



National Forest Carbon Factsheet

Status of forest cover, carbon stock and carbon emissions and removals

2016-2020

National REDD+ Office

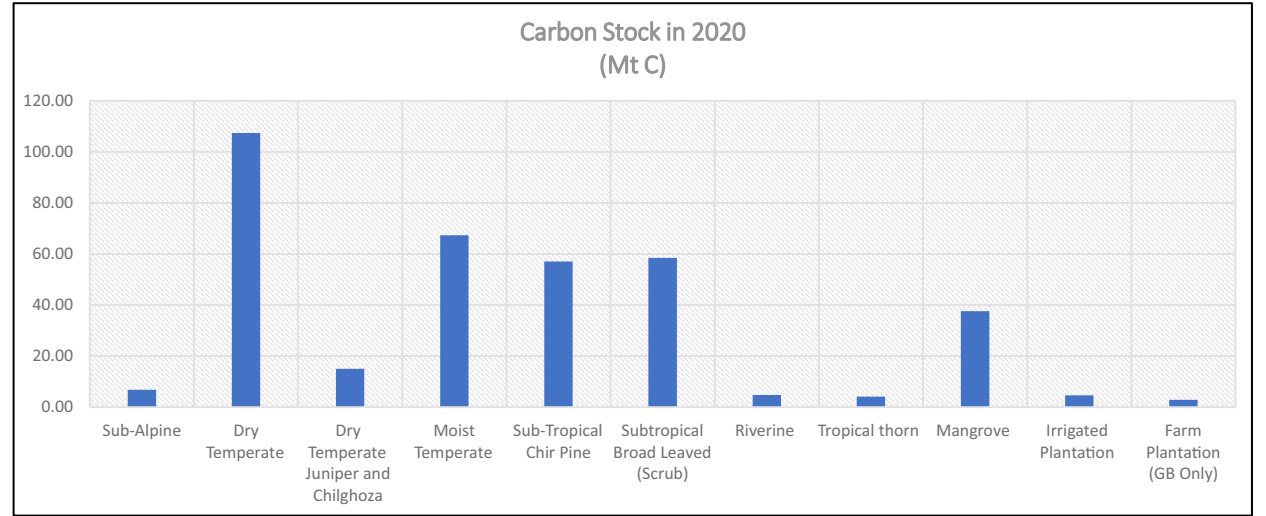
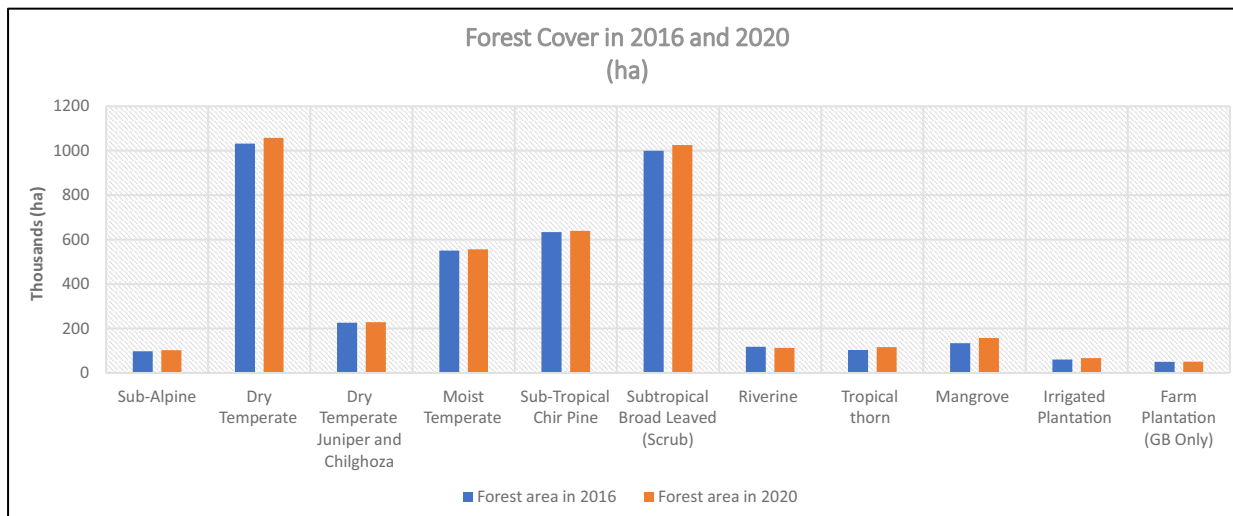
Ministry of Climate Change

Islamabad

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Forest Area and Carbon Stock (2016-2020)

