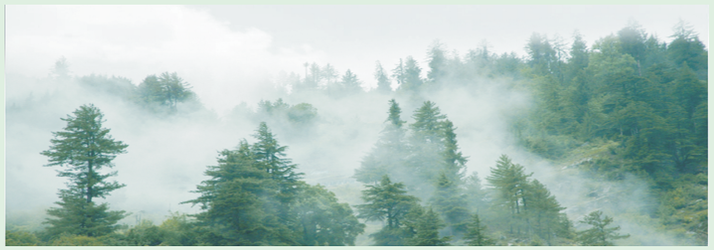
GHG Emissions on LULUCF

An assessment of Growing stock, Biomass and Carbon stock of Indian forests strata wise have been made by FSI based on SFR, 1997 data base, as per the 2002 report the Forests carbon stocks are as under:

Particulars	India (1997)	HP (1997)
Forest Cover (KM^2)	6,33,357	12,521
Growing Stock (000, m^3)	43,40,027.96	2,47,483.99
Bio Mass (000, tons)	23,95,373.45	1,06,442.18
Carbon (000 tons)	10,83,809.74	48,909.11

Similarly, the estimates for year 2007 and 2011 for Carbon stock under Forest sector are as under:

Particulars	India		HP	
	2005	2007	2007	2011
Forest Cover (KM^2)	6,90,200	6,91,600	14,668	14,67,900
Growing Stock (000, m^3)	47,29,540.05	47,39,133.67	2,89,920.50	3,21,314
Bio Mass (000, tons)	26,10,357.11	26,15,651.95	1,24,694.03	1,38,196.50
Carbon (000 tons)	11,81,080.31	11,83,479.75	57,295.65	57,710.2



Soil Carbon Stock

Particulars	HP in hectare		C stock in million tons/ ha	
	2007	2012	2007	2012
Forest Cover (ha)	14,66,800	14,67,900	90.47	90.58
Crop Land (ha)	61,700	67,350	3.316	3.620
Total estimated area	**15,28,500**	**15,35,250**	**93.786**	**94.20**

Land Use categories	MAI in perennial above ground biomass (t/ha/y) A	MAI in perennial below ground biomass (t/ha/y) B	MAI in total perennial biomass (t/ha/y) A+B	MAI in soil carbon (t/ha/y) C	MAI in total Carbon (t/ha/y) D (A+B)/2 +C	Net DC (Mt C) E D x Area	Net Change in CO2 (Mt) F E x 3.6666 (+ is Emission, is Removal
Crop Land	0.130	0.046	0.176	0.220	0.308	0.020744	0.076060
Grass Land	0.003	0.001	0.004	-0.056	-0.054	(-)0.011001	(-)0.040336

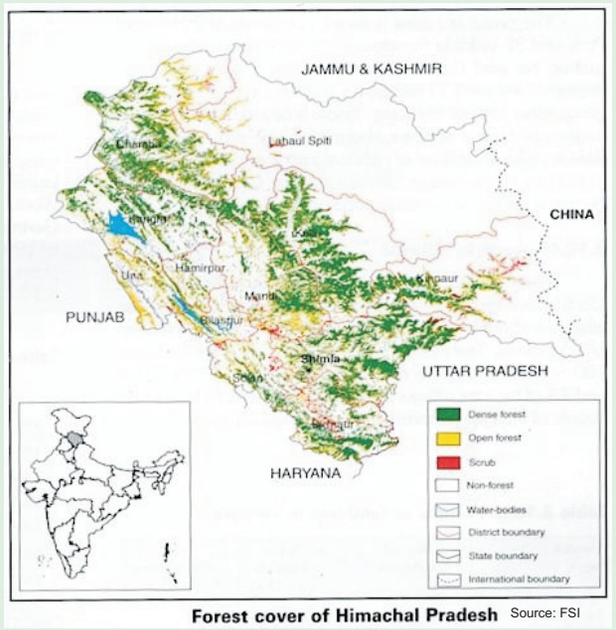
Emissions in 000'tons

Land use categories	CO_2 emissions/ removals	CO_2 loss due to fuel wood use	Net CO_2 emissions/removal
Forestland	(-) 3040.4		
Cropland	(-)76.060	(+) 1319.40	(-) 1,685.276
Grassland	(+)40.336		
Total	**(-) 3004.676**	**(+) 1,319.40**	**(-) 1,685.276**

District wise Forest in Himachal Pradesh

Area (Sq.Kms.)

District	Geo. Area	Forest Area	Tree covered area				% of Geo. Area
			Very Dense Forest	Moderate Dense Forest	Open Forest	Total Forest Cover	
Bilaspur	1,167	428	24	171	167	362	31.02
Chamba	6,522	5,030	853	773	810	2,436	37.35
Hamirpur	1,118	219	39	92	114	245	21.91
Kangra	5,739	2,842	310	1,221	531	2,062	35.93
Kinnaur	6,401	5,093	82	263	257	602	9.40
Kullu	5,503	4,952	586	789	583	1,958	35.58
L&S	13,841	10,133	15	32	146	193	1.39
Mandi	3,950	1,860	373	735	565	1,673	42.35
Shimla	5,131	3,418	739	1,037	608	2,384	46.46
Sirmaur	2,825	1,843	130	568	685	1,383	48.96
Solan	1,936	728	55	404	390	849	43.85
Una	1,540	487	18	298	205	521	33.83
Total	**55,673**	**37,033**	**3,224**	**6,383**	**5,061**	**14,668**	**26.35**



Forest cover of Himachal Pradesh Source: FSI

Forests Cover By Different Forest Type	Area (Km^2)
1. Tropical Dry Deciduous Forests	2,140
2. Tropical Thorn Forests	43
3. Sub-Tropical Pine Forests	3,853
4. Sub-Tropical Dry Ever Green Forests	470
5. Himalayan Moist Temperate Forests	4,064
6. Sub-Alpine and Alpine Forests	2,512

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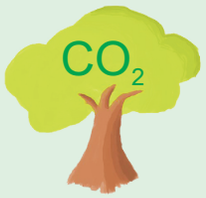
Forests or Carbon Sinks ?

HP Knowledge Cell on Climate Change
Department of Environment, Science & Technology
Government of Himachal Pradesh

DEFORESTATION FEEDS CLIMATE CHANGE

Forests currently cover around 30% of the earth's land surface but are being lost at an alarming rate. Deforestation rates are highest in the tropical areas of South America, Central West Africa and South and Southeast Asia, with 13 million hectares of global forest loss each year. The richness and diversity of our flora can be gauged from the fact that, out of total 45,000 species found in the country as many as 3,295 species (7.32%) are reported in the State. More than 95% of the species are endemic to Himachal Pradesh and characteristic of Western Himalayan flora, while about 5% (150 species) are exotic, introduced over the last 150 years.



Trees are vital for life, they act as containers of oxygen, storing carbon dioxide, preventing land degradation, improving salinity and stabilizing local and global climate.

Climate change in turn can severely damage forests because of rise in global temperature due to increasing greenhouse gases in our atmosphere.

Temperature and sea levels are constantly rising which heightens the risk of environmental disasters to occur including landslides, floods, bushfires and drought.

The conversion of forests for the production of palm oil, beef and paper accounts for approximately half of global deforestation.

Human activity involved in infrastructure, commercial logging, agriculture, cattle ranching, urbanization and mining also are major contributors to the problem of climate change.

CHANGING CLIMATE

DEFORESTATION FUELS CARBON EMISSIONS

Deforestation is a major driver of global warming responsible for up to 20% of global carbon emissions. Although the use of fossil fuels for energy is the primary source of carbon dioxide emissions, the loss of forests is also a major contributor. Forest are natural consumers of greenhouse gases which fuel global warming.

The bulk of emissions from deforestation arises when land is converted to agricultural production particularly if forest are cleared with burning. It is estimated that more than 1.5 billion tons of carbon dioxide is released into the atmosphere from the cutting & burning of forests.

The release of carbon emission stored in vegetation and soil has threatened the livelihoods of 1.6 billion people who rely on forests for food, fresh water, medicine and economic stability. Indigenous peoples and poverty stricken communities who rely on forests are at a higher risk of serious diseases including malaria, ebola and smallpox.

Up to 70% of the world's animal and plant species rely on forests for survival. At the current rate of deforestation, 5-10% of tropical rainforest species per decade face the extinction from destroyed habitats.

LAND USE, LAND USE CHANGE & FOREST (LULUCF)

DEFORESTATION DEVALUES OUR FUTURE

The link between forest loss and climate change is one of the greatest threats to future generations including carbon emissions. Forests can be part of the solution by conserving as much of the world's remaining natural forests as possible. Reducing emissions and increasing forest restoration will be a necessary action in limiting global warming to 2 degree Celsius.

The zero net deforestation policy in safeguarding climate change and forest loss will ensure food and water security, poverty alleviation and biodiversity conservation.

Sustainable forest management practices enable deforestation of new trees, recycling paper, reusing wood products and reducing the consumption of meat. These strategies will prevent the trigger for deforestation.

Action to support individuals, businesses and governments by eliminating deforestation from the production of agricultural commodities such as palm oil, paper will help in protecting forests.

SUSTAIN FUTURE

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