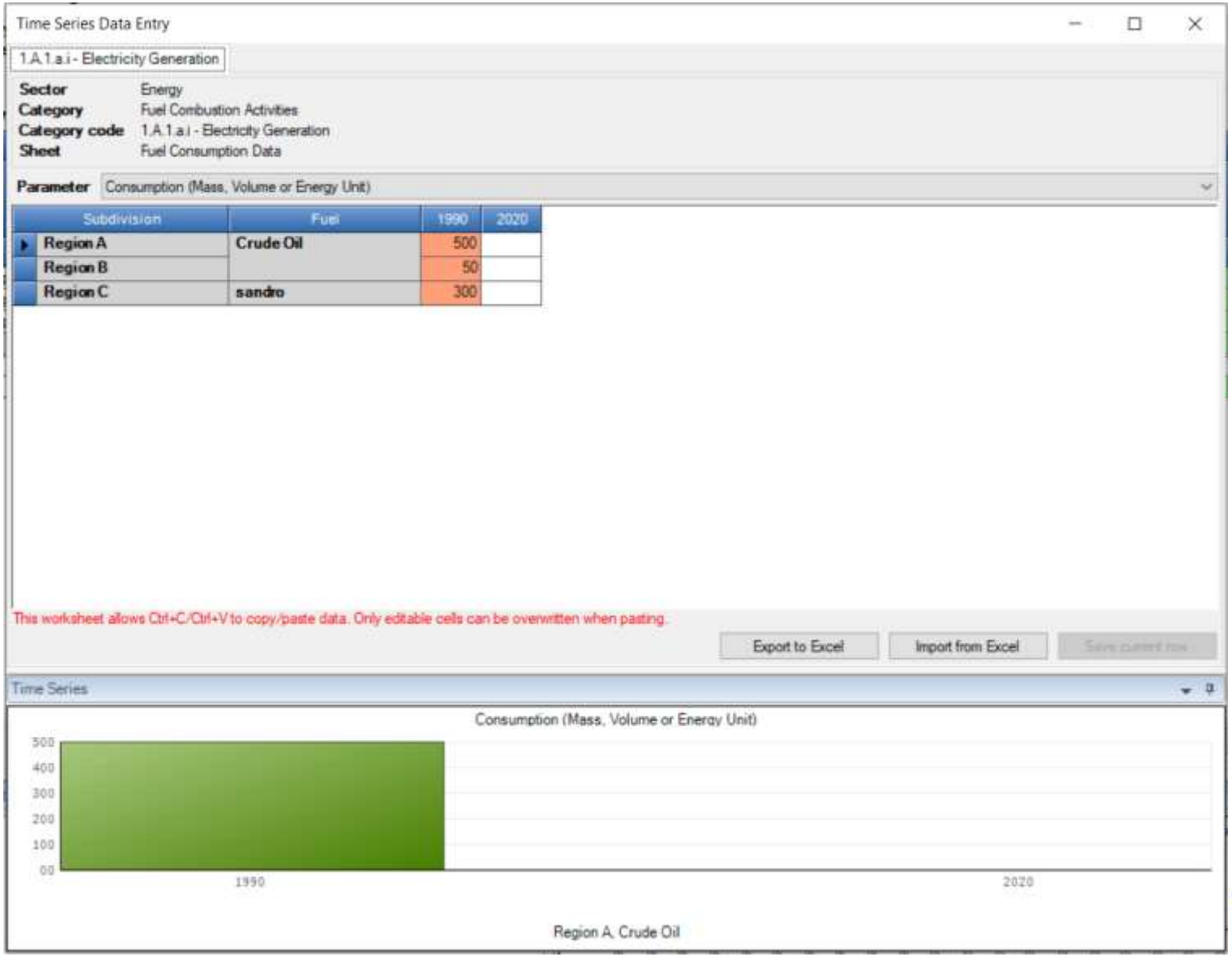


Planned to add an "Documentation Box"

WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

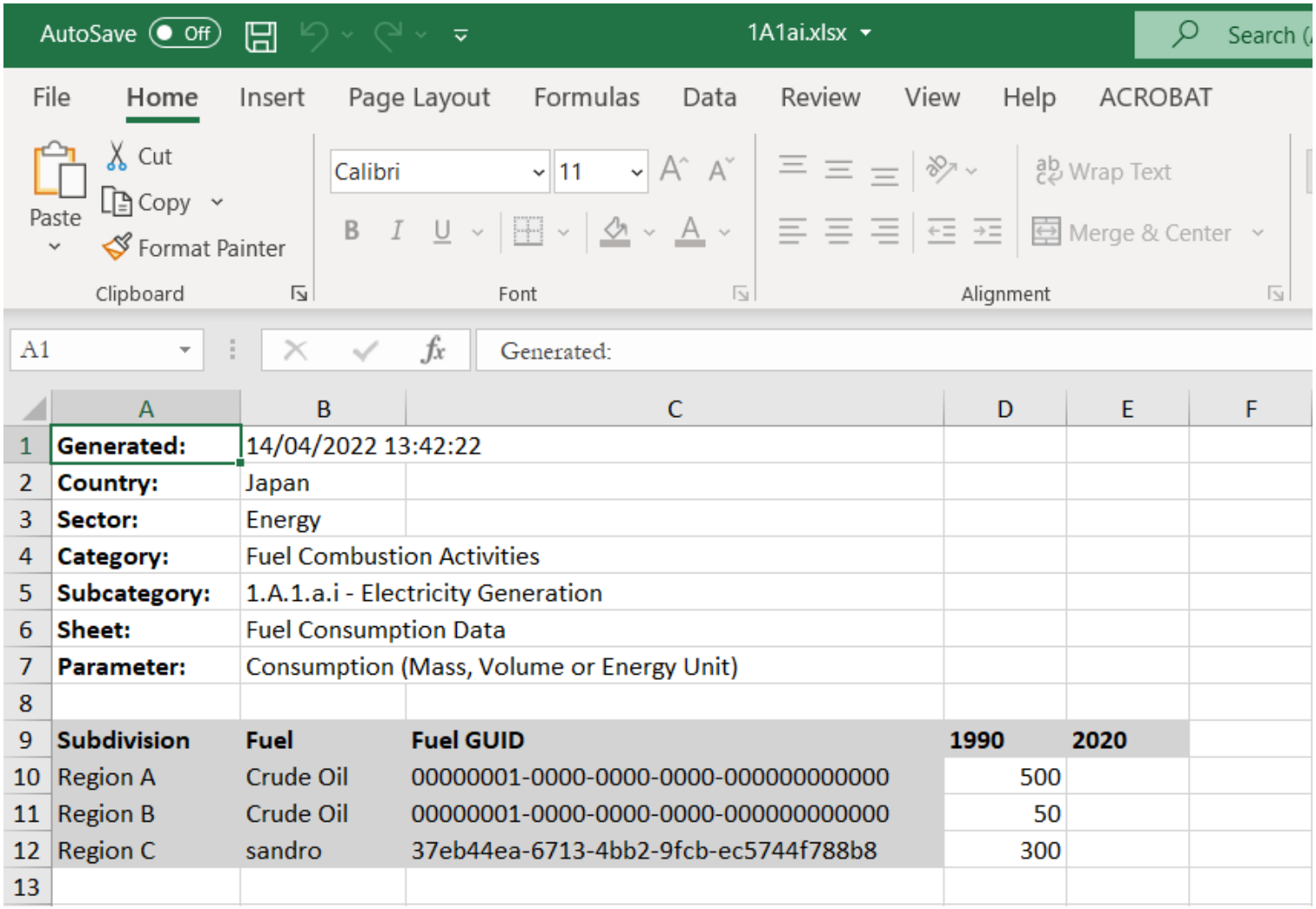
Worksheets (timeseries data entry)



