## ANNEX 8A.2

## **REPORTING TABLES**

Year of the Inventory	
Contact Name	
Country	
Organisation	
Address	
Phone	
Fax	
e-mail	

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#### Table A Summary Table (1 of 6) (Updated)

Catego	ories	Net CO <sub>2</sub> (1) (2)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors <sup>(3)</sup>	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors (4)	NOx	со	NMVOCs	SO <sub>2</sub>
			(Gg)			CC	<sub>2</sub> equiva	lents (Gg	)	(Gg)		(	Gg)	
Total N	lational Emissions and Removals													
1 ENE	RGY													
1A	Fuel Combustion Activities													
1A1	Energy Industries													
1A2	Manufacturing Industries and Construction													
1A3	Transport													
1A4	Other Sectors													
1A5	Non-Specified													
1B	Fugitive Emissions from Fuels													
1B1	Solid Fuels													
1B2	Oil and Natural Gas													
1B3	Other Emissions from Energy Production													
1C	Carbon Dioxide Transport and Storage										•			
1C1	Transport of CO <sub>2</sub>													
1C2	Injection and Storage													

#### Table A Summary Table (2 of 6) (Updated) (Continued)

Categorie	es	Net CO <sub>2</sub> (1) (2)	CH₄	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors <sup>(3)</sup>	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors <sup>(4)</sup>	NO <sub>x</sub>	со	NMVOCs	SO <sub>2</sub>
			(Gg)			CO	2 equiva	lents (Gg)		(Gg)		(	Gg)	
2 INDUST	TRIAL PROCESSES AND PRODUCT													
2A M	lineral Industry													
2A1 C	Sement Production													
2A2 Li	ime Production													
2A3 G	Blass Production													
2A4 O	other Process Uses of Carbonates													
2A5 O	Other (please specify)													
2B C	hemical Industry													
2B1 A	mmonia Production													
2B2 N	litric Acid Production													
2B3 A	dipic Acid Production													
	Caprolactam, Glyoxal and Glyoxylic Acid roduction													
2B5 C	arbide Production													
2B6 T	itanium Dioxide Production													
2B7 S	oda Ash Production													
	etrochemical and Carbon Black roduction													
2B9 F	luorochemical Production													
2B10 H	lydrogen Production													
2B11 O	Other (please specify)					<u> </u>					·			

#### Table A Summary Table (3 of 6) (Updated) (Continued)

Categ	ories	Net CO <sub>2</sub> (1) (2)	CH₄	N₂O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	conversion factors (3)	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors <sup>(4)</sup>	NO <sub>x</sub>	со	NMVOCs	SO <sub>2</sub>
			(Gg)			CC	)₂ equiva	lents (Gg	)	(Gg)		((	Gg)	
2C	Metal Industry													
2C1	Iron and Steel Production													
2C2	Ferroalloys Production													
2C3	Aluminium Production													
2C4	Magnesium Production													
2C5	Lead Production													
2C6	Zinc Production													
2C7	Rare Earths Production													
2C8	Other (please specify)													
2D	Non-Energy Products from Fuels and Solvent Use													
2D1	Lubricant Use													
2D2	Paraffin Wax Use													
2D3	Solvent Use													
2D4	Other (please specify)													
2E	Electronics Industry													
2E1	Integrated Circuit or Semiconductor													
2E2	Displays													
2E3	Photovoltaics													
2E4	Microelectromechanical systems (MEMS)													
2E5	Other (please specify)													

T.6

#### Table A Summary Table (4 of 6) (Updated) (Continued)

Catego	ories	Net CO <sub>2</sub> (1) (2)	CH₄	N₂O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors (3)	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors (4)	NO <sub>x</sub>	со	NMVOCs	SO <sub>2</sub>
			(Gg)			CC	O₂ equiva	lents (Gg)		(Gg)			(Gg)	
2F	Product Uses as Substitutes for Ozone Depleting Substances													
2F1	Refrigeration and Air Conditioning													
2F2	Foam Blowing Agents													
2F3	Fire Protection													
2F4	Aerosols													
2F5	Solvents													
2F6	Other Applications													
2G	Other Product Manufacture and Use													
2G1	Electrical Equipment													
2G2	Halogenated Gases from Other Product Uses													
2G3	N₂O from Product Uses													
2G4	Other (please specify)													
2H	Other (please specify)		-											
2H1	Pulp and Paper Industry													
2H2	Food and Beverages Industry										_			
2H3	Other (please specify)		-											

#### Table A Summary Table (5 of 6) (Updated) (Continued)

Categ	pries	Net CO <sub>2</sub> (1) (2)	CH₄	N₂O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors (3)	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors (4)	NOx	со	NMVOCs	SO <sub>2</sub>
			(Gg)				CO2	equivale	nts (Gg)	(Gg)			(Gg)	
	ICULTURE, FORESTRY AND OTHER D USE													
3A	Livestock													
3A1	Enteric Fermentation													
3A2	Manure Management													
3B	Land													
3B1	Forest Land													
3B2	Cropland													
3B3	Grassland													
3B4	Wetlands													
3B5	Settlements													
3B6	Other Land													
3C	Aggregate Sources and Non-CO <sub>2</sub> Emissions Sources on Land													
3C1	Biomass Burning													
3C2	Liming													
3C3	Urea Application													
3C4	Direct N <sub>2</sub> O Emissions from Managed Soils													
3C5	Indirect N <sub>2</sub> O Emissions from Managed Soils													
3C6	Indirect N₂O Emissions from Manure Management													
3C7	Rice cultivation													
3C8	Other (please specify)													
3D	Other													
3D1	Harvested Wood Products													
3D2	Other (please specify)													

#### Table A Summary Table (6 of 6) (Updated) (Continued)

Categ	ories	Net CO <sub>2</sub> (1) (2)	СН₄	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors <sup>(3)</sup>	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors (4)	NOx	со	NMVOCs	SO <sub>2</sub>
			(Gg)				CO	<sub>2</sub> equivaler	nts (Gg)	(Gg)			(Gg)	
4 WAS	STE													
4A	Solid Waste Disposal													
4B	Biological Treatment of Solid Waste													
4C	Incineration and Open Burning of Waste													
4D	Wastewater Treatment and Discharge													
4E	Other (please specify)													
5 OTH	ER													
5A	Indirect N <sub>2</sub> O Emissions from the Atmospheric Deposition of Nitrogen in NO <sub>x</sub> and NH <sub>3</sub>													
5B	Other (please specify)													
Memo	items <sup>(5)</sup>													
Interna	ational Bunkers													
	International Aviation (International Bunkers)													
	International Water-borne Transport (International Bunkers)							_		_				
	Multilateral Operations	•										_	_	

<sup>(1)</sup> CO<sub>2</sub> net emissions (emissions minus removals)

Documentation box:			

<sup>(2)</sup> Total amount of CO<sub>2</sub> captured for long-term storage is to be reported separately for domestic storage and for export in the documentation box.

<sup>(3)</sup> The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this column. Such gases should be reported in the column 'Other halogenated gases without CO<sub>2</sub> equivalent conversion factors'.

<sup>(4)</sup> When this column is used, gases should be listed separately (in IPPU Background Tables and Table 2.11) and the name of the gas should be given in the documentation box.

<sup>(5)</sup> Emissions that are not included in the national total should be reported as memo items.

<sup>\*</sup> Cells to report emissions of NOx, CO, NMVOC and SO2 have not been shaded although the physical potential for emissions is lacking for some categories.

#### Table B Short Summary Table (1 of 2) (Updated)

Categorie	es	Net CO <sub>2</sub> (1) (2)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases with CO <sub>2</sub> equivalent conversion factors <sup>(3)</sup>	Other halogenated gases without CO <sub>2</sub> equivalent conversion factors (4)	NOx	со	NMVOCs	SO <sub>2</sub>
			(Gg)			CC	O₂ equiva	lents (Gg)		(Gg)			(Gg)	
<b>Total Nat</b>	ional Emissions and Removals													
1 ENERG	Y													
	uel Combustion Activities													
	ugitive Emissions from Fuels													
1C C	arbon Dioxide Transport and Storage													
2 INDUST USE	TRIAL PROCESSES AND PRODUCT													
2A M	lineral Industry													
2B C	hemical Industry													
2C M	letal Industry													
2D N	on-Energy Products from Fuels and olvent Use													
2E E	lectronics Industry													
	roduct Uses as Substitutes for Ozone epleting Substances													
2G O	ther Product Manufacture and Use													
2H O	ther													
3 AGRICU LAND U	ULTURE, FORESTRY AND OTHER JSE													
3A Li	ivestock													
3B La	and													
	ggregate Sources and Non-CO <sub>2</sub> missions Sources on Land													
3D O	ther													
4 WASTE														
4A S	olid Waste Disposal													
4B B	iological Treatment of Solid Waste													

- (1) CO<sub>2</sub> net emissions (emissions minus removals)
- (2) Total amount of CO<sub>2</sub> captured for long-term storage is to be reported separately for domestic storage and for export in the documentation box.
- (3) The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this column. Such gases should be reported in the column 'Other halogenated gases without CO<sub>2</sub> equivalent conversion factors'.
- (4) When this column is used, gases should be listed separately in IPPU Background Tables and Table 2.11 and the name of the gas should be given in the documentation box.
- (5) Emissions that are not included in the national total should be reported as memo items.
- \* Cells to report emissions of NO<sub>x</sub>, CO, NMVOC and SO<sub>2</sub> have not been shaded although the physical potential for emissions is lacking for some categories.

Documentation box:		

Table 1 Energy Sectoral Table (1 of 3) (Updated)

Categories	y gy cocciai raisio (1 et e) (e paisiou)	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	NO <sub>x</sub> (Gg)	CO	NMVOCs	SO <sub>2</sub>
1 ENERGY					(Og)			
	el Combustion Activities							
	ergy Industries							
111 0	ain Activity Electricity and Heat Production							
1A1 ai Ele	ectricity Generation							
1A1 aii Co	ombined Heat and Power Generation (CHP)							
1A1 aiii He	eat Plants							
1A1 b Pet	troleum Refining							
1A1 c Ma	anufacture of Solid Fuels and Other Energy Industries							
1A1 ci Ma	anufacture of Solid Fuels							
1A1 cii Oth	her Energy Industries							
1A2 Ma	anufacturing Industries and Construction							
1A2 a Iron	n and Steel							
1A2 b No	n-Ferrous Metals							
1A2 c Ch	nemicals							
	lp, Paper and Print							
1A2 e Foo	od Processing, Beverages and Tobacco							
1A2 f No	n-Metallic Minerals							
1A2 g Tra	ansport Equipment							
1A2 h Ma	achinery							
1A2 i Mir	ning (excluding fuels) and Quarrying							
1A2 j Wo	ood and Wood Products							
1A2 k Co	nstruction							
1A2 I Tex	xtile and Leather							
1A2 m No	n-specified Industry							
	ansport							
	vil Aviation							
1A3 ai Inte	ernational Aviation (International Bunkers) <sup>(1)</sup>							
1A3 aii Do	mestic Aviation							
1A3 b Ro	ad Transportation							

1A3 bi	Cars				
1A3 bi	Passenger Cars with 3-way Catalysts				
1A3 bi2	Passenger Cars without 3-way Catalysts				
1A3 bii	Light-duty Trucks				
1A3 bii1	Light-duty Trucks with 3-way Catalysts				
1A3 bii2	Light-duty Trucks without 3-way Catalysts				
1A3 biii	Heavy-duty Trucks and Buses				
1A3 biv	Motorcycles				
1A3 bv	Evaporative Emissions from Vehicles				
1A3 bvi	Urea-based Catalysts				
1A3 c	Railways				
1A3 d	Water-borne Navigation				
1A3 di	International Water-borne Navigation (International Bunkers) <sup>(1)</sup>				
1A3 dii	Domestic Water-borne Navigation				
1A3 e	Other Transportation				
1A3 ei	Pipeline Transport				
1A3 eii	Off-road				
1A4	Other Sectors			_	
1A4 a	Commercial/Institutional		 		
1A4 b	Residential				

Table 1 Energy Sectoral Table (2 of 3) (Updated) (Continued)

Categ	ories		CO <sub>2</sub>	CH₄	N <sub>2</sub> O	NOx	CO	NMVOCs	SO <sub>2</sub>
						(Gg)			
1A4	С	Agriculture/Forestry/Fishing/Fish Farms							
1A4	ci	Stationary							
1A4	cii	Off-road Vehicles and Other Machinery							
1A4	ciii	Fishing (mobile combustion)							
1A5		Non-Specified							
1A5	а	Stationary							
1A5	b	Mobile							
1A5	bi	Mobile (aviation component)							
1A5	bii	Mobile (water-borne component)							
1A5	biii	Mobile (other)							
1A5	С	Multilateral Operations (1)(2)							
1B		Fugitive Emissions from Fuels							
1B1		Solid Fuel							
1B1	а	Coal Mining and Handling							
1B1	ai	Underground Mines							
1B1	ai1	Mining							
1B1	ai2	Post-mining Seam Gas Emissions							
1B1	ai3	Abandoned Underground Mines							
1B1	ai4	Flaring of Drained Methane or Conversion of Methane to CO <sub>2</sub>							
1B1	aii	Surface Mines							
1B1	aii1	Mining							
1B1	aii2	Post-mining Seam Gas Emissions							
1B1	aii3	Abandoned Surface Mines							
1B1	aiii	Coal Exploration							
1B1	b	Uncontrolled Combustion, and Burning Coal Dumps							
1B1	С	Fuel Transformation							
1B1	ci	Charcoal and Biochar Production							
1B1	cii	Coke Production							
1B1	ciii	Solid to Solid Fuel Production							
1B1	civ	Gasification Transformation							

1B2		Oil and Natural Gas			
1B2	а	Oil			
1B2	ai	Exploration			
1B2	aii	Production and Upgrading			
1B2	aiii	Transport			
1B2	aiv	Refining			
1B2	av	Distribution of Oil Products			
1B2	avi	Others			
1B2	avii	Abandoned Oil Wells			
1B2	b	Natural Gas			
1B2	bi	Exploration			
1B2	bii	Production and Gathering			
1B2	biii	Processing			
1B2	biv	Transmission and Storage			
1B2	bv	Distribution			
1B2	bvi	Gas Post-Meter			
1B2	bvii	Others			
1B2	bviii	Abandoned Gas Wells			
1B3		Other Emissions from Energy Production			
1C		Carbon Dioxide Transport and Storage			
1C1		Transport of CO <sub>2</sub>			
1C1	а	Pipelines			
1C1	b	Ships			
1C1	С	Other (Please specify)			
1C2		Injection and Storage			
1C2	а	Injection			
1C2	b	Storage			

Table 1 Energy Sectoral Table (3 of 3) (Updated) (Continued)

Catamarias	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOCs	SO <sub>2</sub>
Categories				(Gg)			
Memo items (3)							
International Bunkers							
International Aviation							
(International Bunkers)							
International Water-borne							
Transport							
(International Bunkers)							
Multilateral Operations							
Information items							
CO <sub>2</sub> from Biomass Combustion for							
Energy Production							

- (1) To be reported as a memo item, and not part of the national inventory.
- (2) Multilateral operations pursuant to the Charter of the United Nations: including emissions from fuel delivered to the military in the country and delivered to the military of other countries.
- (3) Emissions that are not included in the national total should be reported as memos.
- \* Cells to report emissions of NO<sub>x</sub>, CO, NMVOC and SO<sub>2</sub> have not been shaded although the physical potential for emissions is lacking for some categories.

