

Lecture 6

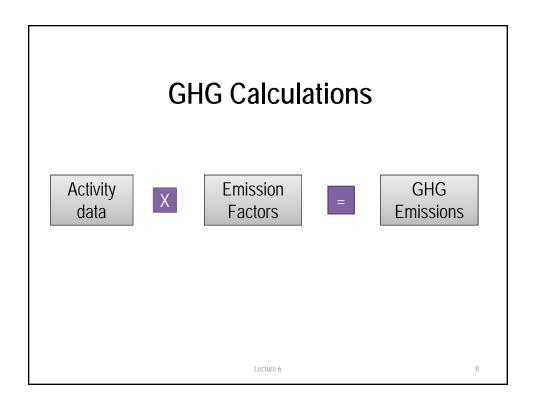
				Consumption in 19 Unit in 000 GJ	95/96			
		Sector						
Category	Category Fueltype		Industrial	Commercial	Transport	Agricultural	Other	Grand Total
Traditional	Agr residue	10349.0	205.0	17.0	0.0	0.0	0.0	10571.0
	Animal dung	17568.0	0.0	0.0	0.0	0.0	0.0	17568.0
	Fuelwood	231109.0	3430.0	956.0	0.0	0.0	0.0	235495.0
Traditional Total	1	259026.0	3635.0	973.0	0.0	0.0	0.0	263634.0
Commercial	ATF	0.0	0.0	0.0	1469.2	0.0	0.0	1469.2
	Coal	15.0	2600.8	366.1	103.0	0.0	0.0	3085.0
	Electricity	1183.4	1291.2	226.5	5.2	90.3	262.2	3058.9
	Fueloil	0.0	308.2	32.6	0.0	0.0	0.0	340.9
	Gasoline	0.0	14.2	0.0	1365.3	0.0	0.0	1379.6
	HSDiesel	0.0	3294.7	0.0	5650.6	556.2	0.0	9501.5
	Kerosene	6087.0	384.3	1096.7	0.0	0.0	0.0	7568.0
	LDiesel	0.0	2.7	0.0	127.7	43.9	0.0	174.2
	LPG	796.0	0.0	119.9	0.0	0.0	0.0	915.9
	Other Petroleum	0.0	240.2	25.4	0.0	0.0	0.0	265.6
Commercial Total		8081.4	8136.3	1867.3	8720.9	690.4	262.2	27758.5
Renewable	Biogas	411.9	0.0	0.0	0.0	0.0	0.0	411.9
	Microhydro	23.0	0.0	0.0	0.0	0.0	0.0	23.0
	Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Total		434.8	0.0	0.0	0.0	0.0	0.0	434.8
Grand Total		267542.3	11771.3	2840.3	8720.9	690.4	262.2	291827.4

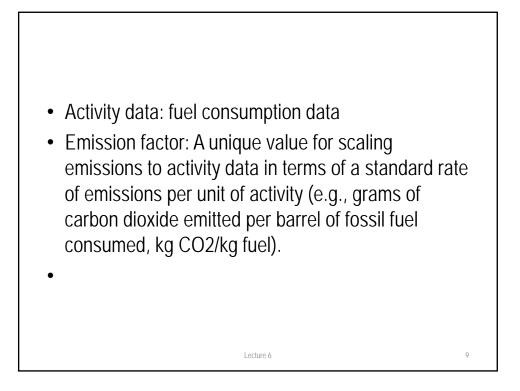
	Fossil fuel	CO ₂ emission factor (kg/TJ)	Net calorific value (TJ/Gg) Gg=1000t	CO ₂ emission factor (t-CO ₂ /t (Fuel))
	Crude Oil	73,300	42.3	3.101
	Motor Gasoline	69,300	44.3	3.070
Liquid Fossil	Other Kerosene	71,900	43.8	3.149
	Gas/Diesel Oil	74,100	43.0	3.186
	Liquefied Petroleum Gases	63,100	47.3	2.985
	Anthracite	98,300	26.7	2.625
Solid Fossil	Sub-Bituminous Coal	96,100	18.9	1.816
	Lignite	101,000	11.9	1.202
Gaseous Fossil	Natural Gas	56,100	48.0	2.693
Intergov [Default	CC Guidelines for Nati rernmental Panel on Cl carbon oxidation facto ed for this document ar	imate Change, 2 r is 1] [CO ₂ emis	2006. sion factors t-CO ₂ /t	(Fuel) are