WMO UNEP

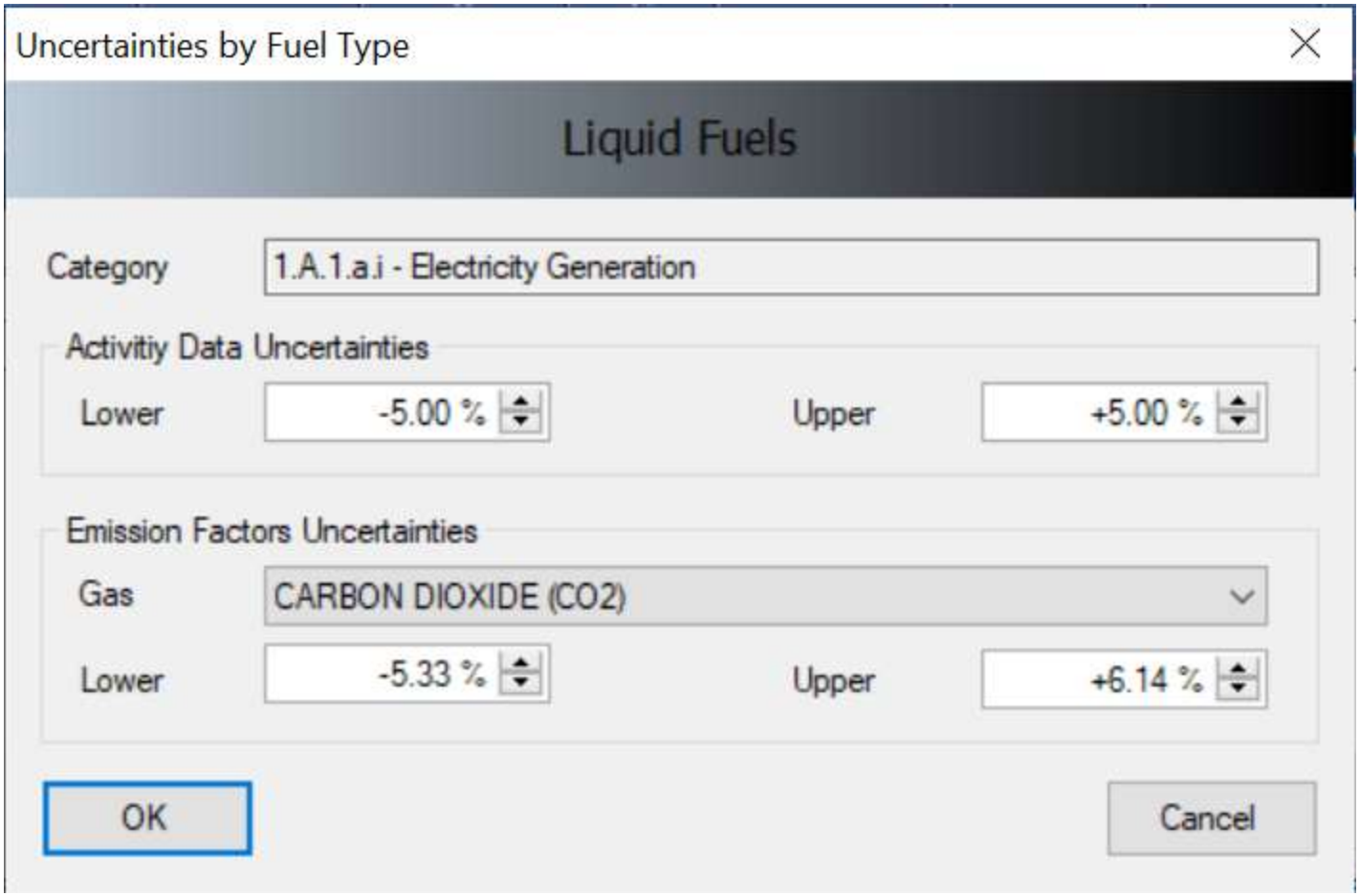
ipcc
INTERGOVERNMENTAL PANEL ON climate change

Worksheets (timeseries data entry)

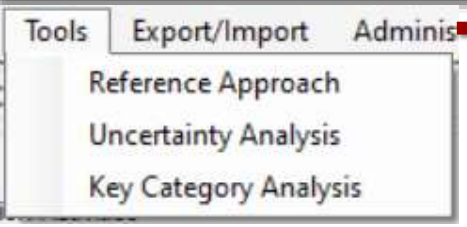


	A	B	C	D	E	F
1	**Generated:**	14/04/2022 13:42:22				
2	**Country:**	Japan				
3	**Sector:**	Energy				
4	**Category:**	Fuel Combustion Activities				
5	**Subcategory:**	1.A.1.a.i - Electricity Generation				
6	**Sheet:**	Fuel Consumption Data				
7	**Parameter:**	Consumption (Mass, Volume or Energy Unit)				
8						
9	**Subdivision**	**Fuel**	**Fuel GUID**	**1990**	**2020**	
10	Region A	Crude Oil	00000001-0000-0000-0000-000000000000	500		
11	Region B	Crude Oil	00000001-0000-0000-0000-000000000000	50		
12	Region C	sandro	37eb44ea-6713-4bb2-9fcb-ec5744f788b8	300		
13						

