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# Green House Gas Emissions Inventory of Himachal Pradesh

A Report based on 2008-2009 Activity Data

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Prepared by

Department of Environment, Science & Technology  
Government of Himachal Pradesh

# Green House Gases Inventory

## Himachal Pradesh

Motivated from the Report on **India's Greenhouse Gas Emissions 2007** in May, 2010, released by Ministry of Environment & Forests, Government of India prepared by Indian Network for Climate Change Assessment (INCCA), the State of Himachal Pradesh has also made an attempt to analyze the status of GHGs emission from the State.

In the context of Himachal Pradesh, it is not a major source of GHG emissions. Existing GHG emissions have been analyzed by sector and sub-sectors (viz; Transport, Buildings, Industry, Waste, Agriculture and Forest).

	<b>Annual CO<sub>2</sub> emissions (eq)</b> (in thousands of metric tonnes) Giga Gram	<b>Percentage of Global total</b>
India	17,27,706.10	<5% of global
Himachal Pradesh*	<b>10082.87*</b> ~0.00147 per capita 000'tones*	~0.67% of India*
* without taking into consideration emission/ removals due to hydro power generation 6,419 MW contributed to grid as clean energy. ~ (-) 15,397.191 000'tons CO <sub>2</sub> eq @ ~50% operational capacity.		

This assessment provides information on Himachal Pradesh's emissions of Green House Gases (Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O) emitted from anthropogenic activities at state level from: Energy; Industry; Agriculture; Waste; and Land Use Land Use Change & Forestry (LULUCF).



**Green House Gas Emissions by Sources and Removal by Sink (with LULUCF) from Himachal Pradesh in 2007-08- 09 (000'tons) Giga Grams.**

(Following IPCC convention in calculating GHGs footprint at source of production and not consumption)

Sr. No.	Type	GHG (000'tones) G grams			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> eq
<b>A. Electricity/ Energy</b>					
1.	Captive Generation and Consumption	358.056	0.01823	0.000742	358.670
2.	<b>Transport</b>				
a.	Road	655.14	0.012	0.0032	667.28
b.	Railways	0.0012	-	-	0.0014
c.	Aviation	0.0011	-	-	0.0012
3.	<b>Others</b>				
a.	Residential	911.525	3.555	0.4765	1809.72
b.	Industrial/ Commercial/ Institutional/ Bulk mics.	3183.27	0.346	0.0768	3213.984
c.	Agriculture	15.66	0.00056	0.000555	15.840
<b>Total</b>	<b>A</b>	<b>5123.6533</b>	<b>3.93179</b>	<b>0.557797</b>	<b>6065.497</b>
<b>B. Industry</b>					
1	<b>Mineral</b>				
a.	Cement Production	5170.39	-	-	5170.39
b.	Glass Production	0.971713	0.0012	0.00161	1.49397
2	<b>Chemical</b>				
a.	Carbide Production	26.488	-	-	26.488
b.	Methanol	4.775	0.00163903	0.007906	5.11925
3	<b>Metal</b>				
a.	Ferroalloys	82.170	0.00396	-	82.2231
b.	Aluminum	170.399	0.000624	-	170.464
c.	Lead (Secondary Production)	28.192	-	-	28.946
d.	Zinc production	0.0191	-	-	0.0191
4	<b>Other Industries</b>				
a.	Pulp & Paper	0.02312	0.00000022	0.000000354	0.02323
b.	Textile & Leather	0.042	0.00000049	0.000000096	0.01204
c.	Food Processing	0.012	0.00000068	0.000000451	0.042154
d.	Mining and Quarrying	0.0022	-	-	0.00221
<b>Total</b>	<b>B</b>	<b>5483.484</b>	<b>0.007424</b>	<b>0.009517</b>	<b>5485.223</b>

Sr. No.	Type	GHG (000'tones) G grams			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> eq
<b>C. Agriculture</b>					
1.	Enteric fermentation	-	0.1134	-	2.3814
2.	Manure management	-	0.00129	0.00000076	0.02733
3.	Rice cultivation	-	7.0445	-	147.9936
4.	Crop residue	-	0.478	0.0399	13.972
5.	Soils	-	-	0.00152	0.475
<b>Total C</b>		-	<b>7.63719</b>	<b>0.04142</b>	<b>164.84933</b>
<b>D Land Use, Land Use Change &amp; Forestry</b>					
1.	Forestland	(-) 2917.70	-	-	(-) 2917.70
2.	Cropland	(-)69.68	-	-	(-)69.68
3.	Grassland	(+)36.27	-	-	(+)36.27
4.	CO <sub>2</sub> loss due to fuel wood use	(+) 1318.41	-	-	(+) 1318.41
<b>Total D</b>		<b>(-)1632.70</b>	-	-	<b>(-)1632.70</b>
<b>E Waste</b>					
1.	MSW	-	0.0271471	-	-
2.	Industrial Waste Water	-	0.0001366	-	0.006129
<b>Total E</b>			<b>0.0272837</b>		<b>0.006129</b>
<b>Grand Total A+B+C+D+E</b>		<b>8974.437</b>	<b>11.60369</b>	<b>0.608734</b>	<b>10082.87</b>