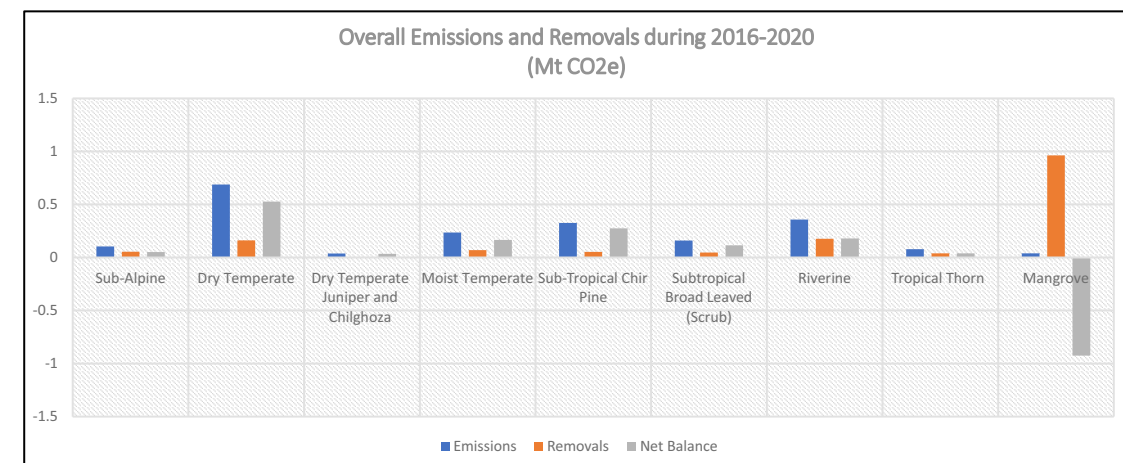
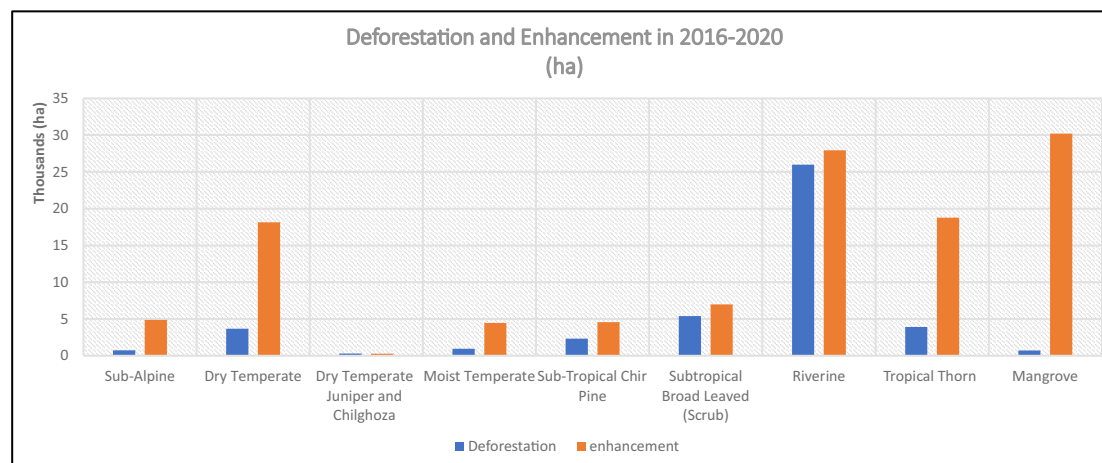
Forest type	2016		2020	
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Sub-Alpine	97,945	102,320	66.22	6.78
Dry Temperate	1,031,503	1,057,651	101.57	107.42
Dry Temperate Juniper and Chilgoza	225,996	228,193	65.87	15.03
Moist Temperate	550,303	556,525	120.92	67.29
Sub-Tropical Chir Pine	633,983	639,786	89.15	57.03
Subtropical Broadleaved (Scrub)	999,776	1,025,130	57.01	58.44
Riverine	117,872	112,878	42.20	4.77
Tropical Thorn	103,333	116,017	35.24	4.09
Mangrove	133,816	157,357	238.85	37.59
Irrigated Plantation	60,672	66,774	69.05	4.61
Farm Plantation (GB Only)	49,981	51,026	56.35	2.88
Total	4,005,180	4,113,657	942.43	365.93



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Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals (Mt CO2e)	Net emissions/removals (Mt CO2e)
Sub-Alpine	745	0.10	4,872	0.05	0.05
Dry Temperate	3,675	0.69	18,139	0.16	0.53
Dry Temperate Juniper and Chilghoza	295	0.04	282	0.00	0.03
Moist Temperate	960	0.24	4,463	0.07	0.17
Sub-Tropical Chir Pine	2,333	0.33	4,573	0.05	0.27
Subtropical Broadleaved (Scrub)	5,399	0.16	6,981	0.05	0.11
Riverine	25,990	0.36	27,945	0.18	0.18
Tropical Thorn	3,915	0.08	18,783	0.04	0.04
Mangrove	720	0.04	30,193	0.96	-0.92
Total	44,029	2.02	116,231	1.56	0.46