Worksheets (uncertainties)



Tools (Reference Approach)



IPCC Inventory Software - sandro - [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)

1990

		Step 1						Step 2		Step 3	
		A Production	B Imports	C Exports	D International Bunkers	E Stock change	F Apparent Consumption	G Conversion Factor (TJ/Unit)	H Apparent Consumption (TJ)	I Carbon content (t C/TJ)	J Total Carbon (Gg C)
Fuel Types	Unit						F=A+B-C-D-E		H=F*G		J=H*I/1000
Liquid Fuels: 22 item(s)									0		0
Solid Fuels: 11 item(s)									0		0
Gaseous Fuels: 1 item(s)									0		0
Other Fossil Fuels: 3 item(s)									0		0
Peat: 1 item(s)									0		0
Total									0		0

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

Export to Excel | Import from Excel

Time Series

Emissions (Gg CO2 Equivalents)

Liquid Fuels
Solid Fuels
Gaseous Fuels
Other Fossil Fuels

* Base year for assessment of uncertainty in trend: 1990

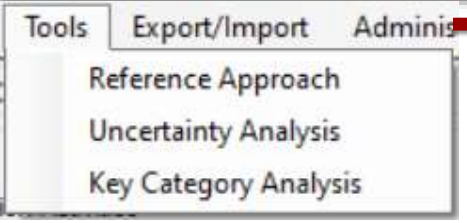
Country/Territory: Japan | Inventory Year: 1990 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file: (C:\ProgramData\IPCC2006Software\ipcc2006.mdb)

Downloadable/Uploadable via excel

WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Tools (Uncertainty Analysis)



IPCC Inventory Software - sandro - [Uncertainty Analysis]

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

Uncertainty Analysis - Approach 1 (Table 3.2)

Base year for assessment of uncertainty in trend 1990 **Year T** 1990

A	B	C	E	F	G	H
2006 IPCC Categories	Gas	Base Year emissions or removals (Gg CO2 equivalent)	Activity Data Uncertainty (%)	Emission Factor Uncertainty (%)	Combined Uncertainty (%)	Contribution to Variance b in Year T
1.A - Fuel Combustion Activities						
1.A.3.b.vi - Urea-based catalysts	CO2	0.000	0.000	0.000	0.000	
1.B.1 - Fugitive Emissions from Fuels - Solid Fuels						
1.B.1.a.i.1 - Mining	CO2	0.000	0.000	0.000	0.000	
	CH4	0.000	0.000	0.000	0.000	
1.B.1.a.i.2 - Post-mining seam gas emissions	CO2	0.000	0.000	0.000	0.000	
	CH4	0.000	0.000	0.000	0.000	
1.B.1.a.i.3 - Abandoned underground mines	CH4	0.000	5.000	0.000	5.000	
1.B.1.a.i.4 - Flaring of drained methane or conversion of methane to CO2	CH4	0.000	5.000	0.000	5.000	
	CO2	0.000	5.000	0.000	5.000	
1.B.1.a.ii.1 - Mining	CO2	0.000	0.000	0.000	0.000	
	CH4	0.000	0.000	0.000	0.000	
1.B.1.a.ii.2 - Post-mining seam gas emissions	CO2	0.000	0.000	0.000	0.000	
	CH4	0.000	0.000	0.000	0.000	
1.B.2 - Fugitive Emissions from Fuels - Oil and Natural Gas						
1.C - CO2 Transport Injection and Storage						
1.C.1.a - Pipelines	CO2	0.000	0.000	0.000	0.000	
1.C.1.b - Ships	CO2	0.000	0.000	0.000	0.000	
1.C.1.c - Other (please specify)	CO2	0.000	0.000	0.000	0.000	
1.C.2.a - Injection	CO2	0.000	0.000	0.000	0.000	

Number of decimal places 3 Zero padding | Refresh Data | Export to Excel

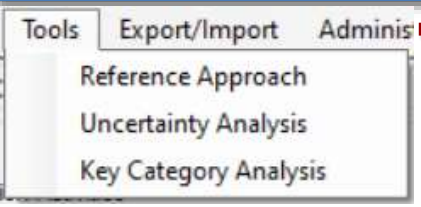
Documentation box | Save

Country/Territory: Japan | Inventory Year: 1990 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file: (C:\ProgramData\IPCC2006Software\ipcc2006.mdb)