ROAD TRANSPORT DEFAULT CO ₂ EMISSION FACTORS AND UNCERTAINTY RANGES ^a					
Fuel Type	Default (kg/TJ)	Lower	Upper		
Motor Gasoline	69 300	67 500	73 000		
Gas/ Diesel Oil	74 100	72 600	74 800		
Liquefied Petroleum Gases	63 100	61 600	65 600		
Kerosene	71 900	70 800	73 700		
Lubricants ^b	73 300	71 900	75 200		
Compressed Natural Gas	56 100	54 300	58 300		
Liquefied Natural Gas	56 100	54 300	58 300		
Source: Table 1.4 in the Introduction chap Notes: ^a Values represent 100 percent oxidation ^b See Box 3.2.4 Lubricants in Mobile Con lubricants	of fuel carbon c	ontent.	of		

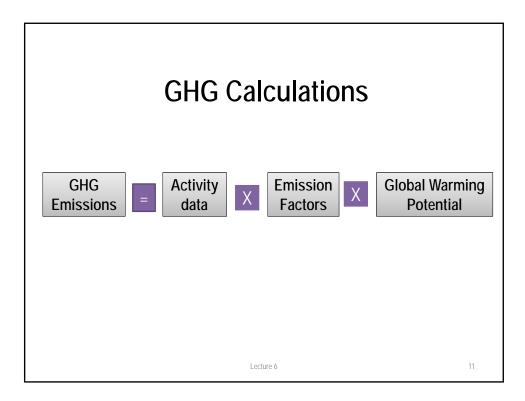
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TAE ROAD TRANSPORT N2O AND CH4 DEFAULT EN	BLE 3.2.2	CTORS AN	D UNCER	TAINTY RA	NGES ^(a)	
Fuel Type/Representative Vehicle Category	CH4 (kg /TJ)			N2O (kg /TJ)		
	Default	Lower	Upper	Default	Lower	Upper
Motor Gasoline -Uncontrolled ())	33	9.6	110	3.2	0.96	11
Motor Gasoline –Oxidation Catalyst ^(c)	25	7.5	86	8.0	2.6	24
Motor Gasoline –Low Mileage Light Duty Vehicle Vintage 1995 or Later ^(d)	3.8	1.1	13	5.7	1.9	17
Gas / Diesel Oil (e)	3.9	1.6	9.5	3.9	1.3	12
Natural Gas ^(f)	92	50	1 540	3	1	77
Liquified petroleum gas ^(g)	62	na	na	0.2	na	na
Ethanol, trucks, US ^(h)	260	77	880	41	13	123
Ethanol, cars, Brazil ⁽ⁱ⁾	18	13	84	na	na	na
Ethanol, trucks, US ^(h)	18	13	84	na	na	1





Fuel	Activity data, TJ	Emission factor, kg/TJ	CO2 , tons
Gasoline	6,831.42	69,300	473,417.11
Diesel	11,997.49	74,100	889,014.05
LPG	2,090.76	63,100	131,927.07
Total	20,919.67	-	2,494,358.23



		CO2 emission	s from transport fu	uel in 2011/12			
S.N	Fuel	Activity data,		Activity data, TJ	Emission factor, kg/TJ	CO2, tons	Remarks
1	Motor spirit	199,749.00	34.20	6,831.42	69,300.00	473,417.11	
2	Diesel	324,256.50	37.00	11,997.49	74,100.00	889,014.05	
3	LPG*, MT	45,352.75	46.10	2,090.76	63,100.00	131,927.07	
	Total			20,919.67		1,494,358.23	
	GWP	1	25	298			
S.N	EF, kg/TJ	CO2		N2O	CO2e	Activity data	CO2e, tons
1	Petrol	69,300.00	25	8	72,309.00	6,831.42	493,972.85
2	Diesel	74,100.00	3.9	3.9	75,359.70	11,997.49	904,127.28
3	LPG	63,100.00	62	0.8	64,888.40	2,090.76	135,666.19
							1,533,766.32

Examples

Calculate total CO2e for the following fuel consumed in Nepal for given year (collect activity data from NOC website):

- a) Motor spirit
- b) Diesel
- c) Kerosene
- d) LPG
- e) ATF

Note: Roll no. 1 (2071-72), 2 (2070-71), 3 (2069-70) so on.....

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