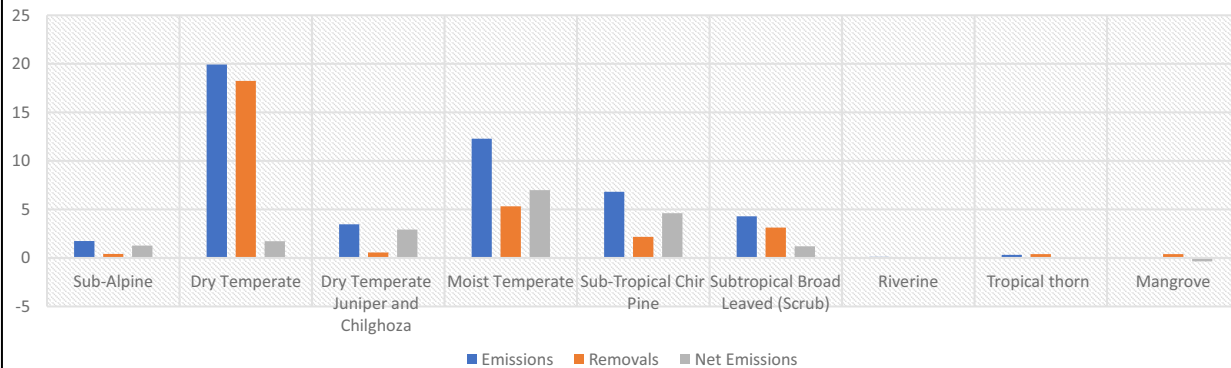


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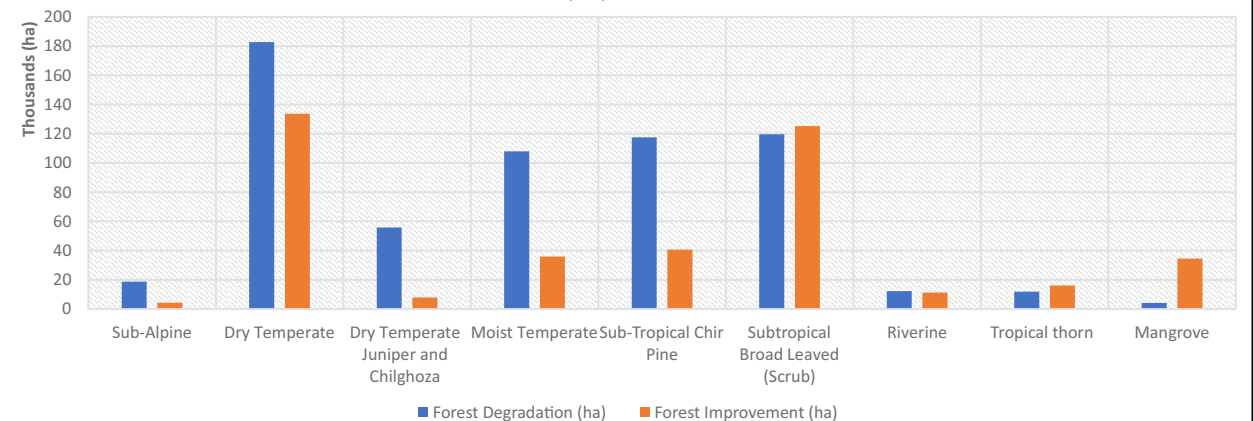
Emissions from Forest Degradation and Removals from Enhancement within existing Forests (2016-2020)

Forest type	Degradation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals (Mt CO2e)	Net Emissions/Removals (Mt CO2e)
Sub-alpine	18,706	1.74	4,351.70	0.41	1.28
Dry Temperate	182,691	19.94	133,673.30	18.25	1.74
Dry Temperate Juniper And Chilghoza	55,884	3.48	7,996.90	0.56	2.93
Moist Temperate	107,928	12.30	35,928.90	5.32	6.99
Sub-Tropical Chir Pine	117,516	6.82	40,674.40	2.17	4.62
Subtropical Broadleaved (Scrub)	119,662	4.29	125,237	3.13	1.20
Riverine	12,276	0.12	11,243	0.07	0.05
Tropical Thorn	11,898	0.32	16,111.70	0.40	-0.09
Mangrove	4,270	0.06	34,539	0.41	-0.34
Total	630,831	49.07	409,755.90	30.72	18.38

Emissions from Forest Degradation and removals from Enhancement within existing Forests 2016-2020 (Mt CO2e)



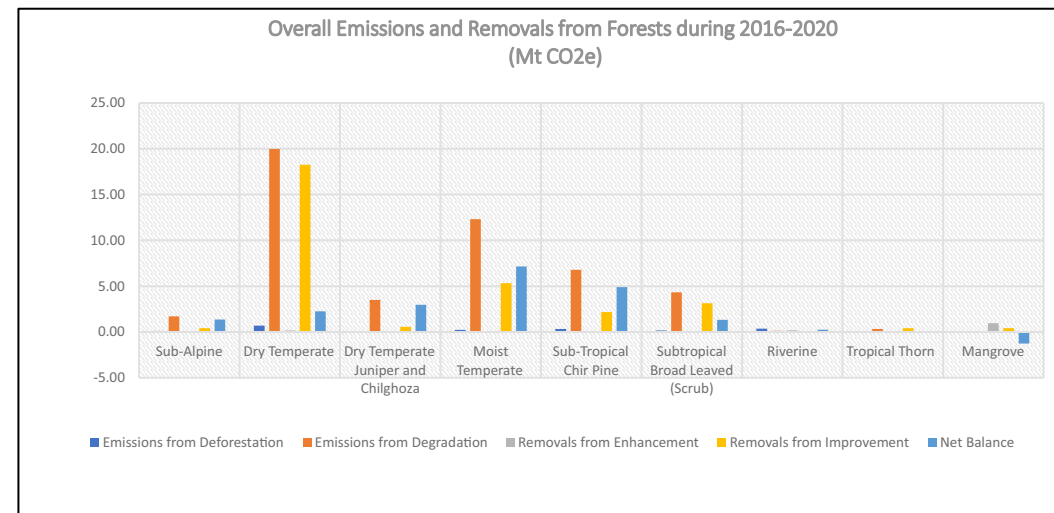
Forest Cover Degradation and Improvement during 2016-2020 (ha)