Downloadable via excel

WMO UNEP

ipcc INTERGOVERNMENTAL PANEL ON climate change



Tools (Key Category Analysis)

IPCC Inventory Software - sandro - [Key Category Analysis]

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

Approach 1: Level Assessment | Approach 1: Trend Assessment

A	B	C	D	E	F	G
IPCC Category code	IPCC Category	Greenhouse gas	1990 Ex,t (Gg CO2 Eq)	|Ex,t| (Gg CO2 Eq)	Lx,t	Cumulative Total of Column F
3.B.1.a	**Forest land Remaining Forest land**	**CARBON DIOXIDE (CO2)**	**-2.47902**	**2.47902**	**1**	**1**
1.A.1	Energy Industries - Liquid Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Energy Industries - Solid Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Energy Industries - Gaseous Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Energy Industries - Other Fossil Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Energy Industries - Peat	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Energy Industries - Biomass	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
1.A.2	Manufacturing Industries and Construction - Liquid Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Manufacturing Industries and Construction - Solid Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Manufacturing Industries and Construction - Gaseous Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1
		NITROUS OXIDE (N2O)	0	0	0	1
	Manufacturing Industries and Construction - Other Fossil Fuels	CARBON DIOXIDE (CO2)	0	0	0	1
		METHANE (CH4)	0	0	0	1

Refresh Data | Export to Excel

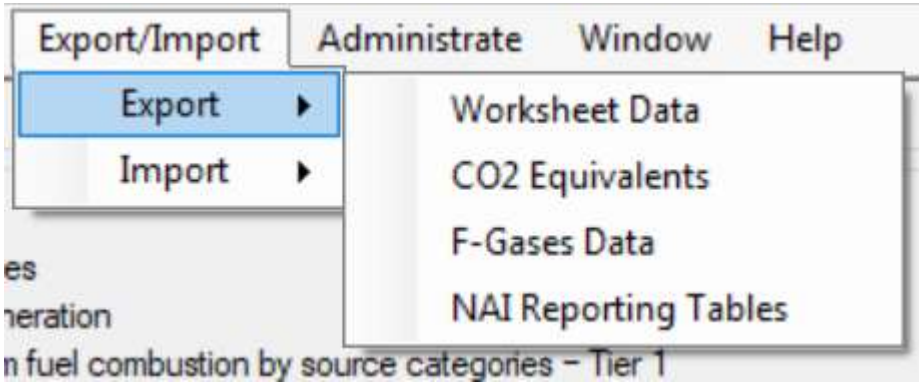
Country/Territory: Japan | Inventory Year: 1990 | Base year for assessment of uncertainty in trend: 1990 | CO2 Equivalents: SAR GWPs (100 year time horizon) | Database file: (C:\ProgramData\IPCC2006Software\ipcc2006.mdb)