Documentation box:		

Table 1.1 Energy Background Table: 1A1-1A2 (1 of 2)

					`										En	nissio	ns (C	Gg)									Inforn item <sup>(2</sup>	mation <sup>2)</sup> (Gg)
Categories		Α	ctivi	ty (T.	J)			Solid		L	-iquic	i		Gas			er fo fuel	ssil	F	Peat <sup>(1</sup>	1)	Bion	nass		Total		CO <sub>2</sub> amount captured (3)	Biomass
	Solid	Liquid	Gas	Other fossil fuel	Peat	Bio- mass	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CO <sub>2</sub> emitted
1A Fuel Combustion Activities																												
1A1 Energy Industries																												
1A1a Main Activity Electricity and Heat Production																												
1A1ai Electricity Generation																												
1A1aii Combined Heat and Power Generation (CHP)																												
1A1aiii Heat Plants																												
1A1b Petroleum Refining																												
1A1c Manufacture of Solid Fuels and Other Energy Industries																												
1A1ci Manufacture of Solid Fuels																												
1A1cii Other Energy Industries																												
1A2 Manufacturing Industries and Construction																												
1A2a Iron and Steel																												
1A2b Non-Ferrous Metals																												
1A2c Chemicals																												
1A2d Pulp, Paper and Print																												
1A2e Food Processing, Beverages and Tobacco																												
1A2f Non-Metallic Minerals																												
1A2g Transport Equipment																												

Table 1.1 Energy Background Table: 1A1-1A2 (2 of 2) (Continued)

Table 111 Energy Background 1					,					Í					En	nissio	ons (0	Gg)										mation <sup>2)</sup> (Gg)
Categories			Activ	ity (T.	J)			Solic	i	ı	Liqui	d		Gas		Oth	er fo fuel		,	Peat <sup>(1</sup>	1)	Bion	nass	,	Total	ı	CO <sub>2</sub> Amount captured (3)	Biomass
	Solid	Liquid	Gas	Other fossil fuel	Peat	Bio- mass	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CO <sub>2</sub> emitted
1A2h Machinery																												
1A2i Mining and Quarrying																												
1A2j Wood and Wood Products																												
1A2k Construction																												
1A2l Textile and Leather																												
1A2m Non-specified Industry																												

- (1) Although peat is not strictly speaking a fossil fuel, the CO<sub>2</sub> emissions from combustion of peat are included in the national emissions as for fossil fuels. See Chapter 1 of Energy Volume, page 1.15.
- (2) Information items that are not themselves emissions, therefore not included in the national total. The carbon should be converted to carbon dioxide. It is subtracted in the CO<sub>2</sub> emission columns (net emissions). Only CO<sub>2</sub> captured for permanent storage in geological reservoirs should be subtracted.
- (3) Enter the amount of CO<sub>2</sub> captured as a negative number since this amount is subtracted from total CO<sub>2</sub> produced.

ocumentation box:	

Table 1.2 Energy Background Table: 1A3-1A5 (1 of 2)

			A offici	tv. (T	IV.								Е	missi	ons (C	∋g)								Total	l emis	sions
Category			Activi	ty (I	(י			Solid			Liquid			Gas		Othe	r fossi	il fuel	F	eat <sup>(*</sup>	1)	Bion	nass		(Gg)	
Calogory	Solid	Liquid	Gas	Other fossil fuel	Peat	Bio- mass	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
1A3 Transport																										
1A3a Civil Aviation																										
1A3ai International Aviation (Internationa Bunkers) (2)																										
1A3aii Domestic Aviation																										
1A3b Road Transportation																										
1A3bi Cars																										
1A3bi1 Passenger Cars with 3-way catalys	sts																									
1A3bi2 Passenger Cars without 3-way Catalysts																										
1A3bii Light-duty Trucks																										
1A3bii1 Light-duty Trucks with 3-way Catal	ysts																									
1A3bii2 Light-duty Trucks without 3-way Catalysts																										
1A3biii Heavy-duty Trucks and Buses																										
1A3biv Motorcycles																										
1A3bv Evaporative Emissions from Vehic	es																									
1A3bvi Urea based Catalyst (3)																										
1A3c Railways																										
1A3d Water-borne Navigation																										
1A3di International Water-borne Navigati (International Bunkers) (2)	on																									
1A3dii Domestic Water-borne Transport																										
1A3e Other Transportation																										
1A3ei Pipeline Transport																										
1A3eii Off-road																										
1A4 Other Sectors																										
1A4a Commercial/Institutional																										
1A4b Residential																										
14Ac Agriculture/Forestry/Fishing/Fish F	arms																									
1A4ci Stationary																										
1A4cii Off-road Vehicles and Other Mach	nery																									
1A4ciii Fishing (mobile combustion)																										

Table 1.2 Energy Background Table: 1A3-1A5 (2 of 2) (Continued)

													Emi	issior	ıs (G	g)									Total	
Category		,	Activit	y (T.	I)		Soli	id		ı	Liquid	t		Gas		Oth	er fo	ssil		Peat <sup>(1</sup>	)	Bior	nass		issio (Gg)	
	Solid	Liquid	Gas	Other fossil fuel	Peat	Bio- mass	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
1A5 Non-Specified																										
1A5a Stationary																										
1A5b Mobile																										
1A5bi Mobile (aviation component)																										
1A5bii Mobile (water-borne component)																										
1A5biii Mobile (other)																										
1A5c Multilateral Operation																										
Memo items (4)																										
International Bunkers																										
International Aviation (International Bunkers)																										
International Water-borne Transport (International Bunkers)																										
Multilateral Operations (5)																										

- (1) Although peat is not strictly speaking a fossil fuel, the CO<sub>2</sub> emissions from combustion of peat are included in the national emissions as for fossil fuels. See Chapter 1 of Energy Volume, page 1.15.
- (2) To be reported as a memo item, and not part of the national inventory.
- (3) Report the amount of urea-based additive used and its purity in the documentation box.
- (4) Emissions that are not included in the national total should be reported as memo items.
- (5) Multilateral operations pursuant to the Charter of the United Nations: including emissions from fuel delivered to the military in the country and delivered to the military of other countries.

Documentation box:		

Table 1.3 Energy Background Table: 1B (Updated)

Category		Activity Data			En	nissio (Gg)		Information item: Amount captured (2) (Gg)	
		Description	Unit (1)	Value	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	
1B Fugiti	ve Emissions from Fuels								
1B1 Solid	d Fuel								
1B1a	Coal Mining and Handling								
1B1ai	Underground Mines	Coal produced	ktonnes						
1B1ai1	Mining	Coal produced	ktonnes						
1B1ai2	Post mining Seam Gas Emissions	Coal produced	ktonnes						
1B1ai3	Abandoned Underground Mines	Number of mines	number						
1B1ai4	Flaring of Drained Methane or Conversion of CH <sub>4</sub> to CO <sub>2</sub>	Gas flared	10 <sup>6</sup> Sm <sup>3</sup>						
1B1aii	Surface Mines								
1B1aii1	Mining	Coal produced	ktonnes						
1B1aii2	Post-mining Seam Gas Emissions	Coal produced	ktonnes						
1B1aii3	Abandoned Surface Mines	Surface area mined	m <sup>2</sup>						
1B1aiii	Coal Exploration	Augmentation of coal resource	ktonnes						
1B1b	Uncontrolled Combustion, and Burning Coal Dumps	Solid fuel combusted	ktonnes						
1B1c	Fuel Transformation	Solid fuel transformed	ktonnes						
1B1ci	Charcoal and Biochar Production	Charcoal and biochar produced	tonnes of dry matter						
1B1cii	Coke Production	Coke produced	kg						
1B1ciii	Solid to Solid Fuel Production	Wood pellets produced	MJ						
1B1civ	Gasification Transformation	Feedstock	TJ						
	nd Natural Gas								
1B2a	Oil								
1B2ai	Exploration	Oil wells drilled or oil well count, or oil produced	Number, number, 10 <sup>3</sup> m <sup>3</sup>						
1B2aii	Production and Upgrading	Oil produced or oil wells	10 <sup>3</sup> m <sup>3</sup> , number						
1B2aiii	Transport	Crude oil transported	10 <sup>3</sup> m <sup>3</sup>						
1B2aiv	Refining	Refinery crude oil throughput	10 <sup>3</sup> m <sup>3</sup>						
1B2av	Distribution of Oil Products	Amount distributed	10 <sup>3</sup> m <sup>3</sup>						
1B2avi	Others								
1B2avii	Abandoned oil wells	Number of abandoned oil wells	number						
1B2b	Natural Gas								
1B2bi	Exploration	Gas wells drilled or gas well count, or gas produced number wells drilled	Number, number, 10 <sup>6</sup> m <sup>3</sup>						
1B2bii	Production and Gathering	Gas produced or gas wells	10 <sup>6</sup> m <sup>3</sup> , number						
1B2biii	Processing	Amount of gas processed at facilities	10 <sup>6</sup> m <sup>3</sup>						
1B2biv	Transmission and Storage	Amount of gas consumed	10 <sup>6</sup> m <sup>3</sup>						
1B2bv	Distribution	Amount of gas distributed or length of pipeline	10 <sup>6</sup> m <sup>3</sup> , kilometres						
1B2bvi	Gas Post-Meter	Natural gas vehicles, appliances, and/or non-residential or commercial gas consumed	Number, number, 10 <sup>6</sup> m <sup>3</sup>						
1B2bvii	Other	<u> </u>							
1B2bviii	Abandoned gas wells	Number of abandoned gas wells	number						
1B3 Othe	er Emissions from Energy duction	J							

<sup>(1)</sup> The units given here are the most commonly used for respective activity data. For convenience and/or consistency, they can be converted into appropriate energy units.

<sup>(2)</sup> The amount of CO<sub>2</sub> captured is given for information purposes; it is subtracted in the CO<sub>2</sub> emission columns (net emissions).

Table 1.4a Energy Background Table: 1C CO<sub>2</sub> Transport, Injection and Storage

	0,			•					
		Activi	Activity (Gg)						
Category		Annual mass of CO <sub>2</sub> transported	Annual mass of CO <sub>2</sub> injected <sup>(1)</sup>	CO <sub>2</sub> emissions to the atmosphere or sea bed (Gg) (2)					
1C1 Tran	sport of CO <sub>2</sub>								
1C1a	Pipelines								
1C1b	Ships								
1C1c	Other (please specify)								
1C2 Injec	ction and Storage (3)								
1C2a	Injection								
1C2b	Storage								
1C3 Othe	er								

1	<ul> <li>Excluding recycled CO<sub>2</sub> for enhanced</li> </ul>	recovery

- (2) Corrected for baseline background fluxes.
- (3) Fugitive emissions during above ground operations such as processing and CO<sub>2</sub> recycling during enhanced oil and gas recovery operations should be reported as fugitive emissions from oil and natural gas and reported under the appropriate categories for that sector.

Documentation box:		

# Table 1.4b Energy Background Table: 1C CO<sub>2</sub> Transport, Injection and Storage – Overview

	01 11011							
Category (1)	CO <sub>2</sub> (Gg)							
Total amount captured for storage (A)								
Total amount of import for storage (B)								
Total amount of export for storage (C)								
Total amount of CO <sub>2</sub> injected at storage sites (D)								
Total amount of leakage during transport (E1) category 1C1								
Total amount of leakage during injection (E2) category 1C2a								
Total amount of leakage from storage sites (E3) category 1C2b								
Total leakage (E4 = E1 + E2 + E3))								
Capture + imports (F = A + B)								
Injection + leakage + exports (G = D + E4 + C)								
Discrepancy (F – G)								

(1)	Once captured, there is no differentiated treatment between bio	ogenic carbon and fos	sil carbon. Emissions	and storage of
	both biogenic and fossil carbons will be estimated and reported	ed.		

Documentation box:	

Table 1.5 Energy Background Table: Reference Approach (1 of 1)

Fuel Types	<u>.</u>	ground rabion	Production	Import	Export	Inter- national bunkers	Stock change	Apparent consumption	Conversion factor	Apparent consumption	Carbon emission factor	Carbon content	Carbon content	Excluded carbon	Net carbon emission	Fraction of carbon oxidised	Actual carbon emission	
			(Unit)	(Unit)	(Unit)	(Unit)	(Unit)	(Unit)		(TJ)	(tC/TJ)	(t C)	(Gg C)	(Gg C)	(Gg C)		(Gg C)	(Gg CO <sub>2</sub> )
Liquid Fossil	Primary Fuels	Crude Oil																
		Orimulsion																
		Natural Gas Liquids																
	Secondary Fuels	Gasoline																
		Jet Kerosene																
		Other Kerosene																
		Shale Oil																
		Gas / Diesel Oil																
		Residual Fuel Oil																
		LPG																
		Ethane																
		Naphtha																
		Bitumen																
		Lubricants																
		Petroleum Coke																
		Refinery Feedstocks																
		Other Oil																
Liquid Fossil	Totals																	
Solid Fossil	Primary Fuels	Anthracite <sup>(1)</sup>																
		Coking Coal																
		Other Bit. Coal																
		Sub-bit. Coal																
		Lignite																
		Oil Shale and Tar Sands																
	Secondary Fuels	BKB & Patent Fuel																
		Coke Oven/Gas Coke																
		Coal Tar																
Solid Fossil To	otals																	
Gaseous Fossi		Gas (Dry)																1
Other Fossil Fu		, -,																
Peat <sup>(2)</sup>																		1
Total						1												1

(2)	<ul> <li>Although peat is not strictly speaking</li> </ul>	a a fossil fuel, the CO <sub>2</sub> emissions from combustion	of peat are included in the national emissions as for fossil fuels. See Ch	apter 1 of Energy Volume, page 1.1

Documentation box:	

Table 2 IPPU Sectoral Table (1 of 2) (See Volume 3, Chapter 1, Table 1.1) (Updated)

. 48	le 2 IPPU Sectoral Table (1 of	-, (		- 51	۵۱۵	٠, ١	<b>p</b>		Other	Other	Ju			
Categoi	ry	CO₂	·	N₂O	HFCs	PFCs		NF <sub>3</sub>	halogenated compounds with CO <sub>2</sub> equivalent conversion factors <sup>(1)</sup>	halogenated compounds			NMVOCs	SO <sub>2</sub>
2 INDII	CTRIAL PROCESSES AND PRODUCT		(Gg)	1			CO <sub>2</sub> 6	equivale	ents (Gg)		(	Gg)	I	
Z INDU USE	STRIAL PROCESSES AND PRODUCT													
2A	Mineral Industry													$\vdash$
	Cement Production													
2A1														$\vdash$
	Lime Production													
	Glass Production													
2A4	Other Process Uses of Carbonates													
	Ceramics													
	Other Uses of Soda Ash													
	Non Metallurgical Magnesia Production													
	Other (please specify) (3)													
2A5	Other (please specify) (3)													
2B	Chemical Industry													
2B1	Ammonia Production													
2B2	Nitric Acid Production													
2B3	Adipic Acid Production													
2B4	Caprolactam, Glyoxal and Glyoxylic Acid													
	Production													
2B5	Carbide Production													
2B6	Titanium Dioxide Production													
2B7	Soda Ash Production													
000	Petrochemical and Carbon Black													
2B8	Production													
2B8a	Methanol													
2B8b	Ethylene													
	Ethylene Dichloride and Vinyl Chloride													
	Monomer													
2B8d	Ethylene Oxide													
2B8e	Acrylonitrile													
2B8f	Carbon Black													
2B9	Fluorochemical Production													
2B9a	HCFC-22 Production													
	HFC Production (specify HFC(s)													
2B9b	produced)													
200-	PFC Production (specify PFC(s)													
2B9c	produced)													
2B9d	SF <sub>6</sub> Production													
2B9e	NF <sub>3</sub> Production													
2B9f	Fluoropolymer Production (specify													
2091	fluoropolymer produced)													
2B9g	Other Fluorochemical Production													
•	(specify other fluorochemical produced)													Ш
	Hydrogen Production													
2B11	Other (please specify) (3)													
2C	Metal Industry													
2C1	Iron and Steel Production										$L^{-}$			
2C2	Ferroalloys Production													
2C3	Aluminium Production													
2C4	Magnesium Production (4)													
	Lead Production													
	Zinc Production													
2C7	Rare Earths Production											-		$\vdash$
	Other (please specify) (3)													H
2D	Non-Energy Products from Fuels and													$\vdash\vdash$
	Solvent Use <sup>(5)</sup>													
2D1	Lubricant Use													$\Box$
	Paraffin Wax Use											-		$\vdash$
	. S. Simi Han 500		l	l								İ	<u> </u>	ш

2D3	Solvent Use <sup>(6)</sup>							
2D4	Other (please specify) (3), (7)							
2E	Electronics Industry							
2E1	Integrated Circuit or Semiconductor (8)							
2E2	Displays (8)							
2E3	Photovoltaics <sup>(8)</sup>							
2E4	Microelectromechanical systems (MEMS)							
2E5	Other (please specify) (3)							
2F	Product Uses as Substitutes for							
	Ozone Depleting Substances							
2F1	Refrigeration and Air Conditioning							
2F1a	Refrigeration and Stationary Air Conditioning							

Table 2 IPPU Sectoral Table (2 of 2) (Updated) (Continued)

Category		HFCs				Other halogenated compounds with CO <sub>2</sub> equivalent conversion factors <sup>(1)</sup>	Other halogenated compounds without CO <sub>2</sub> equivalent conversion factors (2)	NOx	со	NMVOCs	SO <sub>2</sub>
	(Gg)		CO <sub>2</sub>	equiv	alents (	Gg)		(0	<b>3</b> g)		
2F1b Mobile Air Conditioning											
2F2 Foam Blowing Agents											
2F3 Fire Protection											
2F4 Aerosols											
2F5 Solvents											
2F6 Other Applications (3)											
2G Other Product Manufacture and Use											
2G1 Electrical Equipment											
2G1a Manufacture of Electrical Equipment											
2G1b Use of Electrical Equipment											
2G1c Disposal of Electrical Equipment											
2G2 SF <sub>6</sub> and PFCs from Other Product Uses											
2G2a Military Applications											
2G2b Accelerators											
2G2c Waterproofing of Electronic Circuits											
2G2d Other (please specify) <sup>(3)</sup>											
2G3 N₂O from Product Uses											
2G3a Medical Applications											
2G3b Propellant for Pressure and Aerosol											
Products											
2G3c Other (please specify) <sup>(3)</sup>											
2G4 Other (please specify) <sup>(3)</sup>											
2H Other											
2H1 Pulp and Paper Industry											
2H2 Food and Beverages Industry											
2H3 Other (please specify) (3)											i

- (1) This column includes other halogenated compounds for which CO<sub>2</sub> equivalent conversation factors are available, including, for example, hydrofluoroethers (HFEs) and perfluoropolyethers (PFPEs) used for temperature control, device testing, cleaning substrate surfaces and other parts, and soldering during electronics manufacturing and other processes. Halogenated gases for which a CO<sub>2</sub> equivalent conversion factor is not available should not be included in this column. Such gases should be reported in the column "Other halogenated gases without CO<sub>2</sub> equivalent conversion factors".
- (2) This column includes other halogenated compounds for which CO<sub>2</sub> equivalent conversation factors are NOT available, including, for example, perfluoroamines and perfluoroalkyl morpholines used for temperature control, device testing, cleaning substrate surfaces and other parts, and soldering during electronics manufacturing and other processes. When this column is used, gases should be listed separately (in IPPU background tables and Table 2.11) and the name of the gas should be given in the documentation box. Insert additional columns if necessary.
- (3) Insert additional rows if needed.
- (4) Small amounts of CO₂ used as a diluent for SF₀ and emitted during magnesium processing is considered insignificant and is usually counted elsewhere. The "Other halogenated gases" here mainly comprise fluorinated ketones.
- (5) Emissions from feedstock uses in petrochemical industry should be addressed in 2B8 (Petrochemical and Carbon Black Production). Emissions from some product uses should be allocated to each industry source category (e.g., CO₂ from carbon anodes and electrodes → 2C (Metal Industry)).
- (6) Only NMVOC emissions and no direct GHGs are relevant to this category.
- (7) Emissions from asphalt production, and paving of roads and roofing are included here.
- (8) "Other halogenated compounds" may include, for example, c-C₄F₀O and the HFEs, PFPEs, perfluoroamines and perfluoroalkyl morpholines discussed in notes (1) and (2). Specific compounds to be reported here include (but are not limited to) those listed with and without GWPs in Table 6.5 of Volume 3 and throughout Chapter 6 of Volume 3.

*	Cells to report emissions of NOx,	CO, NMVOC	and SO <sub>2</sub> have	not been shaded	although the	e physical poter	ntial for	emissions	is
	lacking for some categories.				_				

Documentation box:	

Table 2.1 IPPU Background Table: 2A Mineral Industry, 2B (2B1-2B8, 2B10-2B11) Chemical Industry - CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (Updated)

	(Opdated)	Activ	vity dat	ta			E	mission	ıs		
Catego	ries	Production	on/Consum luantity		c	O <sub>2</sub> (Gg)			(Gg)	N <sub>2</sub> O	(Gg)
		Description (1)	Quantity	Unit <sup>(2)</sup>	Emissions <sup>(3)</sup>	Information item Captured and Stored (4)	(memo) Other Reduction (5)	Emissions (3)	Information item Reduction (6)	Emissions (3)	Information item Reduction (6)
2A Min	eral Industry										
2A1	Cement production										
2A2	Lime production										
2A3	Glass Production										
2A4	Other Process Uses of Carbonates <sup>(7)</sup>										
2A4a	Ceramics										
2A4b	Other Uses of Soda Ash										
2A4c	Non Metallurgical Magnesia Production										
2A4d	Other										
2A5	Other (please specify) (8)										
2B Che	mical Industry										
2B1	Ammonia Production										
2B2	Nitric Acid Production										
2B3	Adipic Acid Production										
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production										
2B5	Carbide Production										
2B6	Titanium Dioxide Production										
2B7	Soda Ash Production										
2B8	Petrochemical and Carbon Black Production										
2B8a	Methanol										
2B8b	Ethylene										
2B8c	Ethylene Dichloride and Vinyl Chloride Monomer										
2B8d	Ethylene Oxide										
2B8e	Acrylonitrile										
2B8f	Carbon Black										
2B10	Hydrogen Production										
2B11	Other (please specify) (8)										

- (1) Where the options for activity data, e.g., cement or clinker or carbonates for estimating the emissions from Cement Production, specify the activity data used in order to make the choice of emission factor more transparent.
- (2) Unit of activity data should be specified.
- (3) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (4) Where generated CO<sub>2</sub> is captured for injection into a storage, the captured amount should be reported here. These data are provided as the additional information. They are not emissions, therefore should not be included in the national total.
- (5) Where reduction of generated CO₂ except for capture and storage occurs (e.g., re-conversion to carbonates) and its amount is available, it should be reported here.
- (6) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.)
- (7) Report here only the emissions from carbonate uses not covered in other categories.
- (8) Insert additional rows if necessary.

Note: Where information is confidential the entries should provide notation key "C" but there should be a note indicating this in the documentation box below. Also, more specific information could be provided in the documentation box.

Documentation box:			

Table 2.2 IPPU Background Table: 2B (2B9, 2B11) Chemical Industry HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub> and other halogenated gases (Updated)

Categories    Categories   Cate	Table 2.2 IPPU Background	16	abi	e:	B (4	2B9	, ZE	511)	<u>Cn</u>	iem	ıcaı	inc	us	try	нг	ىs,	PFC	,s, i	<b>5</b> F6	, NI	⁻₃ an	a o	tne	er na	alo	gen	atec	ı ga	ses	; (U	pua	ite	(ג		
Co_equivalent conversion factors**	Categories	HFC-23	HFC-32	HFC-41	HFC-125	HFC-134	HFC-134a	HFC-143	HFC-143a	HFC-152	HFC-152a	HFC-161	HFC-227ea	HFC-236cb	HFC-236ea	HFC-236fa	HFC-245ca	HFC-245fa	HFC-365mfc	HFC-43-10mee	Other HFCs <sup>(2)</sup> (please specify)	Total HFCs	CF₄	C <sub>2</sub> F <sub>6</sub>	C <sub>3</sub> F <sub>8</sub>	C <sub>4</sub> F <sub>10</sub>	c-C <sub>4</sub> F <sub>8</sub> perfluorocyclobutane)	C <sub>4</sub> F <sub>8</sub> (perfluoromethyl cyclopropane)	C <sub>5</sub> F <sub>12</sub>	C <sub>6</sub> F <sub>14</sub>	Other PFCs (2) (please specify)	Total PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases <sup>(2)</sup> (please specify)
Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )   Emissions in CO <sub>2</sub> equivalen																																			
289a   HCFC-22 Production			•	•							Emi	ssio	ns in	origi	nal m	ass ı	ınit (t	onne	)															•	
HFC Production (specify HFC(s) produced)   PFC Production (specify PFC(s) produced)   PFC Production (specify PFC(s) produced)   PFC Production   PFC PRODUCT	2B9 Fluorochemical Production																													Ī					
Production (specify PFC(s) production (specify PFC(s) production (specify PFC(s) produced)   P	2B9a HCFC-22 Production																													i '			1		
2896   SF, Production	produced)																																		
289e NF <sub>3</sub> Production 289f   Fluoropolymer Produced)																																			
Eliuoropolymer Production   Specify fluoropolymer produced   Specify fluoropolymer produced   Specify fluorophemical Production   Specify other fluorochemical Production   Specify other fluorochem	2B9d SF <sub>6</sub> Production																													l			1		
(specify fluoropolymer produced)  2B9g (specify fluoropolymer produced)  2B11 Other (please specify)  Emissions in CO <sub>2</sub> equivalent unit (Gg-CO <sub>2</sub> )  2B9 Fluorochemical Production  2B9 HoFC-22 Production  2B9 HFC Production (specify HFC(s) produced)  2B9 PFC Production (specify PFC(s) produced)  2B9 PFC Production (specify PFC(s) produced)  2B9 Fluoropolymer produced)  2B9 SF <sub>6</sub> Production  2B9 SF <sub>6</sub> Production  2B9 SF <sub>6</sub> Production  2B9 (Specify fluoropolymer produced)																																	1		
Specify other fluorochemical produced   Specify other fluorochemical produced   Specify other fluorochemical Production   Specify other fluorochemical Produced   Specify other fluorochemical Production   Specify other fluorochemical Production   Specify other fluorochemical Produced   Specify other fluorochemical Production   Specify other fluoroch	(specify fluoropolymer produced)																																		
Emissions in CO₂ equivalent unit (Gg-CO₂)   289	2B9g (specify other fluorochemical																																		
289   Fluorochemical Production	2B11 Other (please specify)																													1			1		
2B9a   HCFC-22 Production											Emis	sion	s in C	CO₂ e	quiva	lent ı	unit (0	Gg-C	O <sub>2</sub> )																
B9b   HFC Production (specify HFC(s) produced)   B9c   PFC Production (specify PFC(s) produced)   B9c   PFC Production (specify PFC(s) produced)   B9c   PFC Production (specify PFC(s) produced)   B9c   PFC Production   B9c   PF	2B9 Fluorochemical Production																													1			1		
produced)  2B9c PFC Production (specify PFC(s) produced)  2B9d SF <sub>6</sub> Production  2B9e NF <sub>3</sub> Production  2B9f Fluoropolymer Production (specify fluoropolymer produced)  Other Fluorochemical Production (specify other fluorochemical produced)																																			
produced)  2B9d SF <sub>6</sub> Production  2B9e NF <sub>3</sub> Production  2B9f Fluoropolymer Production (specify fluoropolymer produced)  Other Fluorochemical Production (specify other fluorochemical produced)	produced)																																		
2B9e NF <sub>3</sub> Production  2B9f Fluoropolymer Production (specify fluoropolymer produced)  Other Fluorochemical Production (specify other fluorochemical produced)	produced)																																		
Eluoropolymer Production (specify fluoropolymer produced)  Other Fluorochemical Production (specify other fluorochemical produced)  Other Fluorochemical production (specify other fluorochemical produced)	2B9d SF <sub>6</sub> Production																																		
(specify fluoropolymer produced)  Other Fluorochemical Production 2B9g (specify other fluorochemical produced)																																	<u>.                                    </u>		
2B9g (specify other fluorochemical produced)	(specify fluoropolymer produced)																																		
2B11 Other (please specify)	2B9g (specify other fluorochemical																																		
	2B11 Other (please specify)																																		

- (1) Typically, global warming potential (100 year time horizon) identified in the IPCC Assessment Report can be used. The source of the factors must be specified in the bracket.
- (2) Insert additional columns if necessary. The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this table. Such gases should be reported in Table 2.11 IPPU background table: Greenhouse Gases without CO<sub>2</sub> equivalent conversion factors.

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:		

Table 2.3 IPPU Background Table: 2C Metal Industry CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (Updated)

	Act	ivity Data					<b>Emissions</b>			
	Production/Co	nsumption	quantity		CO <sub>2</sub> (Gg)		CH₄	(Gg)	N <sub>2</sub> O	(Gg)
Categories	Description (1)	Quantity	Unit (2)	Emissions (3)	(information) Captured and Stored <sup>(4)</sup>	(information) Other Reduction <sup>(5)</sup>	Emissions (3)	(information) Reduction <sup>(6)</sup>	Emissions (3)	(information) Reduction <sup>(6)</sup>
2C Metal Industry										
2C1 Iron and Steel Production										
2C2 Ferroalloys Production										
2C3 Aluminium Production										
2C4 Magnesium Production										
2C5 Lead Production										
2C6 Zinc Production										
2C7 Rare Earths Production										
2C8 Other (please specify) (7)										

<sup>(1)</sup> Where the options for activity data, e.g. steel production or process materials consumption for estimating the emissions from Iron and Steel Production, specify the activity data used in order to make the choice of emission factor more transparent.

- (2) Unit of activity data should be specified.
- (3) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (4) Where generated CO<sub>2</sub> is captured for injection into a storage, the captured amount should be reported here. These data are provided as the additional information. They are not emissions, therefore should not be included in the national total.
- (5) Where reduction of generated CO<sub>2</sub> except for capture and storage occurs and its amount is available, it should be reported here.
- (6) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.).
- (7) Insert additional rows if necessary.

Note: Where information is confidential the entries should provide notation key "C" but there should be a note indicating this in the documentation box below. Also, More specific information (e.g. data on virgin and recycled steel production) could be provided in the documentation box.

Documentation box:	

Table 2.4 IPPU Background Table: 2C (2C3, 2C4, 2C7, 2C8) Metal Industry HFCs. PFCs. SF<sub>6</sub> and other halogenated gases (Updated)

une	i IIa	ıog	jen.	ale	uç	jas	es	(U	Jua	iteu)			
HFC-134a	Other HFCs <sup>(2)</sup> (please specify)	Total HFCs	CF₄	$C_2F_6$	C <sub>3</sub> F <sub>8</sub>	C4F10	c-C₄F <sub>8</sub>	C <sub>5</sub> F <sub>12</sub>	C <sub>6</sub> F <sub>14</sub>	Other PFCs <sup>(2)</sup> (please specify)	Total PFCs	SF <sub>6</sub>	Other halogenated gases <sup>(2)</sup> (please specify)
		ta FCs <sup>(2)</sup> Specify)	FCs (2) Specify) Cs	ta FCs <sup>(2)</sup> Specify) CS	ta FCS (2) Specify) CS	a FCs <sup>(2)</sup> specify) ·Cs	FCs (2) Specify) Cs	FCs (2) Specify) Cs	FCs (2) Specify) Cs	FCs (2) CS	HFC-134a  Other HFCs (2)  Other HFCs (3)  Other HFCs (3)  Other HFCs (3)  Other HFCs (4)  CaFe   FCs (2) CS (2) CS (2) Specify) CCs (2) CCs (2) CCs (2) CCs (2) CCs (2) CCs (2)	FCs (2) CS FCs (2) FCs (3) FCs (4) FCs (5) FCs (6) FCs (7) FCs (7) FCs (7) FCs (7) FCs (8) FCs	

- (1) Typically, global warming potential (100 year time horizon) identified in the IPCC Assessment Report can be used. The source of the factors must be specified in the bracket.
- (2) Insert additional columns if necessary. The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this table. Such gases should be reported in Table 2.11 IPPU background table: Greenhouse Gases without CO<sub>2</sub> equivalent conversion factors.
- (3) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (4) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.).
- (5) Insert additional rows if necessary.

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:	

Table 2.5 IPPU Background Table: 2D Non-Energy Products from Fuels and Solvent Use CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O

	Activity Dat	a		Emissions						
Categories	Production/Consumpt	ion quantity	/	CO <sub>2</sub>	CH₄	N <sub>2</sub> O				
	Description	Quantity	Unit	(Gg)	(Gg)	(Gg)				
2D Non-Energy Products from Fuels and Solvent Use										
2D1 Lubricant Use	Lubricant consumption		tonne							
2D2 Paraffin Wax Use	Wax consumption		tonne							
2D3 Solvent Use										
2D4 Other										
Product (please specify)										
Product (please specify)				_						
Product (please specify) (1)										

(1) Insert additional rows if necessary.

Documentation box:	

Table 2.6 IPPU Background Table: 2E Electronics Industry HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub> and other halogenated gases (Updated)

	Ni 3 and other halogenated gases (Opdated)															
Categ	ories	CO <sub>2</sub> <sup>(2)</sup>	$N_2O$ (2)	HFC-23	HFC-32	Other HFCs (3) (please specify)	Total HFCs	CF₄	C <sub>2</sub> F <sub>6</sub>	C 3F <sub>8</sub>	c-C₄F <sub>8</sub>	Other PFCs (3) (please specify)	Total PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Other halogenated gases (3) (please specify)
CO <sub>2</sub> eq	uivalent conversion factors (1)															
	e of the factor: ]															
	Emission	s in	origi	inal	mas	s unit	(ton	ne)								
2E Ele	ctronics Industry															
2E1	Integrated Circuit or Semiconductor															
2E2	Displays															
2E3	Photovoltaics															
2E4	Microelectromechanical systems (MEMS)															
2E5	Other (please specify) (4)															
	Emissions	in C	O <sub>2</sub> e	quiv	alen	t unit	(Gg	CO <sub>2</sub>	)							
2E Ele	ctronics Industry															
2E1	Integrated Circuit or Semiconductor															
2E2	Displays															
2E3	Photovoltaics															
2E4	Microelectromechanical systems (MEMS)															
2E5	Other (please specify) (3)															

- (1) Typically, global warming potential (100 year time horizon) identified in the IPCC Assessment Report can be used. The source of the factors must be specified in the bracket.
- (2) Emissions may occur but no methodological guidance is provided in these Guidelines.
- (3) Insert additional columns if necessary. The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this table. Such gases should be reported in Table 2.11 IPPU background table: Greenhouse gases without CO<sub>2</sub> equivalent conversion factors.
- (4) Insert additional rows if necessary.

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:									

Table 2.7 IPPU Background Table: 2F Product Uses as Substitutes for Ozone Depleting Substances HFCs, PFCs and other halogenated gases (Updated)

Categories	CO <sub>2</sub> (2)	HFC-23	HFC-32	HFC-125	HFC-134a	HFC-143a	HFC-152a	HFC-227ea	HFC-236fa	HFC-245fa	HFC-365mfc	HFC-43-10mee	Other HFCs (3) (please specify)	Total HFCs	CF₄	C <sub>2</sub> F <sub>6</sub>	C 3Fs	C <sub>4</sub> F <sub>10</sub>	Other PFCs (3) (please specify)	Total PFCs	Other halogenated gases (3) (please specify)
CO <sub>2</sub> equivalent conversion factors <sup>(1)</sup> [Source of the factor: ]																					
				Е	mis	sion	s in	orig	inal	mas	s un	it (to	onne)								
2F Product Uses as Substitutes for Ozone Depleting Substances																					
2F1 Refrigeration and Air Conditioning																					
2F1a Refrigeration and Stationary Air Conditioning																					
2F1b Mobile Air Conditioning																					
2F2 Foam Blowing Agents																					
2F3 Fire Protection																					
2F4 Aerosols																					
2F5 Solvents																					
2F6 Other Applications <sup>(4)</sup>																					
				En	nissi	ons	in C	O₂ e	quiv	aler	t un	it (G	ig-CO₂	)							
2F Product Uses as Substitutes for Ozone Depleting Substances																					
2F1 Refrigeration and Air Conditioning																					
2F1a Refrigeration and Stationary Air Conditioning																					
2F1b Mobile Air Conditioning																					
2F2 Foam Blowing Agents																					
2F3 Fire Protection																					
2F4 Aerosol																					
2F5 Solvents																					
2F6 Other Applications <sup>(4)</sup>																					

<sup>(1)</sup> Typically, global warming potential (100 year time horizon) identified in the IPCC Assessment Report can be used. The source of the factors must be specified in the bracket.

(4)	Incert additional	rows if necessary

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:		

<sup>(2)</sup> Emissions may occur but no methodological guidance is provided in these Guidelines.

<sup>(3)</sup> Insert additional columns if necessary. For example, additional halogenated compounds with GWPs include HFC-1234yf, HFC-1234ze(E), and HCFC-1233zd(E). The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this table. Such gases should be reported in Table 2.11 IPPU background table: Greenhouse gases without CO<sub>2</sub> equivalent conversion factors.

Table 2.8 IPPU Background Table: 2G (2G1, 2G2, 2G4) Other Product Manufacture and Use − PFCs, SF<sub>6</sub> and other halogenated gases (Updated)

(Updated)												
Categories	CF₄	C <sub>2</sub> F <sub>6</sub>	C 3F <sub>8</sub>	C4F10	c-C4F <sub>8</sub>	C <sub>5</sub> F <sub>12</sub>	C <sub>6</sub> F <sub>14</sub>	Other PFCs (2) (please specify)	Total PFCs	HFC-23	SF <sub>6</sub>	Other halogenated gases <sup>(2)</sup> (please specify)
CO <sub>2</sub> equivalent conversion factors <sup>(1)</sup>												
[Source of the factor: ]												
Emissions	in or	igina	l ma	ss un	it (to	nne)						
2G Other Product Manufacture and Use												
2G1 Electrical Equipment												
2G1a Manufacture of Electrical Equipment (3)												
(information) Reduced amount (4)												
2G1b Use of Electrical Equipment (3)												
(information) Reduced amount (4)												
2G1c. Disposal of Electrical Equipment (3)												
(information) Reduced amount (4)												
2G2 SF <sub>6</sub> and PFCs from Other Product Uses												
2G2a Military Applications (3)												
(information) Reduced amount (4)												
2G2b Accelerators (3)												
University and Research Particle Accelerators (3)	)											
(information) Reduced amount (4)												
Industrial and Medical Particle Accelerators (3)												
(information) Reduced amount (4)												
2G2c Waterproofing of Electronic Circuits												
(information) Reduced amount <sup>(4)</sup>												
2G2d Other (please specify) (3), (5)												
(information) Reduced amount (4), (5)												
2G4 Other (please specify) (3), (5), (6)												
(information) Reduced amount (4), (5), (6)												
Emissions i	n CO	eau	ivale	nt un	it (G	a-CO	ه)					
2G Other Product Manufacture and Use					, ,	<u> </u>						
2G1 Electrical Equipment												
2G1a Manufacture of Electrical Equipment												
2G1b Use of Electrical Equipment												
2G1c Disposal of Electrical Equipment												
2G2 SF <sub>6</sub> and PFCs from Other Product Uses		1		<b> </b>		<b> </b>				1		
2G2a Military Applications (AWACS)		1		<b> </b>		<b> </b>				1		
2G2b Accelerators												
University and Research Particle Accelerators												
Industrial and Medical Particle Accelerators												
2G2c Waterproofing of Electronic Circuits										1		
2G2d Other (please specify) (5)												
2G4 Other (please specify) (5), (6)												
(1) Typically, global warming potential (100 year time horizon) identified	in the IP	CC As	l sessme	ent Rep	ort car	n be us	ed. The	e source o	of the	factors	must b	e specified in the

<sup>(1)</sup> Typically, global warming potential (100 year time horizon) identified in the IPCC Assessment Report can be used. The source of the factors must be specified in the bracket

- (3) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (4) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.)
- (5) Insert additional rows if necessary.
- (6) If HFCs with CO<sub>2</sub> equivalent conversion factor are estimated, include them in the column for "Other halogenated gases".

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:		

<sup>(2)</sup> Insert additional columns if necessary. The other halogenated gases for which the CO<sub>2</sub> equivalent conversion factor is not available should not be included in this table. Such gases should be reported in Table 2.11 IPPU background table: Greenhouse gases without CO<sub>2</sub> equivalent conversion factors.

Table 2.9 IPPU Background Table: 2G (2G3, 2G4) Other Product Manufacture and Use - N2O, CO2, CH4

		•	<u> </u>		, ,									
			Activity Data			Emissions								
Categories		Activity Data			N₂O (Gg)		CO <sub>2</sub> (Gg)		CH₄ (Gg)					
		Description	Quantity	Unit	Emissions (1)	(information) Reduction (2)	Emissions (1)	(information) Reduction (2)	Emissions (1)	(information) Reduction (2)				
2G3	N₂O from Product Uses													
2G3a	Medical Applications	N <sub>2</sub> O supplied		tonne										
2G3b	Propellant for Pressure and Aerosol Products	N <sub>2</sub> O supplied		tonne										
2G3c	Other (please specify) (3)	N <sub>2</sub> O supplied		tonne										
2G4	Other (please specify) (3)													

- (1) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (2) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.)
- (3) Insert additional rows if necessary.

Documentation box:			

### Table 2.10 IPPU Background Table: 2H Other

	A adii da	Activity Data		Emissions								
Categories	Activity Data		CO <sub>2</sub> (Gg)		CH₄	(Gg)	N₂O (Gg)					
Categories	Quantity	Unit	Emissions (1) (information) Reduction (2)		Emissions (1)	(information) Reduction <sup>(2)</sup>	Emissions (1)	(information) Reduction <sup>(2)</sup>				
2H Other												
2H1 Pulp and Paper Industry												
2H2 Food and Beverages Industry												
2H3 Other (please specify) (3)												

- (1) Enter the reported emissions (adjusted with captured and/or reduced amount).
- (2) Enter the quantities of reduction of generated gas (emission recovery, destruction, etc.).
- (3) Insert additional rows if necessary.

Documentation box:		

Table 2.11 IPPU Background Table: Greenhouse gases without CO<sub>2</sub> equivalent conversion factors (Updated)

	conversion factors (Updated)									
Categori	ies	(please specify) (1)								
	Emissions in original mass unit (	tonne)								
Total										
2B Chen	nical Industry									
2B9	Fluorochemical Production									
2B11	Other (please specify) (2)									
	Industry									
2C4	Magnesium Production									
2C7	Other (please specify) (2)									
	ronics Industry									
2E1	Integrated Circuit or Semiconductor									
2E2	Displays									
2E3	Photovoltaics									
2E4	Microelectromechanical systems (MEMS)									
2E5	Other (please specify) (2)									
	uct Uses as Substitutes for Ozone Depleting Substances									
2F1	Refrigeration and Air Conditioning									
2F1a	Refrigeration and Stationary Air Conditioning									
2F1b	Mobile Air Conditioning									
2F2	Foam Blowing Agents									
2F3	Fire Protection									
2F4	Aerosols									
2F5	Solvents									
2F6	Other Applications (please specify) (2)									
	er Product Uses									
2G1	Electrical Equipment									
2G1a	Manufacture of Electrical Equipment									
2G1b	Use of Electrical Equipment									
2G1c	Disposal of Electrical Equipment									
2G2	SF <sub>6</sub> and PFCs from Other Product Uses									
2G2a	Military Applications (AWACS)									
2G2b	Accelerators									
2G2c	Waterproofing of electronic circuits									
2G2d	Other (please specify) <sup>(2)</sup>									
2G4	Other (please specify) <sup>(2)</sup>									

<sup>(1)</sup> Insert additional columns if necessary. The gases for which the CO<sub>2</sub> equivalent conversion factor is available should not be included in this table. Such gases should be reported in the respective sectoral background tables and included in national totals.

Note: Where information is confidential the entries should provide aggregate figures but there should be a note indicating this in the documentation box below.

Documentation box:		

<sup>(2)</sup> Insert additional rows if necessary.

Table 2.12 IPPU Background Table: Allocation of CO<sub>2</sub> emissions from Non-Energy Use of fossil fuels: IPPU and other sectors [See also section 1.4 of Volume 3] (Updated)

	1.4 of volume		Reported in year:			
Catego	ory	Primary NEU fuel <sup>(1)</sup>		Emissions Amount Reported in IPPU Sector CO <sub>2</sub> <sup>(2)</sup> (Gg)	In case reported elsewhere: Sub-category in 1A where these emissions are (partly) reported	Notes
2 Indu	strial Processes and Product	Use				
	neral Industry					
	se specify the sub-category)	(Coal,)				4
2B Che	emical Industry					
2B1	Ammonia Production	Natural gas	Oil, coal			
2B5	Carbide Production	Pet coke	Oil			
2B6	Titanium Dioxide Production	Coal				
2B8	Petrochemical and Carbon Bla	ck Production				
2B8a	Methanol	Natural gas	Coal, oil			5
2B8b	Ethylene	Naphtha	Gas oil; butane, ethane, propane, LPG			5
2B8f	Carbon Black	Natural gas	Oil, coke oven gas			
2B10	Hydrogen Production	Natural gas	LPG, naphtha, coal, methanol, biomass and waste			
2B11	Other					
2C Me	tal Industry					
2C1	Iron and Steel Production	Coke	Coal, pet coke (carbon electrode)			6
2C2	Ferroalloys Production	(Carbon electrode)	Coke, coal			7
2C3		(Carbon electrode)	Coke, coal			7
2C5	Lead Production	Coke				
2C6	Zinc Production	Coke				
2C7	Other	(Carbon electrode)	Coke, coal			
2D No	n-Energy Products from Fuels		,			
2D1		Lubricants	Greases			
2D2	Paraffin Wax Use	Waxes				
2D3	Solvent Use	(Mineral turpentine)	Coal tars and oils			8
2D4	Other	(				9
2H Oth	ner			L	L	
2H1						
2H2	Food and Beverages Industry	Coke				
2H3	Other					
1 ENE	-					
1A Fue	el Combustion Activities			Reported in Sector 1A (3)		
1A1a	Main Activity Electricity and Heat Production	(BF gas)	(Chemical off-gases)			10
1A1b	Petroleum Refining					
1A1c	Manufacture of Solid Fuels and Other Energy Industries	BF gas				
1A2	Manufacturing Industries and Construction	(BF gas)	(Lubricants, chemical off-gases))			

- (1) The columns 'Primary NEU fuel' and 'Other NEU fuel' should be completed with the actual fuel types used.
- (2) These are the same emissions reported in the sectoral background table (also the same emissions notation keys NE, NO, IE, where applicable). If (partly) reported elsewhere, a reference to that other source category should be added in the next column.
- (3) Report here only the CO<sub>2</sub> emissions from combustion of waste gases produced from industrial processes but used for fuel combustion in other economic sectors and reported in the Energy sector.(e.g. from combustion of blast furnace gas or chemical off-gases transferred offsite to another source category).
- (4) For example, powdered anthracite coal may be used in Glass Production (2A3).
- (5) In cases where the production of off-gases (i.e. byproduct gases) is fully accounted for in the energy statistics, the combustion of these gases may be used to calculate and report CO<sub>2</sub> emissions from the feedstock losses. Part of these off-gases may be combusted off-site (i.e. in a sector other than the petrochemical industry) and should thus be accounted for separately as fuel combustion in the Energy Sector.
- (6) Part of the blast furnace gas produced from coke used in blast furnaces may be combusted off-site (i.e. in a sector other than the iron and steel industry) and should thus be accounted for separately as fuel combustion in the Energy Sector.
- (7) Carbon electrodes are generally manufactured from coke, coal or tar either on-site by the users themselves or separately by anode production plants and then sold to users domestically and/or exported. If anodes are also imported and/or exported, there is no direct correspondence between fuels used for anode production and the amounts of anodes used in the country.

- (8) Mineral turpentines are often used as solvent, possibly blended with other liquids. Aromatics derived from coal oils may also be used as solvents.
- (9) Emissions from asphalt production, paving of roads and roofing should be reported under 2D4. However, bitumen and other oil as diluent or 'road oil' used for this activity does not result in CO<sub>2</sub> emissions.
- (10) CO $_2$  from blast furnace gas and chemical off-gases should be reported here only when utilised in public power or heat production.

Documentation box:		

Table 3 AFOLU Sectoral Table (1 of 2) (Updated)

	3 AFOLU Sectoral Table (1 o	Net CO <sub>2</sub> emissions/		En	nissions		
Catego	ries	removals	CH₄	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOCs
				(Gg)			
3 AFOL	.U						
3A Live	estock						
3A1	Enteric Fermentation						
	Cattle						
3A1ai	Dairy Cows						
3A1aii	Other Cattle						
3A1b	Buffalo						
3A1c	Sheep						
3A1d	Goats						
3A1e	Camels						
3A1f	Horses						
	Mules and Asses						
3A1h	Swine						
3A1j	Other (please specify)						
3A2	Manure Management (1)						
3A2a	Cattle						
3A2ai	Dairy Cows						
3A2aii	Other Cattle						
3A2b	Buffalo						
3A2c	Sheep						
3A2d	Goats						
3A2e	Camels						
	Horses						
3A2g	Mules and Asses						
3A2h	Swine						
3A2i	Poultry						
3A2j	Other (please specify)						
	Co-digestates (on-farm)						
	Crop residues						
	Energy crops						
3A2kii	i Other						
3B Lan	d						
3B1	Forest Land						
3B1a	Forest Land Remaining Forest Land						
3B1b	Land Converted to Forest Land						
3B1bi							
	Grassland Converted to Forest Land						
	i Wetlands Converted to Forest Land						
	v Settlements Converted to Forest Land						
	Other Land Converted to Forest Land						
3B2	Cropland						
3B2a	Cropland Remaining Cropland						
3B2b	Land Converted to Cropland						
3B2bi							
	Grassland Converted to Cropland						
	ii Wetlands Converted to Cropland						
	v Settlements Converted to Cropland						
	Other Land Converted to Cropland						
3B3	Grassland						
3B3a	Grassland Remaining Grassland						
3B3b	Land Converted to Grassland						
3B3bi							
	Cropland Converted to Grassland						
	ii Wetlands Converted to Grassland						
3B3bi	v Settlements Converted to Grassland						
3B3bv	Other Land Converted to Grassland						

Table 3 AFOLU Sectoral Table (2 of 2) (Updated) (Continued)

Table 3 AFOLU Sectoral Table (2 of 2) (U	Net CO <sub>2</sub>	Emissions						
Categories	emissions/	CH₄	N₂O	NO <sub>x</sub>	СО	NMVOCs		
	removals	C114	142O (G			NIVIVOCS		
3B4 Wetlands						1		
3B4a Wetlands Remaining Wetlands								
3B4ai Peatlands Remaining Peatlands								
3B4aii Flooded Land Remaining Flooded Land								
3B4b Land Converted to Wetlands								
3B4bi Land Converted for Peat Extraction								
3B4bii Land Converted to Flooded Land								
3B4biii Land Converted to Other Wetlands								
3B5 Settlements								
3B5a Settlements Remaining Settlements								
3B5b Land Converted to Settlements								
3B5bi Forest Land Converted to Settlements								
3B5bii Cropland Converted to Settlements								
3B5biii Grassland Converted to Settlements								
3B5bivWetlands Converted to Settlements								
3B5bv Other Land Converted to Settlements								
3B6 Other Land								
3B6a Other Land Remaining Other Land								
3B6b Land Converted to Other Land								
3B6bi Forest Land Converted to Other Land								
3B6bii Cropland Converted to Other Land								
3B6biii Grassland Converted to Other Land								
3B6bivWetlands Converted to Other Land								
3B6bv Settlements Converted to Other Land								
C Aggregate Sources and Non-CO <sub>2</sub> Emissions Sources on and <sup>(2)</sup>								
3C1 Biomass Burning								
3C1a Biomass Burning in Forest Land								
3C1b Biomass Burning in Cropland								
3C1c Biomass Burnings in Grassland								
3C1d Biomass Burnings in All Other Land								
3C2 Liming								
3C3 Urea Fertilization								
3C4 Direct N₂O Emissions from Managed Soils (3)								
3C5 Indirect N₂O Emissions from Managed Soils								
3C6 Indirect N₂O Emissions from Manure Management								
3C7 Rice cultivation								
3C8 Other (please specify)								
D Other								
3D1 Harvested Wood Products								
3D2 Other (please specify)								

<sup>(1)</sup> Indirect N<sub>2</sub>O emissions are not included here (see category 3C6).

Documentation box:			

<sup>(2)</sup> If CO<sub>2</sub> emissions from Biomass Burning are not already included in Table 3.2 (Carbon stock changes background table), they should be reported here.

<sup>(3)</sup> Countries may report by land categories if they have the information.

<sup>\*</sup> Cells to report emissions of NO<sub>x</sub>, CO, and NMVOC have not been shaded although the physical potential for emissions is lacking for some categories.

Table 3.1 AFOLU Background Table: 3A1 - 3A2 Agriculture/Livestock

		Activity dat	a	Emissions			
Categor	ies			CH₄	N <sub>2</sub> O		
		(number of anii	nals)	 	(Gg)		
3A Lives							
3A1	Enteric Fermentation						
3A1a	Cattle						
3A1ai	Dairy Cows						
3A1aii	Other Cattle						
3A1b	Buffalo						
3A1c	Sheep						
3A1d	Goats						
3A1e	Camels						
3A1f	Horses						
3A1g	Mules and Asses						
3A1h	Swine						
3A1j	Other (please specify)						
3A2	Manure Management (1,2)						
3A2a	Cattle						
3A2ai	Dairy Cows						
3A2aii	Other Cattle						
3A2b	Buffalo						
3A2c	Sheep						
3A2d	Goats						
3A2e	Camels						
3A2f	Horses						
3A2g	Mules and Asses						
3A2h	Swine						
3A2i	Poultry						
3A2j	Other (please specify)						
		Total dry mass (kg/year)	Total N (kg N/yr)				
3A2k	Co-digestates (on- farm)						
3A2ki	Crop residues						
3A2kii	Energy crops						
3A2kiii	Other						

<sup>(1)</sup> Indirect N<sub>2</sub>O emissions are not included here.

ocumentation box:	

<sup>(2)</sup> Includes inputs from co-digestion of residues and crops used in the production of biogas.

Table 3.2 AFOLU Background Table: 3B Carbon stock changes in FOLU (1 of 2)

	o.z / (i o z o buongrouna		ity data						and CO <sub>2</sub> emis	sions			
					Ві	iomass			ad organic ma		Soil	s	
Categori	ies	Total area	Thereof: Area of organic soils	Increase	Decrease	Carbon emitted as CH₄ and CO from fires <sup>(1)</sup>	Net carbon stock change	Net carbon stock change	Carbon emitted as CH <sub>4</sub> and CO from fires <sup>(1)</sup>	Net carbon stock change	Net carbon stock change in mineral soils <sup>(2)</sup>	Carbon loss from drained organic soils	Net CO <sub>2</sub> emissions
		(	ha)					(Gg C)					(Gg CO <sub>2</sub> )
3B Land													
3B1	Forest Land												
3B1a	Forest Land Remaining Forest Land												
3B1b	Land Converted to Forest Land												
3B1bi	Cropland Converted to Forest Land												
3B1bii	Grassland Converted to Forest Land												
3B1biii	Wetlands Converted to Forest Land												
3B1biv	Settlements Converted to Forest Land												
3B1bv	Other Land Converted to Forest Land												
3B2	Cropland												
3B2a	Cropland Remaining Cropland												
3B2b	Land Converted to Cropland												
3B2bi	Forest Land Converted to Cropland												
3B2bii	Grassland Converted to Cropland												
3B2biii	Wetlands Converted to Cropland												
3B2biv	Settlements Converted to Cropland												
3B2bv	Other Land Converted to Cropland												
3B3	Grassland												
3B3a	Grassland Remaining Grassland												
3B3b	Land Converted to Grassland												
3B3bi	Forest Land Converted to Grassland												
3B3bii	Cropland Converted to Grassland												
3B3biii	Wetlands Converted to Grassland												
3B3biv	Settlements Converted to Grassland												
3B3bv	Other Land Converted to Grassland												
3B4	Wetlands (3)												
3B5	Settlements												

Table 3.2 AFOLU Background Table: 3B Carbon stock changes in FOLU (2 of 2) (Continued)

	oiz / ii o zo zaoligi oaiia		ity data				`	, ,	and CO <sub>2</sub> emiss				
				Biomass			Dead organic matter			Soil	S		
Categori	ies	Total area	Thereof: Area of organic soils	Increase	Decrease	Carbon emitted as CH <sub>4</sub> and CO from fires <sup>(1)</sup>	Net carbon stock change	Net carbon stock change	Carbon emitted as CH <sub>4</sub> and CO from fires <sup>(1)</sup>	Net carbon stock change	Net carbon stock change in mineral soils (2)	Carbon loss from drained organic soils	Net CO <sub>2</sub> emissions
		(1	ha)					(Gg C)					(Gg CO <sub>2</sub> )
3B5a	Settlements Remaining Settlements												
3B5b	Land Converted to Settlements												
3B5bi	Forest Land Converted to Settlements												
3B5bii	Cropland Converted to Settlements												
3B5biii	Grassland Converted to Settlements												
3B5biv	Wetlands Converted to Settlements												
3B5bv	Other Land Converted to Settlements												
3B6	Other Land												
3B6a	Other Land Remaining Other Land												
3B6b	Land Converted to Other Land												
3B6bi	Forest Land Converted to Other Land												
3B6bii	Cropland Converted to Other Land												
3B6biii	Grassland Converted to Other Land		_				_			_			
3B6biv	Wetlands Converted to Other Land				_		_			_			
3B6bv	Settlements Converted to Other Land												

<sup>(1)</sup> Where the carbon contained in the emissions of CH<sub>4</sub> and CO is significant part of the sectoral emissions, this should be copied from the corresponding columns in the Sectoral Background Table 3.4. This amount of carbon emitted as CH<sub>4</sub> and CO is then subtracted from carbon stock change to avoid double counting (see Volume 4, Section 2.2.3).

Documentation box:			

<sup>(2)</sup> The activity data used for this column correspond to the difference between the column Area and the Area of organic soils.

<sup>(3)</sup> CO<sub>2</sub> Emissions from Wetlands are reported in a separate background table (Table 3.3) that includes all gases emitted from Wetlands.

Table 3.3 AFOLU Background Table: Emissions in Wetlands (3B4) (Updated)

	Activity data		Emissions	
Categories	Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
, and the second se	(ha)	(Gg)		
3B4 Wetlands				
3B4a Wetlands Remaining Wetlands				
3B4ai Peatlands Remaining Peatlands				
3B4aii Flooded Land Remaining Flooded Land				
3B4b Land Converted to Wetlands				
3B4bi Land Converted for Peat Extraction				
3B4bii Land Converted to Flooded Land				
3B4biii Land Converted to Other Wetlands				

Documentation box:		

Table 3.4 AFOLU Background Table: Biomass Burning (3C1) (1 of 2)

Categories (1)		Activity data	-				Emission		-(4)	ı	Information item: Carbon emitted as CH <sub>4</sub> and CO <sup>(5)</sup>	
Categories (**	<b>.</b> (2)	(2) Unit Val		CO <sub>2</sub> (3)		H <sub>4</sub> <sup>(4)</sup> N <sub>2</sub> O	N₂O		O <sup>(4)</sup>	NO <sub>x</sub>	Biomass	DOM
	Description <sup>(2)</sup>	(ha or kg dm)			Biomass	DOM	(Gg)	Biomass DOM			(C G	ia)
3C1 Biomass Burning		(na or kg am)					(Og)				(5 0	9/
3C1a Biomass Burning in Forest Land												<del> </del>
Controlled Burning												
Wildfires												
3C1b Biomass Burning in Cropland												
Biomass Burning in Cropland Remaining Cropland												
Controlled Burning												
Wildfires												
Biomass burning in Forest Land Converted to Cropland												1
Controlled Burning												
Wildfires												
Biomass Burning in Non Forest Land Converted to Cropland												
Controlled Burning												1
Wildfires												
3C1c Biomass Burning in Grassland												1
Burning in Grassland Remaining Grassland												
Controlled Burning												
Wildfires												
Burning in Forest Land Converted to Grassland												
Controlled Burning												
Wildfires												
Burning in Non Forest Land Converted to Grassland												
Controlled Burning												
Wildfires												
3C1d Biomass Burning in All Other Land												
Biomass Burning in Other Land Remaining All Other Land												_ <del></del>
Controlled Burning												
Wildfires												

#### Table 3.4 AFOLU Background Table: Biomass Burning (3C1) (2 of 2) (Continued)

	Activity data			Emissions					Information item: Carbon emitted as CH <sub>4</sub> and CO <sup>(5)</sup>		
Categories (1)	Description <sup>(2)</sup>	Unit	Values	CO <sub>2</sub> (3)	CH Biomass	DOM	N <sub>2</sub> O	CC Biomass	NO <sub>x</sub>	Biomass	DOM
		(ha or kg dm)					(Gg)			(C (	Gg)
Biomass Burning in Forest Land Converted to All Other Land											
Controlled Burning											
Wildfires											
Biomass Burning in Non Forest Land Converted to All Other Land											
Controlled Burning											
Wildfires											

- (1) Parties should report both Controlled/Prescribed Burning and Wildfires emissions, where appropriate, in a separate manner.
- (2) For each land type data should be selected between area burned or biomass burned. Units for area will be in hectare (ha) and for biomass burned in kilogram dry matter (kg dm).
- (3) If CO<sub>2</sub> emissions from biomass burning are not already included in Table 3.2 (Carbon stock changes background table), they should be reported here. Carbon stock changes associated with biomass burning should not also be reported in Table 3.2 to avoid double counting.
- (4) CH<sub>4</sub> and CO emissions from biomass burning and DOM are reported separately.
- (5) Where the carbon contained in the emissions of CH<sub>4</sub> and CO is a significant part of the sectoral emissions this should be transferred to the corresponding columns in the Sectoral Background Table 3.2. This amount of carbon emitted as CH<sub>4</sub> and CO is then subtracted from carbon stock change to avoid double counting. The conversion factors to convert CH<sub>4</sub> and CO to C (as input to Table 3.2) are 12/16 for CH<sub>4</sub> and 12/28 for CO. (see Volume 4, Section 2.2.3).

Documentation box:		

Table 3.5 AFOLU Background Table: CO<sub>2</sub> emissions from Liming (3C2)

		Activity data									
Categories	Limestone CaCO <sub>3</sub>	Limestone CaCO <sub>3</sub> Dolomite CaMg(CO <sub>3</sub> ) <sub>2</sub> Total amount of lime applied (2)									
	(M	g/yr)	(Mg/yr)	(Gg)							
3C2 Liming <sup>(1)</sup>											
Forest Land											
Cropland											
Grassland											
Wetland											
Other Land											
Other											

<sup>(1)</sup> If countries are not able to separate liming application for different land use categories, they should use the main category "Liming". Also, if a country has data broken down to limestone and dolomite at national level, it can be reported under this category.

(2). A country may report addredate estimates for total lime applications when data are not available for limestone at	total lime applications when	ntry may report aggregate estimates for total lime applications when data are not available for limestone and dolor	mite
--	------------------------------	---	------

cumentation box:	

Table 3.6 AFOLU Background Table: CO<sub>2</sub> emissions from Urea Fertilization (3C3)

Table 5.671 526 Background Table: 552 chilociche from 5164 forthization (555)								
	Activity data	Emissions						
Categories	Total amount of urea applied	CO <sub>2</sub>						
	(Mg/yr)	(Gg)						
3C3 Urea applied (1)								
Forest Land								
Cropland								
Grassland								
Settlements								
Other Land								

(1) If countries are not able to separate urea application for different land use categories, they should use the main category "Urea applied".

Documentation box:		

Table 3.7 AFOLU Background Table: Direct N₂O emissions from Managed Soils (3C4)

	Activity data	Emissions	
Categories (1)	Total amount of nitrogen applied	N <sub>2</sub> O	
	(Gg N/yr)	(Gg)	
3C4 Direct N₂O Emissions from Managed Soils			
Inorganic N fertilizer application			
Forest Land			
Cropland			
Grassland			
Settlements			
Other Land			
Organic N applied as fertilizer (manure and organic wastes)			
Forest Land			
Cropland			
Grassland			
Settlements			
Other Land			
Urine and dung N deposited on pasture, range and paddock by grazing animals $\ensuremath{^{(2)}}$			
N in crop residues (3)			
	Area		
	(ha)		
N mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils (3)			
Drainage/management of organic soils (i.e., Histosols)			

<sup>(1)</sup> Countries will report at the aggregation level if their activity data allows them within each category. If country has disaggregated data by land use, reporting is also possible using this table.

- (2) Only for Grassland.
- (3) Only for Cropland.

Documentation box:		

### Table 3.8 AFOLU Background Table: Indirect N₂O emissions from Managed Soils and Manure Management (3C5 and 3C6)

	Activity data	Emissions
Categories (1)	Total amount of nitrogen applied / excreted	N₂O
	(Gg N/yr)	(Gg)
3C5 Indirect N₂O emissions from Managed Soils		
From atmospheric deposition of N volatilized from managed soils from agricultural inputs of N (synthetic N fertilizers; organic N applied as fertilizer; urine and dung N deposited on pasture, range and paddock by grazing animals (2)		
Forest Land		
Cropland		
Grasslands		
Settlements		
Other Land		
From N leaching/runoff from managed soils (i.e. from synthetic N fertilizers; organic N applied as fertilizer; urine and dung N deposited on pasture, range and paddock by grazing animals <sup>(2)</sup> ; N in crop residues <sup>(3)</sup> ; and N mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils <sup>(3)</sup> )		
Forest Land		
Cropland		
Grasslands		
Settlements		
Other Land		
3C6 Indirect N₂O emissions from Manure Management		

(1	<ul> <li>Countries will report at the aggregation level if their active</li> </ul>	ty data allows them within each category. If count	try has disaggregated data by	v land use, reporting is also possible using this tab	ole.

(3) Only for Cropland.

Documentation box:		

<sup>(2)</sup> Only for Grassland.

### Table 3.9 AFOLU Background Table: Non-CO<sub>2</sub> GHG emissions not included elsewhere (3C7 and 3C8)

Categories	A objective data	Emissions		
	Activity data CH₄		N₂O	
	(ha)	(Gg)		
3C7 Rice cultivation (1)				
3C8 Other (please specify)				

(1) If a country wishes to report direct N<sub>2</sub>O emissions from N fertilizer application to rice field, it should be reported here. Otherwise, in Table 3.7.

Documentation box:		

Table 3.10 AFOLU Background Table: Harvested Wood Products (3D1) - Annual carbon HWP contribution to total AFOLU CO<sub>2</sub> removals and emissions and background information

		Variable number									
	1A	1B	2A	2B	3	4	5	6	7	8	9
Inventory year		in stock of HWP	Annual Change in stock of HWP in use produced from domestic harvest	in stock of HWP		Annual Exports of wood, and paper products + wood fuel, pulp, recovered paper, roundwood/ chips	Annual Domestic Harvest	of carbon to the atmosphere from HWP consumption (from fuelwood & products in use and products in SWDS)	Annual release of carbon to the atmosphere from HWP (including fuelwoood) where wood came from domestic harvest (from products in use and products in SWDS)	HWP Contribution to AFOLU CO <sub>2</sub> emissions/ removals	Approach used to estimate HWP Contribution
	∆C <sub>HWP IU DC</sub>	$\Delta \mathbf{C}_{HWP}$ swds dc	$\Delta$ C HWP IU DH	$\Delta \mathbf{C}_{HWP}$ swds dh	P <sub>IM</sub>	P <sub>EX</sub>	Н	↑CHWP DC	↑C <sub>HWP DH</sub>		
					Gg C /yr					Gg CO <sub>2</sub> /yr	
1990											

Report Col 6 or 7 as needed for the approach used. Col 6 or 7 may be computed using Cols 1 through 5 or by a Tier 3 method. Always report Cols 3, 4, and 5. Report Cols 1A, 1B, 2A, 2B if they are used.

The HWP contribution and approach should be reported in Columns 8 and 9 together with a description of the approach chosen and main assumptions in the Documentation Box Additional Variables calculated and used should be reported to enhance the transparency of the results. (e.g., CH<sub>4</sub> from SWDS if this was used) Add additional columns if needed.

Note: ↑C HWP DC = H + PIM - PEX - △C HWP IU DC - △C HWP SWDS DC AND ↑C HWP DH = H - △C HWP IU DH - △C HWP SWDS DH

Documentation box:			

#### **Table 4 Waste Sectoral Table**

Outomator	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NOx	СО	NMVOC (1)	SO <sub>2</sub>
Categories	(Gg)						
4 WASTE							
4A Solid Waste Disposal							
4A1 Managed Waste Disposal Sites							
4A2 Unmanaged Waste Disposal Sites							
4A3 Uncategorised Waste Disposal Sites							
4B Biological Treatment of Solid Waste							
4C Incineration and Open Burning of Waste							
4C1 Waste Incineration							
4C2 Open Burning of Waste							
4D Wastewater Treatment and Discharge							
4D1 Domestic Wastewater Treatment and Discharge							
4D2 Industrial Wastewater Treatment and Discharge							
4E Other (please specify) (2)							

<ol> <li>Countries may wish to report emissions of NMVOCs from waste disposal sites and wastewater tr</li> </ol>
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Documentation box:		

<sup>(2)</sup> Insert additional rows if necessary.

<sup>\*</sup> Cells to report emissions of NO<sub>x</sub>, CO, NMVOC and SO<sub>2</sub> have not been shaded although the physical potential for emissions is lacking for some categories.

Table 4.1 Waste Background Table: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O emissions (Updated)

				<b>Emission facto</b>	r		Emissions	
Categories	Type of activity data	Unit	CO <sub>2</sub>	CH₄	N <sub>2</sub> O	CO <sub>2</sub>	CH₄	N <sub>2</sub> O
	uata		(G	g/unit activity d	ata)		(Gg)	
4A Solid Waste Disposal (1)								
4A1 Managed Waste Disposal Sites								
4A2 Unmanaged Waste Disposal Sites								
4A3 Uncategorised Waste Disposal Sites								
4B Biological Treatment of Solid Waste								
4C Incineration and Open Burning of Waste (2)								
4C1 Waste Incineration								
4C2 Open Burning of Waste								
4D Wastewater Treatment and Discharge								
4D1 Domestic Wastewater Treatment and Discharge								
CH <sub>4</sub> emissions (3)								
N <sub>2</sub> O emissions <sup>(4)</sup>								
4D2 Industrial Wastewater Treatment and Discharge								
CH <sub>4</sub> emissions <sup>(3)</sup>								
N <sub>2</sub> O emissions <sup>(4)</sup>								
4E Other (please specify) (5)								

- (1) Amount of waste deposited in the SWDS in the inventory year. [mil. tonnes of wet waste/yr] Specification by waste type is encouraged. Emission factor data (parameters used in the calculations) should be reported in FOD parameter sheet or reported separately, when other methods are used.
- (2) Waste burned for energy is reported in the Energy Sector under 1A. Information on reporting of waste combustion in the Energy Sector should be given in the documentation box.
- (3) Activity data for estimation of CH<sub>4</sub> emissions is total amount of organically degradable material in the wastewater (TOW) [Gg BOD/yr or Gg COD/yr].
- (4) Activity data for estimation of N<sub>2</sub>O emissions is total amount of nitrogen in wastewater (TN) [Gg N/yr] and total amount of nitrogen in effluent (N<sub>EFFLUENT</sub>) [Gg N/yr]
- (5) Insert additional rows if necessary.

Documentation box:			

Table 4.2 Waste Background Table: CH<sub>4</sub> recovery (1) (2)

Cotomovico	Unit		CH₄
Categories	Gg CH₄	Flared (3)	Energy recovery (4)
4A Solid Waste Disposal			
4B Biological Treatment of Solid Waste			
4D Wastewater Treatment and Discharge			
4D1 Domestic Wastewater Treatment and Discharge			
4D2 Industrial Wastewater Treatment and Discharge			
4E Other (please specify) (5)			

- (1) The amount of CH<sub>4</sub> recovery should be reported in this table even if the gas is used for energy.
- (2) Flaring and energy recovery should be reported separately, if possible.
- (3) Default EF for CH<sub>4</sub> and N<sub>2</sub>O from flaring is zero. The CO<sub>2</sub> emissions are not reported as the gas is of biogenic origin.
- (4) When  $CH_4$  recovered is used for energy, the emissions from the combustion of the gas should be reported in the Energy sector (under 1A). Default EF for  $CH_4$  and  $N_2O$  from the combustion of the gas is zero.
- (5) Insert additional rows if necessary.

Documentation box:		

Table 4.3 Waste Background Table: Long-term storage of carbon Information items

Catagorica	C (1)				
Categories	(Gg)				
Information items <sup>(2)</sup>					
Long-term storage of carbon in waste disposal sites					
Annual change in total long-term storage of carbon stored					
Annual change in long-term storage of carbon in HWP waste (3)					

- (1) Report in mass carbon.
- (2) These items are listed for information only and will not be added to the totals. The carbon should be converted to carbon dioxide.
- (3) Carbon stored in wood, paper, cardboard, garden (yard) and park (equal to the annual change in stock of HWP in SWDS from consumption, reported in Table 3.10, Column 1B).

Documentation box:		

#### Table 5A Cross-sectoral Table: Indirect emissions of N<sub>2</sub>O <sup>(1)(2)</sup>

	Activity data	Activity data / source emissions			
Categories	Emissions NH₃	Emissions NO <sub>x</sub>	N <sub>2</sub> O		
	(Gg NH₃)	(Gg NO₂-equivalents)	(Gg N₂O)		
1 Energy					
2 Industrial Processes and Product Use					
3 Agriculture, Forestry and Other Land Use					
3C5 Indirect N₂O Emissions from managed soils					
3C6 Indirect N₂O Emissions from manure management					
Other (3) (Please specify)					
4 Waste					
5 Other (Please specify) (4)					

<sup>(1) 90</sup> to 99 percent of ammonia emissions originate in the Agriculture Sector. Other emission sources for ammonia are in the Energy Sector (such as combustion, petroleum refining, catalyst cars in the transport sector), in the Industrial Processes and Product Use Sector in particular from production of ammonia, nitric acid, ammonium nitrate and phosphate, urea, and fertilizers), and from metal industry (coke ovens battery operations), and also in the Waste Sector (solid waste disposal and waste incineration).

- (2) Indirect N<sub>2</sub>O emissions from nitrogen leaching /runoff from managed soils in AFOLU categories are included in Table 3.8.
- (3) Any other sources not included in 3C5 and 3C6.
- (4) Insert additional rows if necessary.

Documentation box:			

Table 6A Trends of CO<sub>2</sub> (1 of 3) (Updated) (Gg)

I able	e 6A Trends of CO <sub>2</sub> (1 of 3)	(U	pd	ate	ed)	) (C	<b>3</b> g)														
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Total N	ational Emissions and Removals																				
1 ENE	RGY																				
1A	Fuel Combustion Activities																				
1A1	Energy Industries																				
1A2	Manufacturing Industries and Construction																				
1A3	Transport																				
1A4	Other Sectors																				
1A5	Non-Specified																				
1B	Fugitive Emissions from Fuels																				
1B1	Solid Fuels																				
1B2	Oil and Natural Gas																				
1B3	Other Emissions from Energy Production																				
1C	Carbon Dioxide Transport and Storage																				
_	STRIAL PROCESSES AND DUCT USE																				
2A	Mineral Industry																				
2A1	Cement Production																				
2A2	Lime Production																				
2A3	Glass Production																				
2A4	Other Process Uses of Carbonates																				
2A5	Other (please specify)																				
2B	Chemical Industry																				
2B1	Ammonia Production																				
2B2	Nitric Acid Production																				
2B3	Adipic Acid Production																				
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production																				
2B5	Carbide Production																				
2B6	Titanium Dioxide Production																				
2B7	Soda Ash Production																				
2B8	Petrochemical and Carbon Black Production																				
2B9	Fluorochemical Production																				
2B10	Hydrogen Production																				
2B11	Other (please specify)																				
2C	Metal Industry																				
2C1	Iron and Steel Production																				
2C2	Ferroalloys Production																				
2C3	Aluminium Production																				
2C4	Magnesium Production																				
2C5	Lead Production																				
2C6	Zinc Production																				
2C7	Rare Earths Production																				
2C8	Other (please specify)																				
2D	Non-Energy Products from Fuels and Solvent Use																				
2D1	Lubricant Use																				LT
2D2	Paraffin Wax Use								L	L											
2D3	Solvent Use																				
2D4	Other (please specify)																				
2E	Electronics Industry																				
2E1	Integrated Circuit or Semiconductor																				LT
2E2	Displays																				
2E3	Photovoltaics																				
2E4	Microelectromechanical systems (MEMS)																				
2E5	Other (please specify)																				

# Table 6A Trends of CO<sub>2</sub> (2 of 3) (Updated) (Continued) (Gg)

(Gg)																					
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
2F	Product Uses as Substitutes for Ozone Depleting Substances																				
2F1	Refrigeration and Air Conditioning																				
2F2	Foam Blowing Agents																				
2F3	Fire Protection																				
2F4	Aerosols																				
2F5	Solvents																				
2F6	Other Applications																				
2G	Other Product Manufacture and Use																				
2G1	Electrical Equipment																				
2G2	SF <sub>6</sub> and PFCs from Other Product Uses																				
2G3	N₂O from Product Uses																				
2G4	Other (please specify)																				
2H	Other																				
2H1	Pulp and Paper Industry																				
2H2	Food and Beverages Industry																				
-	Other (please specify)																				
3 AGR	CULTURE, FORESTRY AND OTHER																				
3A	Livestock																				
3A1	Enteric Fermentation																				
3A2	Manure Management																				
3B	Land																				
3B1	Forest Land																				
3B2	Cropland																				
3B3	Grassland																				
3B4	Wetlands																			$\vdash$	
3B5	Settlements																			$\vdash$	
3B6	Other Land																			H	
3C	Aggregate Sources and Non-CO <sub>2</sub> Emissions Sources on Land																				
3C1	Biomass Burning																				
3C2	Liming																				
3C3	Urea Application																				
3C4	Direct N <sub>2</sub> O Emissions from Managed Soils																				
3C5	Indirect N <sub>2</sub> O Emissions from Managed Soils																				
3C6	Indirect N <sub>2</sub> O Emissions from Manure Management																				
3C7	Rice cultivation																				
3C8	Other (please specify)																				
3D	Other																				
3D1	Harvested Wood Products																				
3D2	Other (please specify)																				
4 WAS	TE																				
4A	Solid Waste Disposal																				
4A1	Managed Waste Disposal Sites																				
4A2	Unmanaged Waste Disposal Sites																				
4A3 <b>4B</b>	Uncategorised Waste Disposal Sites Biological Treatment of Solid Waste																				
4C	Incineration and Open Burning of Waste																				
4C1	Waste Incineration																				
4C2	Open Burning of Waste																				
_	. •		1					1						l				1	<u> </u>		

# Table 6A Trends of CO<sub>2</sub> (3 of 3) (Updated) (Continued) (Gg)

Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
4D	Wastewater Treatment and Discharge																				
4D1	Domestic Wastewater Treatment and Discharge																				
4D2	Industrial Wastewater Treatment and Discharge																				
4E	Other (please specify)																				
5 OTH	ER																				
5A	Indirect N₂O emissions from the Atmospheric Deposition of Nitrogen in NO₂ and NH₃																				
5B	Other (please specify)																				
Memo	items																				
Interna	itional Bunkers																				
	International Aviation (International Bunkers)																				
	International Water-borne Transport (International Bunkers)																				
	Multilateral Operations																				
Inform	ation items (1)																				
CO <sub>2</sub> fro	om Biomass Burning for Energy ction																				
CO <sub>2</sub> ca	aptured																				
	For domestic storage																				
	For storage in other countries																				
Long-te	erm storage of carbon in waste al sites																				
	Annual change in total long-term storage of carbon stored																				
	Annual change in long-term storage of carbon in HWP waste																				
Other (	(please specify)																				

<sup>(1)</sup> Here, both emissions and removals can be listed.

	e 6B Trends of CH4 (1 of	3)	(U	pc	lat	ed)	) ((	<b>3</b> g)	)												
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Total N	ational Emissions and Removals																				
1 ENE	RGY																				
1A	Fuel Combustion Activities																				
1A1	Energy Industries																				
1A2	Manufacturing Industries and Construction																				
1A3	Transport																				
1A4	Other Sectors																				
1A5	Non-Specified																				
1B	Fugitive Emissions from Fuels																				
1B1	Solid Fuels																				
1B2	Oil and Natural Gas																				
1B3	Other Emissions from Energy Production																				
1C	Carbon Dioxide Transport and Storage																				
	STRIAL PROCESSES AND DUCT USE																				
2A	Mineral Industry																				
2A1	Cement Production																				
2A2	Lime Production																				
2A3	Glass Production																				
2A4	Other Process Uses of Carbonates																				
2A5	Other (please specify)																				
2B	Chemical Industry																				
2B1	Ammonia Production																				
2B2	Nitric Acid Production																				
2B3	Adipic Acid Production																				
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production																				
2B5	Carbide Production																				
2B6	Titanium Dioxide Production																				
2B7	Soda Ash Production																				
2B8	Petrochemical and Carbon Black Production																				
2B9	Fluorochemical Production																				
2B10	Hydrogen Production																				
2B11	Other (please specify)																				
2C	Metal Industry																				
2C1	Iron and Steel Production																			<u> </u>	
2C2	Ferroalloys Production																			<u> </u>	
2C3	Aluminium Production																			_	
2C4	Magnesium Production																				
2C5	Lead Production																				
2C6	Zinc Production																				
2C7	Rare Earths Production																				
2C8	Other (please specify)																			<del> </del>	_
2D	Non-Energy Products from Fuels and Solvent Use																				
2D1	Lubricant Use																				
2D2	Paraffin Wax Use																				
2D3	Solvent Use																				
2D4	Other (please specify)																			$\vdash$	-
2E	Electronics Industry																				
2E1	Integrated Circuit or Semiconductor																				
2E2 2E3	Displays Photovoltaics																				
	Microelectromechanical systems																				
2E4 2E5	(MEMS) Other (please specify)																				
∠ <u>⊏</u> 0	Other (please specify)					<u> </u>		<u> </u>			<u> </u>		<u> </u>	<u> </u>				<u> </u>		Щ	<u></u>

### Table 6B Trends of CH<sub>4</sub> (2 of 3) (Updated) (Continued)

(Gg)

(Gg)																					
Categ		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
2F	Product Uses as Substitutes for Ozone Depleting Substances																				
2F1	Refrigeration and Air Conditioning																				
2F2	Foam Blowing Agents																				
2F3	Fire Protection																				
2F4	Aerosols																				
2F5	Solvents																				
2F6	Other Applications																				
2G	Other Product Manufacture and Use																				
2G1	Electrical Equipment																				
2G2	SF <sub>6</sub> and PFCs from Other Product Uses																				
2G3	N₂O from Other Product Uses																				
2G4	Other (please specify)																				
2H	Other																				
2H1	Pulp and Paper Industry																				
2H2	Food and Beverages Industry																				
2H3	Other (please specify)																				
	ICULTURE, FORESTRY AND OTHER D USE																				
3A	Livestock																				
3A1	Enteric Fermentation																				
3A2	Manure Management																				
3B	Land																				
3B1	Forest Land																				
3B2	Cropland																				
3B3	Grassland																				
3B4	Wetlands																				
3B5	Settlements																				
3B6	Other Land																				
3C	Aggregate Sources and Non-CO <sub>2</sub> Emissions Sources on Land																				
3C1	Biomass Burning																				
3C2	Liming																				
3C3	Urea Application																				
3C4	Direct N <sub>2</sub> O Emissions from Managed Soils																				
3C5	Indirect N <sub>2</sub> O Emissions from Managed Soils																				
3C6	Indirect N <sub>2</sub> O Emissions from Manure Management																				
3C7	Rice cultivation																				
3C8	Other (please specify)																				
3D	Other																				
3D1	Harvested Wood Products																				
3D2	Other (please specify)																				
4 WAS																					
4A	Solid Waste Disposal																				
4A1	Managed Waste Disposal Sites																				
4A2	Unmanaged Waste Disposal Sites																				
4A3	Uncategorised Waste Disposal Sites																				
4B	Biological Treatment of Solid Waste																				
4C	Incineration and Open Burning of Waste																				
4C1	Waste Incineration																				
4C2	Open Burning of Waste																				
	. 9:																				

### Table 6B Trends of CH<sub>4</sub> (3 of 3) (Updated) (Continued) (Gg)

Catego	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
4D	Wastewater Treatment and Discharge																				
4D1	Domestic Wastewater Treatment and Discharge																				
4D2	Industrial Wastewater Treatment and Discharge																				
4E	Other (please specify)																				
5 OTH	ER																				
5A	Indirect N₂O emissions from the Atmospheric Deposition of Nitrogen in NO <sub>x</sub> and NH₃																				
5B	Other (please specify)																				
Memo	items																				
Interna	tional Bunkers																				
	International Aviation (International Bunkers)																				
	International Water-borne Transport (International Bunkers)																				
	Multilateral Operations																				
Inform	ation items <sup>(1)</sup>																				
CO <sub>2</sub> fro Produc	om Biomass Burning for Energy tion																				
CO <sub>2</sub> ca	ptured																				
	For domestic storage																				
	For storage in other countries																				
Long-te sites	erm storage carbon in waste disposal																				
	Annual change in total long-term storage of carbon stored																				
	Annual change in long-term storage of carbon in HWP waste																				
Other (	please specify)																				

<sup>(1)</sup> Here, both emissions and removals can be listed.

Table 6C Trends of N<sub>2</sub>O (1 of 3) (Updated) (Gg)

	e 6C Trends of N <sub>2</sub> O (1 of																				
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Total N	lational Emissions and Removals																				
1 ENER	RGY																				
1A	Fuel Combustion Activities																				
1A1	Energy Industries																				
1A2	Manufacturing Industries and Construction																				
1A3	Transport																				
1A4	Other Sectors																				
1A5	Non-Specified																				
1B	Fugitive Emissions from Fuels																				
1B1	Solid Fuels																				
1B2	Oil and Natural Gas																				
1B3	Other Emissions from Energy Production																				
1C	Carbon Dioxide Transport and Storage																				
	STRIAL PROCESSES AND DUCT USE																				
2A	Mineral Industry																				
2A1	Cement Production																				
2A2	Lime Production																				
2A3	Glass Production																				
2A4	Other Process Uses of Carbonates																				
2A5	Other (please specify)																				
2B	Chemical Industry																				
2B1	Ammonia Production																				
2B2	Nitric Acid Production																				
2B3 2B4	Adipic Acid Production  Caprolactam, Glyoxal and Glyoxylic																				
20.5	Acid Production																				
2B5 2B6	Carbide Production  Titanium Dioxide Production																				
2B7	Soda Ash Production																				
2B8	Petrochemical and Carbon Black Production																				
2B9																					
	Hydrogen Production																				
	Other (please specify)																				
2C	Metal Industry																				
2C1	Iron and Steel Production																				
2C2	Ferroalloys Production																				
2C3	Aluminium Production																				
2C4	Magnesium Production																				
2C5	Lead Production																				
2C6	Zinc Production																				
2C7	Rare Earths Production																				
2C8	Other (please specify)																				
2D	Non-Energy Products from Fuels and Solvent Use																				
2D1	Lubricant Use																				
2D2																					
2D3	Solvent Use																				
2D4	Other (please specify)																				
2E	Electronics Industry																				
2E1	Integrated Circuit or Semiconductor																				
2E2	Displays																				
2E3	Photovoltaics																				
2E4	Microelectromechanical systems (MEMS)																				
2E5	Other (please specify)																			<u> </u>	<u> </u>

# Table 6C Trends of N<sub>2</sub>O (2 of 3) (Updated) (Continued) (Gg)

(Gg)																					_
Categ		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
2F	Product Uses as Substitutes for Ozone Depleting Substances																				
2F1	Refrigeration and Air Conditioning																				
2F2	Foam Blowing Agents																				
2F3	Fire Protection																				
2F4	Aerosols																				
2F5	Solvents																				
2F6	Other Applications																				
2G	Other Product Manufacture and Use																				
2G1	Electrical Equipment																				
	SF <sub>6</sub> and PFCs from Other Product Uses																				
2G3	N <sub>2</sub> O from Other Product Uses																				
2G4																					
2H	Other																				
2H1																					
2H2																					
	3 ,																				
	Other (please specify)																				$\vdash \vdash$
ОТН	ICULTURE, FORESTRY AND ER LAND USE																				
3A	Livestock																				
3A1	Enteric Fermentation																				
3A2	Manure Management																				Ш
3B	Land																				
3B1	Forest land																				
3B2	Cropland																				
3B3	Grassland	L																			
3B4	Wetlands																				
3B5	Settlements																				
3B6	Other land																				
3C	Aggregate Sources and non-CO <sub>2</sub> Emissions Sources on Land																				
3C1	Biomass Burning																				
3C2	Liming																				
3C3	Urea Application																				
3C4	Direct N₂O Emissions from Managed Soils																				
3C5	Indirect N₂O Emissions from Managed Soils																				
3C6	Indirect N <sub>2</sub> O Emissions from Manure Management																				
3C7	Rice cultivation																				
3C8	Other (please specify)																				
3D	Other																				
3D1	Harvested Wood Products																				
3D2	Other (please specify)																				
4 WAS	TE																				
4A	Solid Waste Disposal																				
4A1	Managed Waste Disposal Sites																				
4A2	Unmanaged Waste Disposal Sites																				
4A3	Uncategorised Waste Disposal Sites																				
4B	Biological Treatment of Solid Waste																				
4C	Incineration and Open Burning of Waste																				
4C1	Waste Incineration																				
4C2	Open Burning of Waste																				
				•	•			_				_	_			_	_	_	•	•	

# Table 6C Trends of N<sub>2</sub>O (3 of 3) (Updated) (Continued) (Gg)

Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
4D	Wastewater Treatment and Discharge																				
4D1	Domestic Wastewater Treatment and Discharge																				
4D2	Industrial Wastewater Treatment and Discharge																				
4E	Other (please specify)																				
5 OTH	ER																				
5A	Indirect N₂O emissions from the Atmospheric Deposition of Nitrogen in NO₂ and NH₃																				
5B	Other (please specify)																				
Memo	items																				
Interna	itional Bunkers																				
	International Aviation (International Bunkers)																				
	International Water-borne Transport (International Bunkers)																				
	Multilateral Operations																				
Inform	ation items (1)																				
CO <sub>2</sub> fro	om Biomass Burning for Energy ction																				
CO <sub>2</sub> ca	aptured																				
	For domestic storage																				
	For storage in other countries																				
	erm storage of carbon in waste al sites																				
	Annual change in total long-term storage of carbon stored																				
	Annual change in long-term storage of carbon in HWP waste																				
Other (	(please specify)																				

<sup>(1)</sup> Here, both emissions and removals can be listed.

Table 6D Trends of HFCs (CO<sub>2</sub> equivalents (Gg)) (Updated)

	e 6D Trends of HFCs (CO		_			_			_		_	1		1					1		
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
	lational Emissions and Removals																				
_	ISTRIAL PROCESSES AND DUCT USE																				
2A	Mineral Industry																				
2A1	Cement Production																				
2A2	Lime Production																				
2A3	Glass Production																				
2A4	Other Process Uses of Carbonates																				
2A5	Other (please specify)																				
2B	Chemical Industry																				
2B1	Ammonia Production																				
2B2	Nitric Acid Production																				
2B3	Adipic Acid Production																				
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production																				
2B5	Carbide Production																				
2B6	Titanium Dioxide Production																				
2B7	Soda Ash Production																				
2B8	Petrochemical and Carbon Black Production																				
2B9	Fluorochemical Production																				
2B10	Hydrogen Production																				
2B11	Other (please specify)																				
2C	Metal Industry																				
2C1	Iron and Steel Production																				
2C2	Ferroalloys Production																				
2C3	Aluminium Production																				
2C4	Magnesium Production																				
2C5	Lead Production																				
2C6	Zinc Production																				
2C7	Rare Earths Production																				
2C8	Other (please specify)																				
2D	Non-Energy Products from Fuels and Solvent Use																				
2D1	Lubricant Use																				
2D2	Paraffin Wax Use																				
2D3																					
2D4	Other (please specify)																				
2E	Electronics Industry																				
2E1	Integrated Circuit or Semiconductor																				
2E2	Displays																				
2E3	Photovoltaics																				Ш
2E4	Microelectromechanical systems (MEMS)																				
2E5	Other (please specify)																				
2F	Product Uses as Substitutes for Ozone Depleting Substances																				
2F1	Refrigeration and Air Conditioning																				
2F2	Foam Blowing Agents																				
2F3	Fire Protection																				
2F4	Aerosols																				
2F5	Solvents																				
2F6	Other Applications																				
2G	Other Product Manufacture and Use																				
2G1	Electrical Equipment																				
2G2	SF <sub>6</sub> and PFCs from Other Product Uses																				
2G3	N <sub>2</sub> O from Other Product Uses																				
2G4	Other (please specify)																				
2H	Other																				
						_		_		_	_							_	_		

2H1 Pulp and Paper Industry										
2H2 Food and Beverages Industry										
2H3 Other (please specify)										

Table 6E Trends of PFCs (CO<sub>2</sub> equivalents (Gq)) (Updated)

2A2   Lime Production		e 6E Trends of PFCs (CO2											1			1	1		1			
2 INDUSTRIAL PROCESSES AND PRODUCT USE	Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
A																						
2A2 Lime Production 2A2 Lime Production 2A3 Glass Production 2A4 Other Process Uses of Carbonates 2A5 Other (please specify) 2B1 Ammonia Production 2B2 Nitric Add Production 2B3 Addipic Acid Production 2B3 Addipic Acid Production 2B4 Caprolactam, Glyoxal and Glyoxylic Acid Production 2B5 Carticle Production 2B6 Titanium Dioxide Production 2B7 Soda Ash Production 2B8 Petrochemical and Carbon Black Production 2B9 Petrochemical and Carbon Black Production 2B10 Production 2B10 Production 2B10 Production 2B10 Production 2B11 Other (please specify) 2C Metal Industry 2C Metal Industry 2C1 Iron and Steel Production 2C2 Ferroalicys Production 2C3 Aluminium Production 2C3 Aluminium Production 2C3 Aluminium Production 2C4 Magnesium Production 2C5 Lead Production 2C6 Zinc Production 2C7 Rare Earths Production 2C8 Zinc Production 2C9 Production 2C	_																					
2A2   Lime Production	2A	Mineral Industry																				
2A3 Glass Production 2A4 Other Process Uses of Carbonates 2A5 Other (please specify) 2B	2A1	Cement Production																				
2AA Other (Process Uses of Carbonates	2A2	Lime Production																				
285   Other (please specify)   286   Chemical Industry   287   Ammonia Production   282   Nitric Acid Production   283   Adiptic Acid Production   284   Caprolactam, Glyoxal and Glyoxylic   Acid Production   285   Carbide Production   286   Carbide Production   286   Carbide Production   287   Soda Ash Production   288   Petrochemical and Carbon Black   Production   288   Petrochemical and Carbon Black   Production   289   Fluorochemical Production   281   Other (please specify)   281   Other (please specify)   282   Metal Industry   283   Metal Industry   284   Other (please specify)   284   Other (please specify)   285   Carbide Production   286   Carbide Production   287   Carbide Production   288   Carbide Production   288   Carbide Production   289   Carbide Production   280   Carbide Production   280   Carbide Production   280   Carbide Production   280   Carbide Production   281   Carbide Production   282   Carbide Production   283   Carbide Production   284   Carbide Production   285   Carbide Production   285   Carbide Production   286   Carbide Production   287   Carbide Production   288   Carbide Production   289   Carbide Production   280   Carbide P	2A3	Glass Production																				
281   Ammonia Production	2A4	Other Process Uses of Carbonates																				
Ammonia Production	2A5	Other (please specify)																				
282   Nitric Acid Production	2B	Chemical Industry																				
283 Adipic Acid Production 284 Caprolactam, Glyoxal and Glyoxylic Acid Production 285 Carbide Production 286 Titanium Dioxide Production 287 Soda Ash Production 288 Petrochemical and Carbon Black Production 298 Fluorochemical Production 299 Fluorochemical Production 291 Cherical Production 291 Cherical Production 291 Fluorochemical Production 291 Cherical Production 292 Fluorochemical Production 293 Fluorochemical Production 294 Other (please specify) 205 Metal Industry 207 Iron and Steel Production 208 Lead Production 209 Fluorochemical Production 200 Aluminium Production 200 Aluminium Production 201 Aluminium Production 202 Ferroal Production 203 Aluminium Production 204 Magnesium Production 205 Lead Production 206 Zine Production 207 Rare Earths Production 208 Other (please specify) 208 Non-Energy Products from Fuels 209 And Solvent Use 209 Deartiff Wax Use 201 Solvent Use 201 Lubricant Use 202 Paraffin Wax Use 203 Solvent Use 204 Other (please specify) 205 Electronics Industry 206 Diplays 207 Product Uses as Substitutes for Ozone Depleting Substances 208 Photovoltaics 209 Photovoltaics 200 Cher (please specify) 201 Refrigeration and Air Conditioning 202 Product Uses as Substitutes for Ozone Depleting Substances 203 Refrigeration and Air Conditioning 205 Other (please Specify) 206 Other Chelase Specify) 207 Other Product Manufacture and Use 208 Electrical Equipment 209 Cher (please specify) 210 Cher Product Manufacture and Use 211 Chicages Specify) 211 Other Product Manufacture and Use 212 Cherical Equipment 213 Cherical Equipment 214 Other (please Specify) 215 Other (please Specify) 216 Other Product Manufacture and Use 217 Cherical Equipment 218 Other (please Specify) 219 Other Product Uses 219 Other (please Specify) 219 Other Product Uses 219 Other (please Specify) 210 Other (please Specify) 210 Other (please Specify) 211 Other (please Specify) 212 Other (please Specify) 213 Other (please Specify) 214 Other (please Specify)	2B1	Ammonia Production																				
284   Caprolactam, Glyoxal and Glyoxylic   Acid Production   Aci	2B2	Nitric Acid Production																				
Acid Production 2B6 Carbide Production 2B7 Soda Ash Production 2B7 Soda Ash Production 2B8 Petrochemical and Carbon Black Production 2B10 Hydrogen production 2B11 Other (please specify) 2C1 Iron and Steel Production 2C2 Feroalloys Production 2C3 Aluminum Production 2C4 Magnesium Production 2C5 Lead Production 2C6 Zinc Production 2C7 Rare Earths Production 2C8 Other (please specify) 2D Non-Energy Products from Fuels 2D1 Lubricant Use 2D2 Paraffin Wax Use 2D3 Solvent Use 2D4 Other (please specify) 2E Electronics Industry 2E2 Displays 2E3 Photovoltaics 2E4 Microelectromechanical systems (MEMS) 2E5 Form Blowing Agents 2E7 Fer Forection 2E7 Fer Forection 2E8 Cother (please specify) 2E9 Gother (please specify) 2E7 Product Uses as Substitutes for Ozone 2E8 Cother (please specify) 2E9 Gother (please specify) 2E7 Fore Product Uses 2E8 Gother (please specify) 2E9 Goth	2B3	Adipic Acid Production																				
286	2B4																					
287 Soda Ash Production 288 Petrochemical and Carbon Black Production 289 Fluorochemical Production 289 Fluorochemical Production 2811 Other (please specify) 2C Metal Industry 2C1 Iron and Steel Production 2C3 Aluminium Production 2C3 Aluminium Production 2C4 Magnesium Production 2C5 Lead Production 2C6 Zinc Production 2C7 Rare Earths Production 2C8 Other (please specify) 2D Non-Energy Products from Fuels and Solvent Use 2D1 Lubricant Use 2D2 Paraffin Wax Use 2D3 Solvent Use 2D4 Other (please specify) 2E Electronics Industry 2E Displays 2E Electronics Industry 2E Other (please specify) 2F Product Uses as Substitutes for Ozone Depleting Substances 2F1 Refrigeration and Air Conditioning 2F3 Fire Protection 2F6 Other Applications 2G Other Product Manufacture and Use 2G1 Electroal Equipment 2F6 Other Product Manufacture and Use 2G3 No Ofform Other Product Uses 2G6 Other Product Manufacture and Use 2G7 Other Product Uses 2G7 No Other Product Uses 2G7 Other Product Uses 2G8 Other Product Uses 2G8 Other Product Uses 2G9 Other Product Uses	2B5	Carbide Production																				
288	2B6	Titanium Dioxide Production																				
Production																						
2B10 Hydrogen production   2B11 Other (please specify)   2C	2B8																					
2811 Other (please specify)	2B9	Fluorochemical Production																				
2C         Metal Industry         Column and Steel Production           2C1 Iron and Steel Production         Column and Steel Production           2C2 Ferroalloys Production         Column and Steel Production           2C3 Aluminium Production         Column and Steel Production           2C4 Magnesium Production         Column and Steel Production           2C5 Zinc Production         Column and Steel Production           2C6 Zinc Production         Column and Steel Production           2C7 Rare Earths Production         Column and Steel Production           2C8 Other (please specify)         Column and Steel Production           2D1 Lubricant Use         Column and Steel Production           2D2 Paraffin Wax Use         Column and Steel Production           2D3 Solvent Use         Column and Steel Production           2D4 Other (please specify)         Column and Steel Production and Steel Production and Steel Production and Air Conditioning           2E4 Microelectromechanical systems (MEMS)         Column and Air Conditioning           2F2 Foam Blowing Agents         Column and Air Conditioning           2F2 Foam Blowing Agents         Column and Air Conditioning           2F3 Fire Protection         Column and Air Conditioning           2F4 Aerosols         Column and Air Conditioning           2F5 Solvents         Column and Air Conditioning <td>2B10</td> <td>Hydrogen production</td> <td></td>	2B10	Hydrogen production																				
2C1   Iron and Steel Production	2B11	Other (please specify)																				
2C2   Ferroalloys Production	2C	Metal Industry																				
2C3 Aluminium Production 2C4 Magnesium Production 2C5 Lead Production 2C6 Zinc Production 2C7 Rare Earths Production 2C8 Other (please specify) 2D Non-Energy Products from Fuels and Solvent Use 2D1 Lubricant Use 2D2 Paraffin Wax Use 2D3 Solvent Use 2D4 Other (please specify) 2E Electronics Industry 2E2 Displays 2E3 Photovoltaics 2E4 Microelectromechanical systems (MEMS) 2E5 Other (please specify) 2E7 Product Uses as Substitutes for Ozone Depleting Substances 2F1 Refrigeration and Air Conditioning 2F2 Foam Blowing Agents 2F3 Fire Protection 2F4 Aerosols 2F5 Solvents 2F6 Other Applications 2F6 Other Applications 2F7 Other Options Product Uses 2F8 Other Options Product Uses 2F9 Other Product Manufacture and Use 2F9 Ser, and PFCs from Other Product Uses 2F9 Solven Other Product Uses 2F9 Other (please specify)	2C1	Iron and Steel Production																				
2C4   Magnesium Production	2C2	Ferroalloys Production																				
2C5	2C3	Aluminium Production																				
2C6       Zinc Production         2C7       Rare Earths Production         2C8       Other (please specify)         2D       Non-Energy Products from Fuels and Solvent Use         2D1       Lubricant Use         2D2       Paraffin Wax Use         2D3       Solvent Use         2D4       Other (please specify)         2E       Electronics Industry         2E2       Displays         2E3       Photovoltaics         Microelectromechanical systems (MEMS)       Microelectromechanical systems (MEMS)         2E5       Other (please specify)         2F       Product Uses as Substitutes for Ozone Depleting Substances         2F1       Refrigeration and Air Conditioning         2F2       Foam Blowing Agents         2F3       Fire Protection         2F4       Aerosols         2F5       Solvents         2F6       Other Applications         2G       Other Product Manufacture and Use         2G3       N <sub>2</sub> O from Other Product Uses         2G4       Other (please specify)         2H       Other (please specify)	2C4	Magnesium Production																				
2C7   Rare Earths Production	2C5	Lead Production																				
2C8	2C6	Zinc Production																				
2D	2C7	Rare Earths Production																				
and Solvent Use  2D1 Lubricant Use  2D2 Paraffin Wax Use  2D3 Solvent Use  2D4 Other (please specify)  2E Electronics Industry  2E2 Displays  2E3 Photovoltaics  2E4 (Microelectromechanical systems (MEMS)  2E5 Other (please specify)  2F Product Uses as Substitutes for Ozone Depleting Substances  2F1 Refrigeration and Air Conditioning  2F2 Foam Blowing Agents  2F3 Fire Protection  2F4 Aerosols  2F5 Solvents  2F6 Other Applications  2F6 Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF <sub>6</sub> and PFCs from Other Product Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other  Other  Other  Other  Other (please specify)	2C8	Other (please specify)																				
2D2   Paraffin Wax Use	2D	and Solvent Use																				
2D3   Solvent Use	2D1	Lubricant Use																				
2D4 Other (please specify)         2E Electronics Industry           2E2 Displays         9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2D2	Paraffin Wax Use																				
2E         Electronics Industry         2E2         Displays         3         4         3         3         3         3         4         3         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         3         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>																						
2E2       Displays	2D4	Other (please specify)																				
2E3 Photovoltaics            2E4 Microelectromechanical systems (MEMS)            2E5 Other (please specify)            2F Product Uses as Substitutes for Ozone Depleting Substances            2F1 Refrigeration and Air Conditioning            2F2 Foam Blowing Agents            2F3 Fire Protection            2F4 Aerosols            2F5 Solvents            2F6 Other Applications            2G Other Product Manufacture and Use            2G1 Electrical Equipment            2G2 SF <sub>6</sub> and PFCs from Other Product Uses            2G3 N <sub>2</sub> O from Other Product Uses            2G4 Other (please specify)            2H Other	2E	Electronics Industry																				
Microelectromechanical systems (MEMS)  2E5 Other (please specify)  2F Product Uses as Substitutes for Ozone Depleting Substances  2F1 Refrigeration and Air Conditioning  2F2 Foam Blowing Agents  2F3 Fire Protection  2F4 Aerosols  2F5 Solvents  2F6 Other Applications  2G Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF6 and PFCs from Other Product Uses  2G3 N2O from Other Product Uses  2G4 Other (please specify)  2H Other	2E2	Displays																				
2E5 Other (please specify)  2F Product Uses as Substitutes for Ozone Depleting Substances  2F1 Refrigeration and Air Conditioning  2F2 Foam Blowing Agents  2F3 Fire Protection  2F4 Aerosols  2F5 Solvents  2F6 Other Applications  2G Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF <sub>6</sub> and PFCs from Other Product Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other	2E3																					
2F         Product Uses as Substitutes for Ozone Depleting Substances         9	2E4																					
Ozone Depleting Substances  2F1 Refrigeration and Air Conditioning  2F2 Foam Blowing Agents  2F3 Fire Protection  2F4 Aerosols  2F5 Solvents  2F6 Other Applications  2G Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF6 and PFCs from Other Product Uses  2G3 N2O from Other Product Uses  2G4 Other (please specify)  2H Other																					<u> </u>	
2F2 Foam Blowing Agents       2F3 Fire Protection       3 Fire Protection	2F	Ozone Depleting Substances																				
2F3 Fire Protection       2F4 Aerosols         2F4 Aerosols       2F5 Solvents         2F6 Other Applications       2G Other Product Manufacture and Use         2G1 Electrical Equipment       2G2 SF6 and PFCs from Other Product Uses         2G3 N2O from Other Product Uses       2G4 Other (please specify)         2H Other       2D Other																					<u> </u>	
2F4 Aerosols																		<u> </u>			<u> </u>	
2F5       Solvents         2F6       Other Applications         2G       Other Product Manufacture and Use         2G1       Electrical Equipment         2G2       SF <sub>6</sub> and PFCs from Other Product Uses         2G3       N <sub>2</sub> O from Other Product Uses         2G4       Other (please specify)         2H       Other																					<u> </u>	
2G Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF <sub>6</sub> and PFCs from Other Product Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other																					<u> </u>	
2G Other Product Manufacture and Use  2G1 Electrical Equipment  2G2 SF <sub>6</sub> and PFCs from Other Product Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other																					<u> </u>	
2G2 SF <sub>6</sub> and PFCs from Other Product Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other	2F6 <b>2G</b>	Other Product Manufacture and																				
Uses  2G3 N <sub>2</sub> O from Other Product Uses  2G4 Other (please specify)  2H Other																						
2G4 Other (please specify)  2H Other		SF <sub>6</sub> and PFCs from Other Product																				
2H Other	2G3	N <sub>2</sub> O from Other Product Uses																				
	2G4	Other (please specify)																				
2H1 Pulp and Paper Industry	2H	Other																				
	2H1	Pulp and Paper Industry																				

2H2 Food and Beverages Industry										
2H3 Other (please specify)										

Table 6F Trends of SF<sub>6</sub> (CO<sub>2</sub> equivalents (Gg)) (Updated)

Categ	e 6F Trends of SF <sub>6</sub> (CO <sub>2</sub> e	_		_	 _	_		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
	National Emissions and Removals																	
2 INDU	JSTRIAL PROCESSES AND																	
2A	Mineral Industry																	
2A1	Cement Production																	
2A2	Lime Production																	
2A3	Glass Production																	
2A4	Other Process Uses of Carbonates																	
2A5	Other (please specify)																	
2B	Chemical Industry																	
2B1	Ammonia Production																	
2B2	Nitric Acid Production																	
2B3	Adipic Acid Production																	
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production																	
2B5	Carbide Production																	
2B6	Titanium Dioxide Production																	
2B7	Soda Ash Production																	
2B8	Petrochemical and Carbon Black Production																	
2B9	Fluorochemical Production																	
2B10	Hydrogen Production																	
2B11	Other (please specify)																	<u> </u>
2C	Metal Industry																	L
2C1	Iron and Steel Production																	
2C2	Ferroalloys Production																	
2C3	Aluminium Production																	
2C4	Magnesium Production																	$\perp$
2C5	Lead Production																	
	Zinc Production																	
2C7	Rare Earths Production																	
2C8 <b>2D</b>	Other (please specify)  Non-Energy Products from Fuels and Solvent Use																	
2D1	Lubricant Use																	
2D2	Paraffin Wax Use																	
	Solvent Use																	
	Other (please specify)																	
2E	Electronics Industry																	
2E2	Displays																	T
2E3	Photovoltaics																	T
2E4	Microelectromechanical systems (MEMS)																	
2E5	,																	
2F	Product Uses as Substitutes for Ozone Depleting Substances																	
2F1	Refrigeration and Air Conditioning																	
2F2																		
2F3	Fire Protection																	
2F4	Aerosols																	
2F5																		
2F6 <b>2G</b>	Other Applications Other Product Manufacture and Use																	
2G1 2G2	Electrical Equipment  SF <sub>6</sub> and PFCs from Other Product Uses																	
2G3	N <sub>2</sub> O from Other Product Uses																	
	Other (please specify)																	
2H	Other																	
	v.																	

2H2 Food and Beverages Industry										
2H3 2H3 Other (please specify)										

Table 6G Trends of other gases (1) (Gg) (Updated)

	e 6G Trends of other gas																				
Categ	ories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Total N	ational Emissions and Removals																				
2 INDU	STRIAL PROCESSES AND																				
PRO	DUCT USE																				
2A	Mineral Industry																				
2A1	Cement Production																				
2A2	Lime Production																				
2A3	Glass Production																				
2A4	Other Process Uses of Carbonates																				
2A5	Other (please specify)																				
2B	Chemical Industry																				
2B1	Ammonia Production																				
2B2	Nitric Acid Production																				
2B3	Adipic Acid Production																				
2B4	Caprolactam, Glyoxal and Glyoxylic																				
	Acid Production																				
2B5	Carbide Production																				
2B6	Titanium Dioxide Production																				
	Soda Ash Production																				
2B8	Petrochemical and Carbon Black																				
	Production																				
	Fluorochemical Production										Ш					$oxed{oxed}$					
	Hydrogen Production																				
	Other (please specify)															ļ					
2C	Metal Industry																				
2C1	Iron and Steel Production																				
	Ferroalloys Production																				
2C3	Aluminium Production																				
2C4	Magnesium Production																				
2C5	Lead Production																				
2C6	Zinc Production																				
2C7	Rare Earths Production																				
2C8	Other (please specify)																				
2D	Non-Energy Products from Fuels and Solvent Use																				
2D1	Lubricant Use																				
2D2	Paraffin Wax Use																				
2D3	Solvent Use																				
2D4	Other (please specify)																				
2E	Electronics Industry																				
2E1	Integrated Circuit or Semiconductor																				
2E2	Displays																				
2E3	Photovoltaics																				
254	Microelectromechanical systems																				
2E4	(MEMS)															<u> </u>					
2E5	Other (please specify)																				
2F	Product Uses as Substitutes for															1					
	Ozone Depleting Substances															<u> </u>					
2F1	Refrigeration and Air Conditioning															<u> </u>					
2F2	Foam Blowing Agents															<u> </u>					
2F3	Fire Protection															<u> </u>					
2F4	Aerosols																				
2F5	Solvents																				
2F6	Other Applications (please specify)																				
2G	Other Product Manufacture and																				
	Use															<u> </u>					
2G1	Electrical Equipment															<u> </u>					
2G2	SF <sub>6</sub> and PFCs from Other Product Uses																				
2G3	N <sub>2</sub> O from Other Product Uses																				
2G4																					
2H	Other																				
2H1	Pulp and Paper Industry																				
	Food and Beverages Industry																				
	Other (please specify)																				
	includes all other GHGs including fluoring	nata	d aa	200																	

 $<sup>\</sup>begin{tabular}{ll} \end{tabular} \begin{tabular}{ll} \end{tabular} \beg$ 

### **Table 7A Uncertainties**

IPCC category	Gas	Base year emissions /removals	Year t emissions /removals		ty data tainty	/estimation uncer	tainty f more than imation	Combined uncertainty Contribution to variance in Year t		Inventory trend in national emissions for year t increase with respect to base year	introduce trend i national e with res	tainty d into the n total emissions spect to Year	Approach and Comments	
		Gg CO₂ equivalent	Gg CO₂ equivalent	(-) %	(+) %	(-) %	(+) %	(-) %	(+) %	(fraction)	(% of base year)	(-) %	(+) %	
E.g. 1.A.1. Energy Industrie s Fuel 1	CO <sub>2</sub>													
E.g. 1.A.1. Energy Industrie s Fuel 2	CO <sub>2</sub>													
Etc														
Total			_											

#### **Table 7B Summary of Key Category analysis**

Quantitative method used: Approach 1/Approach 1 and Approach 2

IPCC Category Code	IPCC Category	Greenhouse Gas	Identification criteria <sup>(1)</sup>	Comments (2)

<sup>(1)</sup> The notation keys to be used for this column:

L1 = key category according to Approach 1 Level Assessment

L2 = key category according to Approach 2 Level Assessment

T1 = key category according to Approach 1 Trend Assessment T2 = key category according to Approach 2 Trend Assessment

Q = key category according to qualitative criteria

<sup>(2)</sup> In the column for comments, reasons for a qualitative assessment can be provided.