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Overall Emissions and Removals from Forests (2016-2020)

Forest type	Emissions from deforestation (Mt CO2e)	Emissions from forest degradation (Mt CO2e)	Removals from enhancement (Mt CO2e)	Removals from improvement in forest cover density (Mt CO2e)	Net balance (Mt CO2e)
Sub-Alpine	0.11	1.71	0.05	0.41	1.35
Dry Temperate	0.69	19.98	0.16	18.25	2.25
Dry Temperate Juniper and Chilghoza	0.04	3.49	0.00	0.56	2.96
Moist Temperate	0.23	12.31	0.07	5.32	7.15
Sub-Tropical Chir Pine	0.33	6.79	0.05	2.17	4.89
Subtropical Broad Leaved (Scrub)	0.16	4.33	0.05	3.14	1.32
Riverine	0.36	0.12	0.18	0.07	0.24
Tropical Thorn	0.08	0.32	0.04	0.40	-0.04
Mangrove	0.04	0.07	0.96	0.41	-1.26
Total	2.03	49.12	1.57	30.73	18.86





Azad Jammu & Kashmir



Forest Area and Carbon Stock (2016-2020)

Forest types	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Sub-Alpine	4330	4355	66.22	0.29
Dry Temperate	19292	19323	101.57	1.96
Moist Temperate	251467	251692	120.92	30.43
Sub-Tropical Chir Pine	190833	190944	89.15	17.02
Subtropical Broadleaved (Scrub)	150865	151694	57.01	8.65
Tropical Thorn	423	451	35.24	0.02
Total	617211	618460	94.45	58.37

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Total Deforestation (ha)	Total Emissions (Mt CO2e)	Total Enhancement (ha)	Total Removals (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Sub-Alpine	78.84	0.01	213.30	0.0023	0.008
Dry-Temperate	102.33	0.02	148.68	0.0013	0.019
Moist-Temperate	124.92	0.03	176.22	0.0026	0.027
Subtropical Chir Pine	149.49	0.02	136.89	0.0015	0.019
Subtropical Broadleaved (Scrub)	156.06	0.00	177.39	0.0011	-0.001
Tropical Thorn	0.00	0.00	3.06	0.0000	0.000
Total	611.64	0.08	855.54	0.0089	0.071



Azad Jammu & Kashmir



Emissions from Forest Degradation and Removals from Enhancement within existing Forest (2016-2020)

Forest Type	Total Degradation (ha)	Emissions (Mt CO2e)	Total Improvement In Forest Cover Density (ha)	Removals (Mt CO2e)	Net Emissions/ Removals (Mt CO2e)
Sub-Alpine	640	0.044	531	0.032	0.013
Dry Temperate	2096	0.237	2595	0.285	-0.048
Moist Temperate	16602	2.327	27107	3.703	-1.377
Sub-Tropical Pine	9558	0.551	23697	1.293	-0.742
Subtropical Broadleaved (Scrub)	6283	0.208	19636	0.483	-0.275
Tropical Thorn	23	0.001	120	0.001	0.000
Total	35202	3.367	73686	5.796	-2.429

Overall Emissions and Removals from Forests (2016-2020)

Forest Type	Emissions From Deforestation (Mt CO2e)	Emissions From Forest Degradation (Mt CO2e)	Removals From Enhancement (Mt CO2e)	Removals From Improvement In Forest Cover Density (Mt CO2e)	Net Balance (Mt CO2e)
Sub-Alpine	0.011	0.044	0.002	0.032	0.020
Dry Temperate	0.019	0.237	0.001	0.285	-0.031
Moist Temperate	0.029	2.327	0.003	3.703	-1.349
Sub-Tropical Pine	0.020	0.551	0.002	1.293	-0.723
Subtropical Broadleaved	0.004	0.208	0.001	0.483	-0.272
Tropical Thorn	0.000	0.001	0.000	0.001	0.000
Total	0.083	3.368	0.009	5.797	-2.355



Azad Jammu & Kashmir



Emission Factors for Deforestation (excluding soil organic carbon)

Forest type	Mean Carbon Density of forest (t C/ha)	Emission Factor (EF) (CO ₂ e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-wetland	Forest-Settlement	Forest-Other land
Sub-Alpine	39.3	136.5	132.8	144.2	144.2	144.2
Dry-Temperate	52.3	184.0	180.3	191.7	191.7	191.7
Dry temperate Juniper and Chilghoza	28.7	97.4	94.4	105.1	105.1	105.1
Moist-Temperate	69.1	245.6	229.8	253.3	253.3	253.3
Subtropical Chir Pine	41.2	143.3	127.9	151.0	151.0	151.0
Subtropical Broadleaved (Scrub)	10.1	30.3	21.9	36.9	36.9	36.9
Tropical Thorn	7.5	20.7	12.3	27.3	27.3	27.3

Emissions factors for Forest Degradation

Forest Type	Dense - Medium		Dense - Sparse		Dense - Open		Medium - Sparse		Medium - Open		Sparse - Open	
	Δ C (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	Δ CO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	ΔCO ₂ e (t/ha)
Sub-Alpine	19.80	72.60	51.22	187.82	58.12	213.09	31.42	115.22	38.32	140.49	6.89	25.27
Dry Temperate	29.39	107.77	57.31	210.15	87.58	321.13	27.92	102.38	58.19	213.36	30.27	110.98
Moist Temperate	51.34	188.26	73.68	270.16	92.43	338.91	22.34	81.91	41.09	150.66	18.75	68.75
Sub-Tropical Pine	12.91	47.33	32.53	119.29	45.42	166.53	19.62	71.96	32.51	119.20	12.88	47.24
Subtropical Broadleaved (Scrub)	4.46	16.37	21.18	77.65	27.52	100.91	16.71	61.28	23.06	84.54	6.34	23.26
Tropical Thorn	-	-	-	-	-	-	14.88	54.55	25.35	92.96	10.48	38.41



Balochistan



Forest Area and Carbon Stock (2016-2020)

Forest Type	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	C Stock Mt C
Dry Temperate Chilghoza	21589	21,760	65.87	1.43
Dry Temperate Juniper	200512	202,477	65.87	13.34
Subtropical Broadleaved (Scrub)	277164	280,040	57.01	15.96
Tropical Thorn	35954	36,308	35.24	1.28
Mangrove	6,231	6,312	238.85	1.51
Total	541,450	546,897		33.52

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4 Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Dry temperate Chilghoza	6	0.0010	8	0.00004	0.00096
Dry Temperate Juniper	264	0.0330	258	0.00122	0.03178
Subtropical Broadleaved (Scrub)	283	0.0070	248	0.00164	0.00536
Tropical Thorn	445	0.0080	628	0.00165	0.00635
Mangrove	48	0.0020	86	0.00239	-0.00039
Total	1,046	0.0510	1227	0.00693	0.04406



Balochistan



Emissions from Forest Degradation and Removals from Enhancement within Existing Forests (2016-2020)

Overall Emissions and Removals from Forests (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement In Forest Cover density (ha)	Removals (Mt CO2e)	Net Emissions/ Removals (Mt CO2e)
Dry Temperate Chilghoza	5,515	0.44	336.0	0.03	0.41
Dry Temperate Juniper	50,232	3.04	6,815	0.48	2.56
Subtropical Broadleaved (Scrub)	49,607	2.23	19,729	0.75	1.48
Tropical Thorn	4,178	0.17	8,473	0.28	-0.11
Mangroves	377	0.00	1,405	0.02	-0.01
Total	109,908	5.89	36,758	1.56	4.32

Forest Type	Emissions From Deforestation (Mt CO2e)	Emissions From Forest Degradation (Mt CO2e)	Removals From Enhancement (Mt CO2e) (during 4 years)	Removals From Improvement In Degradation (Mt CO2e)	Net Balance (Mt CO2e)
Dry Temperate Chilghoza	0.00058	0.44084	0.00004	0.03022	0.41116
Dry Temperate Juniper	0.03297	3.04350	0.00122	0.48288	2.59238
Subtropical Broad Leaved (Scrub)	0.00684	2.22994	0.00164	0.75311	1.48203
Tropical Thorn	0.00815	0.16768	0.00165	0.27877	-0.10459
Mangrove	0.00218	0.00456	0.00239	0.01671	-0.01237
Total	0.05071	5.88653	0.00693	1.56170	4.36860



Balochistan



Emission Factors for Deforestation
(excluding soil organic carbon)

Forest Type	Mean Carbon Density without SOC (t C/ha)	Emission Factor (EF) (CO ₂ e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-Wetland	Forest-Settlement	Forest-Otherland
Dry temperate Chilghoza	28.65	97.36	94.43	105.06	105.06	105.06
Dry Temperate Juniper	28.65	97.36	94.43	105.06	105.06	105.06
Subtropical Broadleaved (Scrub)	10.06	30.28	21.85	36.88	36.88	36.88
Tropical Thorn	7.45	20.72	12.29	27.32	27.32	27.32
Mangrove	15.23	49.24	40.80	55.84	55.84	55.84

Emissions Factors for Forest Degradation

Forest Type	Dense - Medium		Dense - Sparse		Dense - Open		Medium - Sparse		Medium - Open		Sparse - Open	
	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	Δ CO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)
Dry Temperate Chilghoza	27.3	100.1	38.5	141.1	49.5	181.7	11.2	41.0	22.3	81.6	11.1	40.6
Dry Temperate Juniper	27.3	100.1	38.5	141.1	49.5	181.7	11.2	41.0	22.3	81.6	11.1	40.6
Subtropical Broadleaved (Scrub)	4.5	16.4	21.2	77.7	27.5	100.9	16.7	61.3	23.1	84.5	6.3	23.3
Tropical Thorn	-	-	-	-	-	-	14.9	54.5	25.4	93.0	10.5	38.4
Mangroves	6.1	22.5	2.4	8.7	9.6	35.1	-3.7	-13.7	3.4	12.6	7.2	26.4

Gilgit Baltistan

Forest Area and Carbon Stock (2016-2020)

Forest types	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Sub-Alpine	77,979	78,403	66.22	5.19
Dry Temperate	199,462	200,292	101.57	20.34
Farm plantations	49,981	51,026	56.35	2.88
Total	327,422	329,721		28.41

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Sub-Alpine	143	0.019	324	0.0034	0.0156
Dry Temperate	318	0.057	608	0.0053	0.0517
Total	461	0.077	932	0.0087	0.0683

Emissions from Forest Degradation and Removals from Enhancement within Existing Forests (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement In Forest Cover Density (ha)	Removals (Mt CO2e)	Net Emissions (Mt CO2e)
Sub-Alpine	15,595	1.5	1,882	0.160	1.32
Dry Temperate	34,855	3.8	5,854	0.629	3.18
Total	50,450	5.3	7,736	0.789	4.50

Gilgit Baltistan

Overall Emissions and Removals from Forests (2016-2020)

Forest Type	Emissions From Deforestation (Mt CO2e)	Emissions From Forest Degradation (Mt CO2e)	Removals From Enhancement For 4 Years (Mt CO2e)	Removals From Improvement In Growing Stock (Mt CO2e)	Net Balance (Mt CO2e)
Sub-Alpine	0.019	1.500	0.0034	0.160	1.356
Dry Temperate	0.057	3.800	0.0053	0.629	3.223
Total	0.077	5.300	0.0087	0.789	4.579

Emission Factors for Deforestation (excluding soil organic carbon)

Forest type	Mean Carbon Density of forest (t C/ha)	Emission Factor (EF) (CO2e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-wetland	Forest-Settlement	Forest-Other land
Sub-Alpine Forests	39.3	136.5	132.8	144.2	144.2	144.2
Dry-Temperate Forests	52.3	184.0	180.3	191.7	191.7	191.7

Emissions Factors for Forest Degradation

Forest Type	Dense-Medium		Dense-Sparse		Dense-Open		Medium-Sparse		Medium-Open		Sparse-Open	
	Δ C (t/ha)	ΔCO2e (t/ha)	ΔC (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	ΔC (t/ha)	ΔCO2e (t/ha)	ΔC (t/ha)	ΔCO2e (t/ha)
Sub-Alpine	19.80	72.60	51.22	187.82	58.12	213.09	31.42	115.22	38.32	140.49	6.89	25.27
Dry Temperate	29.39	107.77	57.31	210.15	87.58	321.13	27.92	102.38	58.19	213.36	30.27	110.98

Khyber Pakhtunkhwa

Forest Area and Carbon Stock (2016-2020)

Forest Type	2016	2020		
	Area (ha)	Area (ha)	C Density (t C/ha)	Carbon Stock (Mt C)
Sub-Alpine	15,636	19,562	66.22	1.30
Dry Temperate	812,749	838,036	101.57	85.12
Dry Temperate Juniper and Chilghoza	3,895	3,956	65.87	0.26
Moist Temperate	297,545	303,634	120.92	36.72
Sub-Tropical Chir Pine	310,565	314,575	89.15	28.04
Subtropical Broadleaved (Scrub)	157,568	162,692	57.01	9.28
Tropical Thorn	1,030	1,843	35.24	0.06
Total	1,598,989	1,644,297		160.77

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Sub-Alpine	523	0.075	4335	0.048	0.027
Dry Temperate	3254	0.611	17382	0.155	0.456
Dry Temperate Juniper and Chilghoza	25	0.003	16	0.001	0.002
Moist Temperate	835	0.205	4287	0.065	0.14
Sub-Tropical Chir Pine	2058	0.288	4374	0.050	0.238
Subtropical Broadleaved (Scrub)	1130	0.031	5256	0.037	-0.006
Tropical Thorn	7	0.000	838	0.002	-0.002
Total	7832	1.212	36488	0.358	0.855

Emissions from Forest Degradation and Removals from Enhancement within Existing Forests (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement in forest cover density (ha)	Removals (Mt CO2e)	Net Emissions/Removals (Mt CO2e)
Sub-Alpine	2,471	0.2	1,939	0.221	-0.056
Dry Temperate	145,740	15.9	125,224	17.339	-1.394
Dry Temp Juniper and Chilghoza	137	0.0	846	0.051	-0.043
Moist Temperate	90,850	9.9	8,802	1.612	8.298
Sub-tropical Pine	86,187	5.1	15,035	0.785	4.284
Subtropical Broad leaved (Scrub)	17,562	0.6	32,702	0.942	-0.301
Tropical Thorn	22	0.0	607	0.0	-0.007
Total	342,969	31.74	185,155	20.957	10.800

Khyber Pakhtunkhwa

Overall Emissions and Removals from forests (2016-2020)

Forest Type	Emissions From Deforestation (Mt CO2e)	Emissions From Forest Degradation (Mt CO2e)	Removals From Enhancement (Mt CO2e)	Removals From Improvement In Degradation (Mt CO2e)	Net Balance (Mt CO2e)
Sub-Alpine	0.0752	0.1653	0.048	0.2208	-0.0283
Dry Temperate	0.6111	15.9450	0.155	17.3390	-0.9379
Dry Temperate Juniper and Chilghoza	0.0026	0.0086	0.001	0.0511	-0.0409
Moist Temperate	0.2045	9.9099	0.065	1.6116	8.4378
Sub-Tropical Pine	0.2881	5.0685	0.05	0.7849	4.5218
Subtropical Broadleaved (Scrub)	0.0307	0.6414	0.037	0.9419	-0.3069
Tropical Thorn	0.0001	0.0004	0.002	0.0074	-0.0088
Total	1.2124	31.7391	0.358	20.9567	11.6368

Emission Factors for Deforestation (excluding soil organic carbon)

Forest Type	Mean Carbon Density (t C/ha)	Emission Factor (EF) (CO2e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-Wetland	Forest-Settlement	Forest-Otherland
Sub-Alpine	39.33	136.5	132.8	144.2	144.20	144.20
Dry-Temperate	52.27	184.0	180.3	191.66	191.66	191.66
Dry temperate Juniper and Chilghoza	28.65	97.4	94.4	105.06	105.06	105.06
Moist-Temperate	69.08	245.6	229.8	253.31	253.31	253.31
Subtropical Chir Pine	41.17	143.3	127.9	150.97	150.97	150.97
Subtropical Broadleaved (Scrub)	10.06	30.3	21.9	36.88	36.88	36.88
Tropical Thorn	7.45	20.7	12.3	27.32	27.32	27.32

Emissions Factors for Forest Degradation

Forest Type	Dense - Medium		Dense - Sparse		Dense - Open		Medium - Sparse		Medium - Open		Sparse - Open	
	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	Δ CO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)
Sub-Alpine	19.80	72.60	51.22	187.82	58.12	213.09	31.42	115.22	38.32	140.49	6.89	25.27
Dry Temperate	29.39	107.77	57.31	210.15	87.58	321.13	27.92	102.38	58.19	213.36	30.27	110.98
Dry Temp Juniper and Chilghoza	27.29	100.08	38.48	141.09	49.55	181.67	11.18	41.01	22.25	81.59	11.07	40.58
Moist Temperate	51.34	188.26	73.68	270.16	92.43	338.91	22.34	81.91	41.09	150.66	18.75	68.75
Sub-tropical Chir Pine	12.91	47.33	32.53	119.29	45.42	166.53	19.62	71.96	32.51	119.20	12.88	47.24
Subtropical Broadleaved (Scrub)	4.46	16.37	21.18	77.65	27.52	100.91	16.71	61.28	23.06	84.54	6.34	23.26
Tropical Thorn	-	-	-	-	-	-	14.88	54.55	25.35	92.96	10.48	38.41

Punjab

Forest Area and Carbon Stock (2016-2020)

Forest Type	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Moist Temperate	1,291	1,199	120.92	0.14
Sub-Tropical Chir Pine	132,585	134,267	89.15	11.97
Subtropical Broadleaved (Scrub)	386,659	403,334	57.01	22.99
Tropical Thorn	36,097	35,248	35.24	1.24
Riverine	31,982	30,016	42.20	1.27
Irrigated Plantation	45,926	47,936	69.05	3.31
Total	634539	651999		40.93

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Moist Temperate	0	0.000	0	0.001	-0.001
Sub-Tropical Chir Pine	125	0.018	62	0.001	0.017
Subtropical Broadleaved (Scrub)	2438	0.074	235	0.001	0.073
Tropical Thorn	2139	0.042	2564	0.004	0.038
Riverine	1953	0.028	892	0.006	0.022
Total	6655	0.163	3752	0.013	0.149

Emissions from Forest Degradation and Removals from Enhancement within Existing Forests (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement In Forest Cover Density (ha)	Removals (Mt CO2e)	Net Emissions (Mt CO2e)
Moist Temperate	476	0.070	20	0.004	0.066
Sub-Tropical Chir Pine	21,771	1.167	1,942	0.093	1.074
Subtropical Broadleaved (Scrub)	44,054	1.190	50,491	0.877	0.313
Tropical Thorn	4,180	0.047	1,727	0.006	0.041
Riverine	3,961	0.021	2,580	0.007	0.014
Total	74,441	2.494	56,760	0.986	1.508

Punjab

Overall Emissions and Removals from Forests (2016-2020)

Forest Type	Emissions From Deforestation (Mt CO2e)	Emissions From Forest Degradation (Mt CO2e)	Removals From Enhancement (Mt CO2e)	Removals From Improvement In Degradation (Mt CO2e)	Net Balance (Mt CO2e)
Moist Temperate	0.000	0.07	0.000	0.004	0.066
Sub-Tropical Chir Pine	0.018	1.167	0.001	0.093	1.091
Subtropical Broadleaved (Scrub)	0.074	1.19	0.001	0.877	0.386
Tropical Thorn	0.042	0.047	0.004	0.006	0.079
Riverine	0.028	0.021	0.006	0.007	0.036
Total	0.162	2.495	0.013	0.987	1.657

Emission Factors for Deforestation (excluding soil organic carbon)

Forest type	Mean Carbon Density (t C/ha)	Emission Factor (EF) (CO2e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-wetland	Forest-Settlement	Forest-Otherland
Moist-Temperate Forests	69.1	245.6	229.8	253.3	253.3	253.3
Subtropical Chir Pine Forests	41.2	143.3	127.9	151.0	151.0	151.0
Subtropical Broadleaved (Scrub)	10.1	30.3	21.9	36.9	36.9	36.9
Tropical Thorn Forests	7.5	20.7	12.3	27.3	27.3	27.3
Riverine Forests	5.6	13.9	5.4	20.5	20.5	20.5

Emissions Factors for Forest Degradation

Forest Type	Dense-Medium		Dense-Sparse		Dense-Open		Medium-Sparse		Medium-Open		Sparse-Open	
	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	Δ CO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)	Δ C (t/ha)	ΔCO2e (t/ha)
Moist Temperate	51.3	188.3	73.7	270.2	92.4	338.9	22.3	81.9	41.1	150.7	18.7	68.7
Sub-tropical Chir Pine	12.9	47.3	32.5	119.3	45.4	166.5	19.6	72.0	32.5	119.2	12.9	47.2
Subtropical Broadleaved (Scrub)	4.5	16.4	21.2	77.7	27.5	100.9	16.7	61.3	23.1	84.5	6.3	23.3
Tropical Thorn	-	-	-	-	-	-	14.9	54.5	25.4	93.0	10.5	38.4
Riverine	-	-	-	-	-	-	9.7	35.4	11.8	43.2	2.1	7.7
Irrigated Plantation	2.7	9.9	-1.9	-6.9	14.4	52.7	4.6	16.8	17.1	62.6	12.5	45.7

Sindh

Forest Area and Carbon Stock (2016-2020)

Forest Type	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Subtropical Broadleaved (Scrub)	1,990	1,488	57.01	0.08
Tropical Thorn	29,829	42,167	35.24	1.49
Riverine	85,890	82,862	42.20	3.50
Mangrove	127,585	151,045	238.85	36.08
Irrigated Plantation	14,746	18,838	69.05	1.30
Total	260,039	296,400		42.45

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Subtropical Broadleaved (Scrub)	943	0.033	611	0.0035	0.030
Tropical Thorn	1324	0.028	14750	0.0316	-0.004
Riverine	24036	0.329	27053	0.1711	0.158
Mangrove	672	0.037	30107	0.9606	-0.924
Total	26976	0.427	72521	1.1667	-0.740

Emissions from Forest Degradation and Removals from Enhancement within Existing Forests (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement In Forest Cover Density (ha)	Removals (Mt CO2e)	Net Emissions (Mt CO2e)
Subtropical Broadleaved (Scrub)	8	0.00	317	0.01	-0.01
Tropical Thorn	3,495	0.10	5,185	0.11	-0.01
Riverine	8,315	0.10	8,663	0.06	0.04
Mangroves	3,893	0.06	33,134	0.39	-0.33
Total	15,712	0.27	47,298	0.57	-0.30

Sindh



Emission Factors for Deforestation (excluding soil organic carbon)

Forest type	Mean Carbon Density (tC/ha)	Emission Factor (EF) (CO ₂ e t/ha)				
		Forest-Cropland	Forest-Grassland	Forest-wetland	Forest-Settlement	Forest-Other land
Subtropical Broadleaved (Scrub)	10.1	30.3	21.9	36.9	36.9	36.9
Tropical Thorn Forests	7.5	20.7	12.3	27.3	27.3	27.3
Riverine Forests	5.6	13.9	5.4	20.5	20.5	20.5
Mangrove Forests	15.2	49.2	40.8	55.8	55.8	55.8
Irrigated Plantation	22.5	76.0	67.5	82.6	82.6	82.6

Emissions Factors for Forest Degradation

Forest Type	Dense - Medium		Dense - Sparse		Dense - Open		Medium - Sparse		Medium - Open		Sparse - Open	
	Δ C (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	Δ CO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	Δ C (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	ΔCO ₂ e (t/ha)	ΔC (t/ha)	ΔCO ₂ e (t/ha)
Subtropical Broad leaved (Scrub)	4.5	16.4	21.2	77.7	27.5	100.9	16.7	61.3	23.1	84.5	6.3	23.3
Tropical Thorn	-	-	-	-	-	-	14.9	54.5	25.4	93.0	10.5	38.4
Riverine	-	-	-	-	-	-	9.7	35.4	11.8	43.2	2.1	7.7
Mangroves	6.1	22.5	2.4	8.7	9.6	35.1	-3.7	-13.7	3.4	12.6	7.2	26.4
Irrigated Plantation	2.7	9.9	-1.9	-6.9	14.4	52.7	4.6	16.8	17.1	62.6	12.5	45.7

Islamabad Capital Territory

Forest Area and Carbon Stock (2016-2020)

Forest Type	2016	2020		
	Area (ha)	Area (ha)	C Density (tC/ha)	Carbon Stock (Mt C)
Subtropical Broadleaved (Scrub)	25,530	25,882	57	1.48
Total	25,530	25,882		1.48

Emissions from Deforestation and Removals from Afforestation/Reforestation (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Subtropical Broad Leaved (Scrub)	448	0.0151	455	0.0021	0.013
Total	448	0.0151	455	0.0021	0.013

Islamabad Capital Territory

Emissions from Forest Degradation and Removals from Enhancement within Existing Forest (2016-2020)

Forest Type	Degradation (ha)	Emissions (Mt CO2e)	Improvement in Forest Cover Density (ha)	Removals (Mt CO2e)	Net Emissions/Removals (Mt CO2e)
Subtropical Broadleaved (Scrub)	2,148	0.065	2,362	0.071	-0.005
Total	2,148	0.065	2,362	0.071	-0.005

Overall Emissions and Removals from forests (2016-2020)

Forest type	Deforestation (ha)	Emissions (Mt CO2e)	Enhancement (ha)	Removals During 4-Years (Mt CO2e)	Net Balance Emissions/Removals (Mt CO2e)
Subtropical Broadleaved (Scrub)	0.015	0.065	0.003	0.071	0.007
Total	0.015	0.065	0.003	0.071	0.007