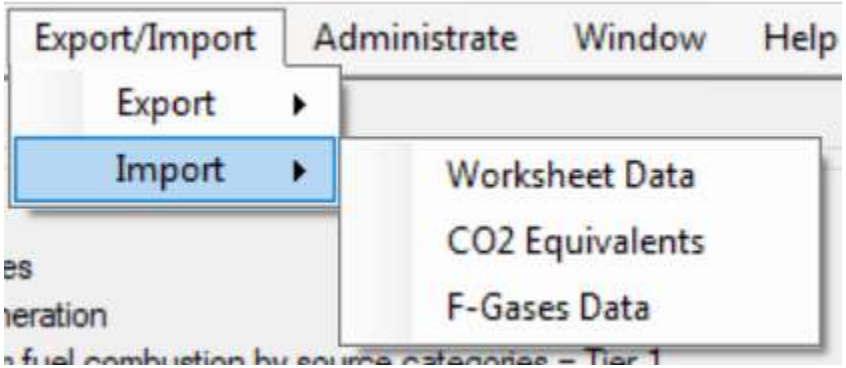
Downloadable via excel

WMO UNEP

ipcc INTERGOVERNMENTAL PANEL ON climate change

Export/Import

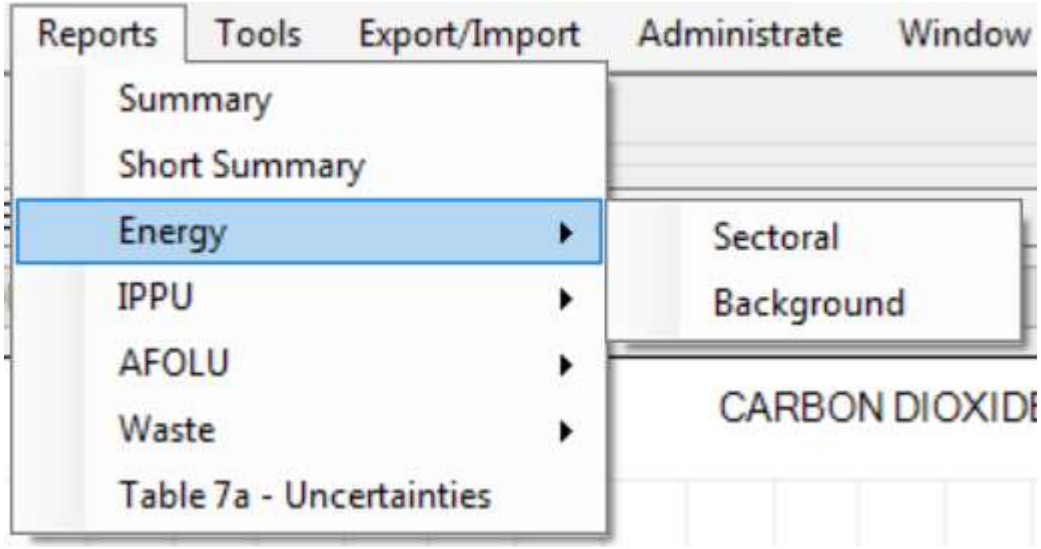




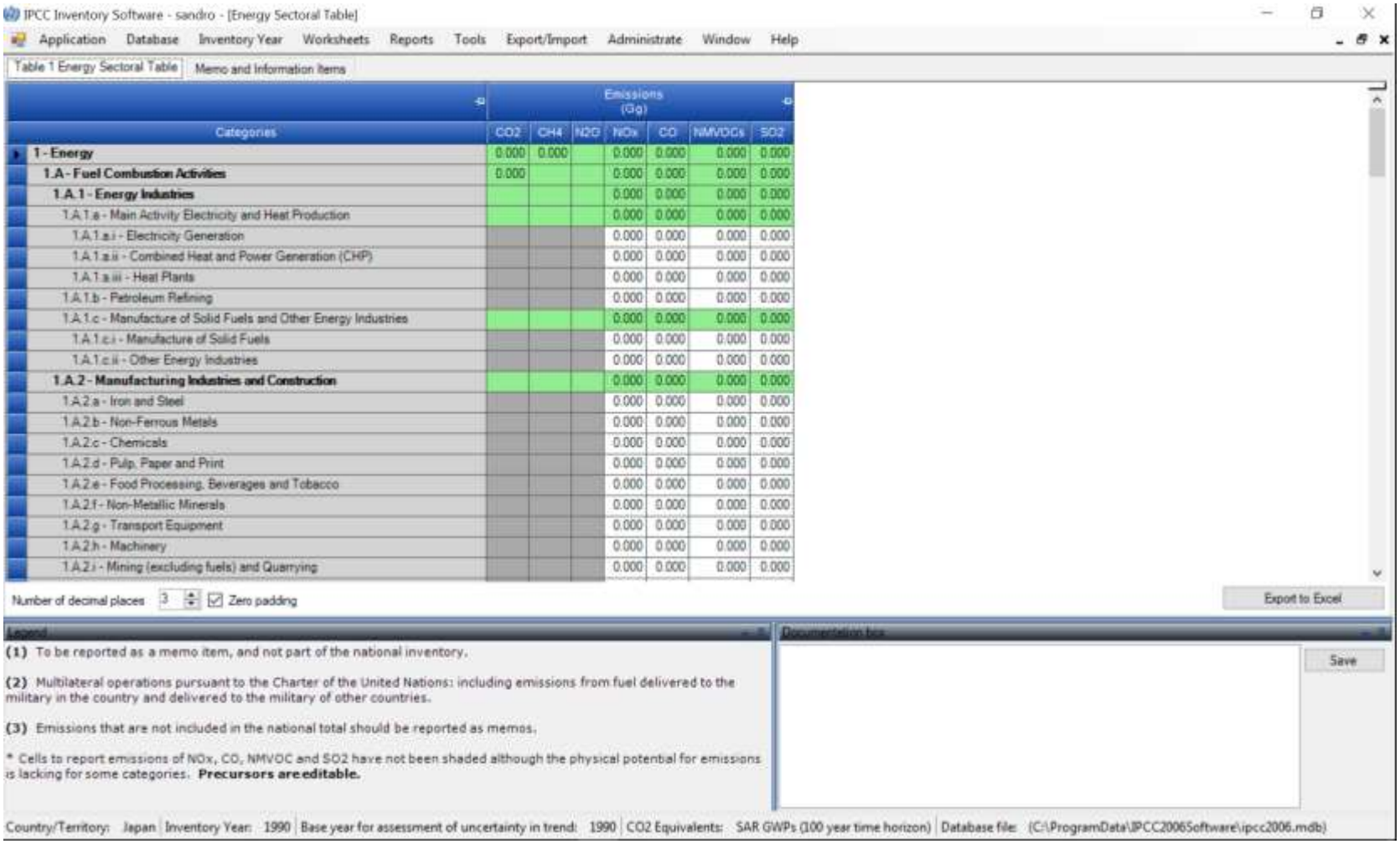
as XML files

but NAI excel file

Reporting


Reports
Tools
Export/Import
Administrate
Window
Summary
Short Summary
Energy
IPPU
AFOLU
Waste
Table 7a - Uncertainties
Sectoral
Background
CARBON DIOXIDE

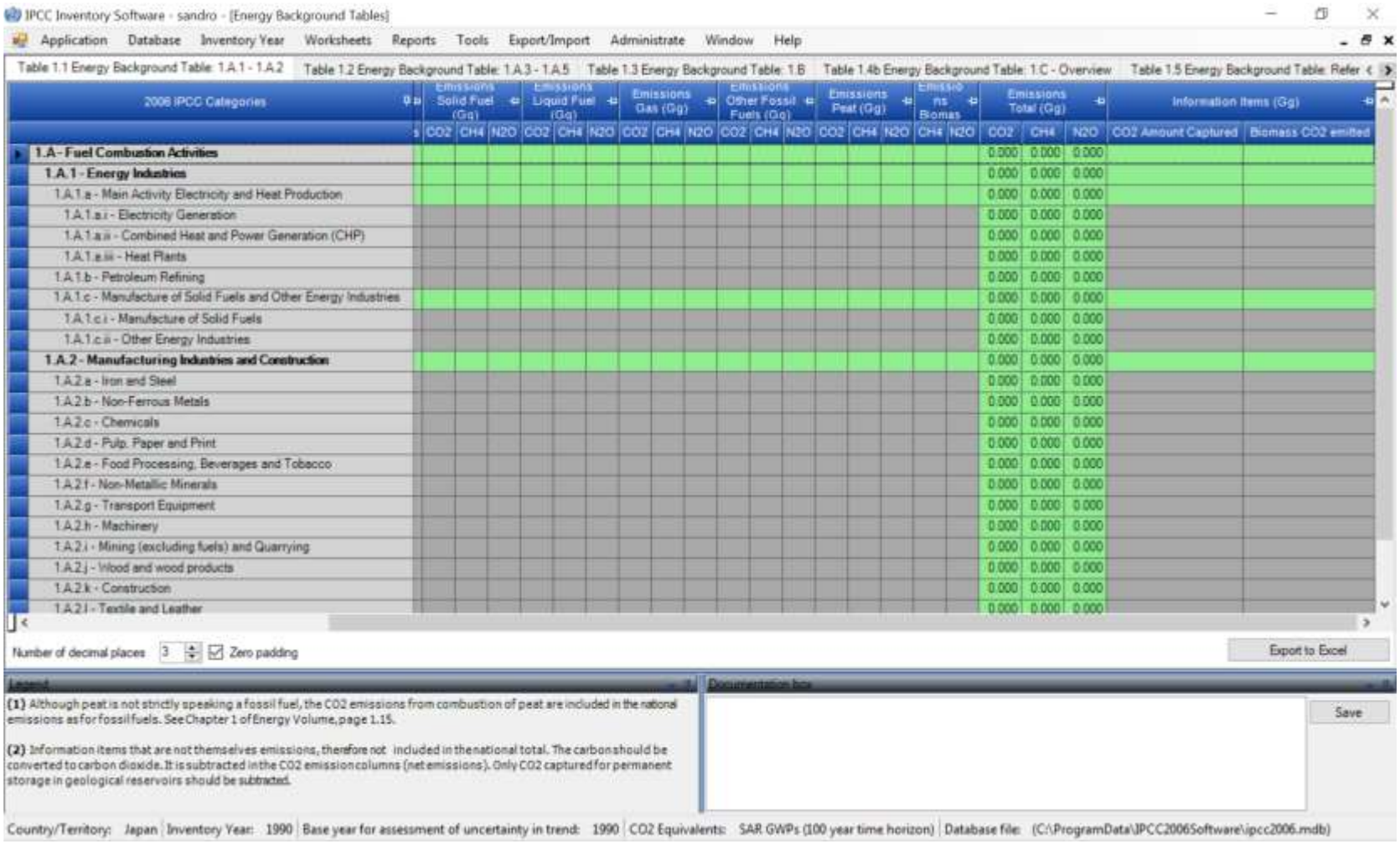
Reporting (sectoral)



WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Reporting (background)



WMO UNEP

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Reporting

Main Menu
→ Report

Report	Level	Contents
Summary (IPCC)	1.A.1	Emissions/Removals
Short summary (IPCC)	1.A	Emissions/Removals
Sectoral (IPCC)	1.A.1.a.ii (most disaggregated level)	Emissions/Removals
Background (IPCC)	1.A.1.a.ii (most disaggregated level)	AD, Emissions/Removals

Main Menu
→ Export

Report	Level	Contents
NAI 1 & 2 (UNFCCC 17/CP.8)	1.A.1	Emissions/Removals

Note: *All reports can be exported as MS Excel file*

Upgrades

- **Implementation** of all **IPCC Tiers and Approaches** provided in the **2006 IPCC Guidelines** and its **Wetlands Supplement**
  - ✓ **AFOLU & ENERGY sectors**: *work completed*
  - ✓ **IPPU & WASTE sectors**: *software upgrade ongoing*
  - ✓ **Uncertainty Analysis**: *Approaches 1&2 specification drafting*
  - ✓ **Key Category Analysis**: *Approach 2 planned*
  - ✓ **Subnational disaggregation of categories** (e.g. federal states inventories): *AFOLU & ENERGY sectors completed*; *IPPU and WASTE software upgrade ongoing*
  - ✓ **Indirect CO_2 & N_2O emissions**: *specification drafting*

Upgrades

- Other Upgrades
  - ✓ AR5 GWP_{100}:
  - ✓ Time series export/import:
  - ✓ Interoperability with the UNFCCC CRT Reporter
  - ✓ Multi-users at category level:
  - ✓ New version check button:
  - ✓ Translation into the 5 non-English UN languages

COP26 - 5/CMA3 decision

Interoperability between the IPCC Inventory Software and the UNFCCC Common Reporting Tables (CRT) reporting software:

- requests the secretariat to provide training and advice to developing country Parties on the use of the reporting tools and to provide technical support to these countries, including those that use the Intergovernmental Panel on Climate Change inventory software, to the extent possible, on integrating the reporting tools into their national greenhouse gas inventory arrangements [paragraph 16]
- requests the secretariat to facilitate interoperability between the reporting tools and the Intergovernmental Panel on Climate Change inventory software [paragraph 19]
- invites the Intergovernmental Panel on Climate Change to engage in the work referred to in paragraph 19 above [paragraph 20]

Supporting Tools

Excel-based tool:

- HWP excel-based tool for data retrieval from FAOSTAT website and upload to the IPCC Inventory Software
- Data compilation of land representation and upload to the IPCC Inventory Software

Guidebook for inventory compilers

- ✓ To be produced sector by sector
- ✓ All UN languages
- ✓ Simulating the use of the software for each inventory category, providing most relevant references to good practice from the 2006 IPCC Guidelines and its Supplements

Supporting Tools

Add-ons for Land Representation:

- **based on wall-to-wall data collection and analysis (maps),**
  Under development by FAO SEPAL Team

  based on sampling data collection and analysis (inventories)
  Under development through FAO-COLLECT EARTH customization

Connection with the IPCC Emission Factors DataBase

Support

TSU is supporting the IPCC Inventory Software

- ✓ **User Manual**
- ✓ **Help Desk E-mail** ipcc-software@iges.or.jp
- ✓ **Pool of voluntary testers, to support software development and use**
- ✓ **Annual meeting on feedbacks** from software users, including **issues where support is needed or a software improvements is envisaged**

Thank you

https://www.ipcc-nggip.iges.or.jp/index.html

ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP