



ISSUES OF DEFORESTATION AND ITS CONSERVATION POLICY UNDER THE KARBI ANGLONG AUTONOMOUS COUNCIL

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Abstract:

This research study depicted on accelerate increase rate of deforestation issues in the Karbi Anglong district of Assam, India. To explore scientific study, this study emphasized qualitative and descriptive research analysis method. Deforestation means the large-scale removal of trees from forested areas. It often leads to the conversion of land for agriculture, mining, urbanization, and other development purposes. Diverse types of forest are found in the Karbi Anglong district, consisting of tropical moist semi-evergreen forests, moist mixed deciduous forests, riverine forests, and subtropical broadleaf hill forests. In these forest areas, it encompasses plenty of diverse flora and fauna. As per the assessment of 2019, the total forest covered about 7,983 sq km, sharing with 76.5% of the geographical area in the Karbi Anglong district. However, developmental purposes and high standards of living have destroyed trees and forest land, which leads to deforestation. The main reasons behind the deforestation are overgrazing, illegal mining, factories, agriculture land expansion, overpopulation, urbanization development and jhum cultivation. As a result, this deforestation has led to the loss of animal habitats, loss of biodiversity, increased man-animal conflicts, soil erosion, global warming, and climate change. The key findings of results show that 97.4 kilo hectares decreased tree cover and 7.56 kilo hectares lost primary forest in 2020 in the Karbi Anglong District. To protect and preserve the forest and flora and fauna, the K.A.A.C. government has reserved five wildlife sanctuaries, two elephant reserves, and seventeen district council reserved forests. It also initiated professional grazing reserve and village grazing reserve land to prevent deforestation.

Keywords: Deforestation, Karbi Anglong, Forest, Jhum cultivation, Mining, Biodiversity, KAAC

INRODUCTION:

1. Concepts of Forest Resources and Its Significance:

Forest resources are vital for all the living things. They provide with a fresh environment, purify the air, filtering water, support the rich biodiversity of flora and fauna, prevent soil erosion, and safeguard against climate change. It's also provides us with medicines, food, timber, fuel, and fresh air. Forest act as vital carbon sinks, absorbing significant amounts of carbon dioxide and mitigating the greenhouse effect (Khan, Murad Ali, 2024). Forest also furnish a wide range ecosystem goods and services, including livelihoods security, socio-economic development, ecosystem functioning, carbon cycling, biodiversity preservation, nutrient cycling, and climate regulation (Maurya & Vivek 2025). Forests are essential to achieving the sustainable development goals, from climate action and biodiversity conservation to food security and resilient livelihoods. Investing in forests is investing in climate stability, resilient economies, and the well being of present and future generations (UN Global Forest Goals Report, 2026). Forested areas constitute one of the most important ecosystems for humans because of their many social, economic, educational, and scientific values. The primary forest provide a number of land based ecosystem services such as, air quality regulation, nutrient cycling, carbon sequestration, pollination, disease control, fresh water provision, shelter provision, storm protection, and water quality protection (Alexandre Marco da Silva and John Rodgers, 2018). However, seeking for developmental purposes and the high standards of living of the people has changed forest land into deforestation. According to the Unite Nations Global Forest Goals Report 2021 has enunciated the importance of forest to promoting sustainable development such as, support the livelihoods

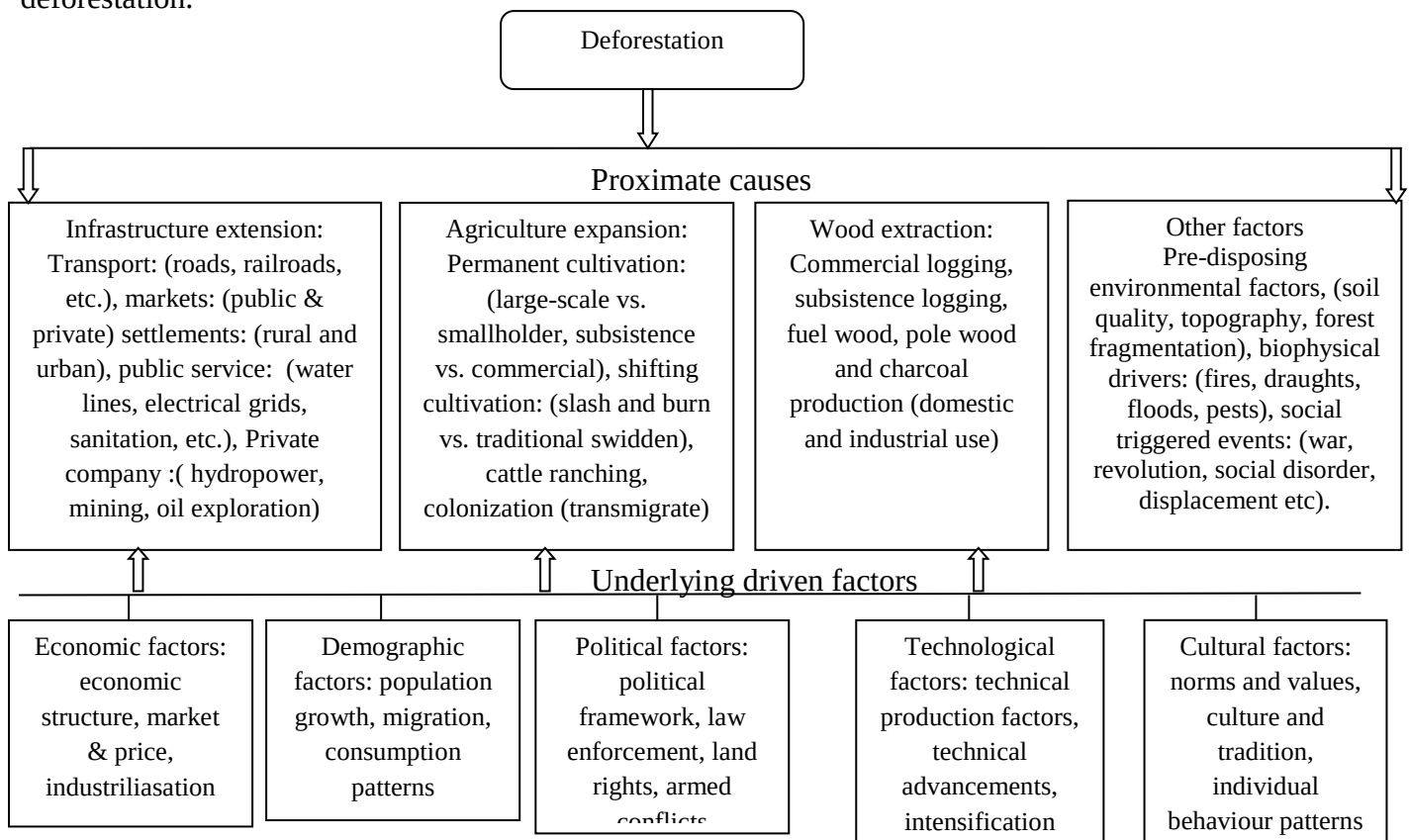
of billions people, harbor most of the world's terrestrial biodiversity, play a critical role in climate mitigation and adaptation, and provide food, energy, materials and cultural value.

1.2 Meaning and concepts of Deforestation:

Deforestation refers to the large scale removal or clearing of forest primarily due to human activities. According to the FAO (2001), "Deforestation means the conversion of forest to another land use or the long-term reduction of the tree canopy cover below a 10% threshold". It is causing biodiversity loss, reducing human well-being and risking the livelihoods of rural communities and indigenous people, and accelerating climate change (Feurer, Melanie et al., 2025). Forest degradation usually results from human activities which are greatly influenced by the variety of macroeconomic, demographic, technological, institutional and political factors. The gradual degradation of the forest can also occur due to increased disturbance resulting in loss of forest products or the reduction of forest quality-the thickness and structure of the trees, the biological administrations that provided the biomass of plants and animals, the species variety and the hereditary variety (Bodo, Tombari., Gima, & Seomoni, 2021). Deforestation, primarily driven by agriculture expansion, logging and infrastructural development, has profound implications for global ecosystem (Khan, Murad Ali., 2024). Deforestation lead to the degradation of ecosystem which mainly causes landslide, soil erosion, climate change, decreased quality of air (as tress produce oxygen, absorb pollutants), extinctions of species and habitat destructions, carbon emission, water cycle and the ecosystem (Sumit & Kumar, Vivek., 2020). As per the UN Global Forest Resource Assessment (2025), the rate of forest net loss decreased globally from 10.7 million ha per year between in 1990-2000, 3.68 million ha per year in 2000-2015 and 4.12 million ha per year increased the annual forest loss in between 2015-2025. Pragmatically, the expedite issues of forest fragmentation and deforestation mainly caused by the two factors, natural and man-made causes. Some natural causes are flood, forest fire, climate change, volcanic eruption, earthquake, droughts, parasite, thunder storm, and hurricane. Massive expansion of agriculture, illegal mining and logging extraction, urbanization development for roads, building, industries, hydro dams, over consumption of forest food, fuel and making furniture are the primary causes of man-made that affect on deforestation. Consequently, this factor has reduced the trees cover and forest landscape into deforestation. Today, deforestation issues one of the crucial challenges to earth's surface. Due to extreme clearance of forest its threats to loss of animals' habitation, ecological balance, soil erosion, water disruption, reduced carbon-di oxide, increased man-animal conflicts, widespread global warming and climate change.

1.3 Disseminating driven factors of deforestation:

The following figure: 1 has indicated the major proximate causes and underlying driven factors of deforestation.



Sources: (Proximate Causes and Underlying Driving Forces of Tropical Deforestation: Helmut J. Geist and Eric F. Lambin, 2002)

1.4 Negative impacts of Deforestation:

Due to massive effects of deforestation, it has resulting to the following major factors;

- **Loss of biodiversity ecosystem/ecological balance:** Expansion of infrastructure development enormously ruined the substantial covered areas of forest that caused deforestation. As a result, it has disrupted the ecological balance where expedite to extinct of diverse wildlife.
- **Soil erosion:** Massive destruction of forest canopy caused accelerated issues of soil erosion. As a result, it has faced substantial effects on property, displacement, plant and tress, crops, soil fertility and flood issues due to deforestation.
- **Water cycle disruptions:** The Loss of the forest ecosystem has disrupted the water cycles and accessibility to dryness of its composition of sand layer where keep water cool.
- **Habitat loss:** The habitation of flora and fauna was disrupted due to depletion of large covered areas of forests. Consequently, it caused man-animal conflict, and growth of illegal poachers.
- **Climate change:** Climate change directly impacts scorching heat wave, caused by different health diseases, intense draughts, wildfires, melting ice, coastal erosion, water scarcity, food insecurity, crops, reduced carbon dioxide, and eroded of soil fertility etc.
- **Human-wildlife conflict:** The rapid destruction of forest canopy that caused expedited man-animal conflict caused loss of precious human life and property, as well as extortion of wildlife.
- **High rate of global warming:** Global warming leads to the rising of temperature, melting of snow and glaciers, and sea level rise due to expansion of deforestation. According to the BBC, between 2000 and 2023, the ice-sheets of Greenland and Antarctica lost around 270 billion tonnes of ice a year on average.
- **Reduced rainfall:** Deforestation has reduced the large amount of rainfall where it has caused famine, draughts, disrupting aquatic life as well as the flora and fauna environment on the earth.
- **Emerging of new diseases:** Depletion of massive areas of forest canopy leads to a diminishing fresh environment which rapid affect of diverse health diseases like zoonotic diseases, malaria etc.
- **Environmental refugees:** The huge destruction of forests lane reflects to displacement, habitation lost, rehabilitation issues, ethnic conflict, border disputes, and mental harassment.
- **Destruction of renewable resources:** Deforestation has also abated the availability of renewable resources, including the water cycle, tree-plants, crops, timber, wildlife etc.
- **Socio-economic impacts:** Deforestation also impacts on food insecurity, traditional cultural values, and income sources of the indigenous communities.

Aims and Objectives of the Study:

- (a) To examine the impacts of deforestation on environment
- (b) To study the accelerated issues of deforestation in Karbi Anglong district
- (c) To analyze conservation policy under taken by the KAAC

Data and Research Methodology:

The study paper is used descriptive research design and self observation. It is also used on both primary and secondary resources. The primary sources are collected from the UN Global Forest Resource Assessment report, UN Global Forest Goals Report, UN Sustainable Development Goals, UN FAO portal, Global Forest Watch in Assam, Assam state forest board, Karbi Anglong Population Census Project 2011-2026, Directorate of Geology and Mining Govt. of Assam, Biodiversity strategy and action plan for Karbi Anglong, prepared by Aranyak 2019, Director of economics and statistical, Govt. of Assam, Government notification, Gazette and the KAAC portal. The paper also collected from the secondary data such as, journal, articles, relevant books, web sources, and news paper.

. Discussions:

2.1. Background of the Karbi Anglong District:

Karbi Anglong District is encompassed by greenery hills, valleys, rivers, having rich culture and traditions. Politically, Karbi Anglong district was formed in 1951, and it was constituted as an Autonomous District Council under the Sixth Schedule to the constitution of India. At present, it was renamed as Karbi Anglong Autonomous Council (KAAC). This council recognized as a local-self administration system for the tribal communities of Karbi Anglong district. As per the Constitution of India, they can manage and exercise legislative, executive, financial and judiciary powers through the district council without any constraints of the state government.

2.2 Data of forest cover loss of Karbi Anglong district:

There are plenty of forests resources with rare and extinct flora and fauna found in the Karbi Anglong district. The forest of Kabi Anglong district is consisting of tropical moist semi-evergreen forests, moist

mixed deciduous forests, riverine forests, and subtropical broadleaf hill forests. As per the assessment of 2019, the total forest covered area about 7,983 sq km, comprising with 76.5% of the total geographical area in the district. Reviewing from this forest areas it can be sub-divided such as very dense forests shared about 586 sq.km account with 7.3%, moderately dense forests about 3801 sq.km of 47.6% and open forests covered 3596 sq.km shared with 45.1%. However the forest land has been declined about, 97.4 kilo hectares decreased tree cover and 7.56 kilo hectares lost primary forest in 2020 in the Karbi Anglong district due to expansion of massive agriculture land, illegal mining, illegal logging, poverty, expansion of urbanization development, shifting cultivation, etc. The annual deforestation rate in Karbi Anglong was 0.63% observed between 1988 to 2016 and 0.21% predicted for 2016 to 2025.

Table No: 1 Primary Forest Loss

Year	Lost in Kilo hectares
2002	910
2003	370
2004	980
2005	930
2006	920
2007	1.1
2008	2.1
2009	2.0
2010	770
2011	1.4
2012	1.4
2013	920
2014	2.5
2015	1.9
2016	3.0
2017	1.8
2018	1.1
2019	670
2020	1.4
2021	1.6
2022	1.7
2023	1.4
2024	1.2

Source : (Global Forest Watch, Karbi Anglong, Assam)

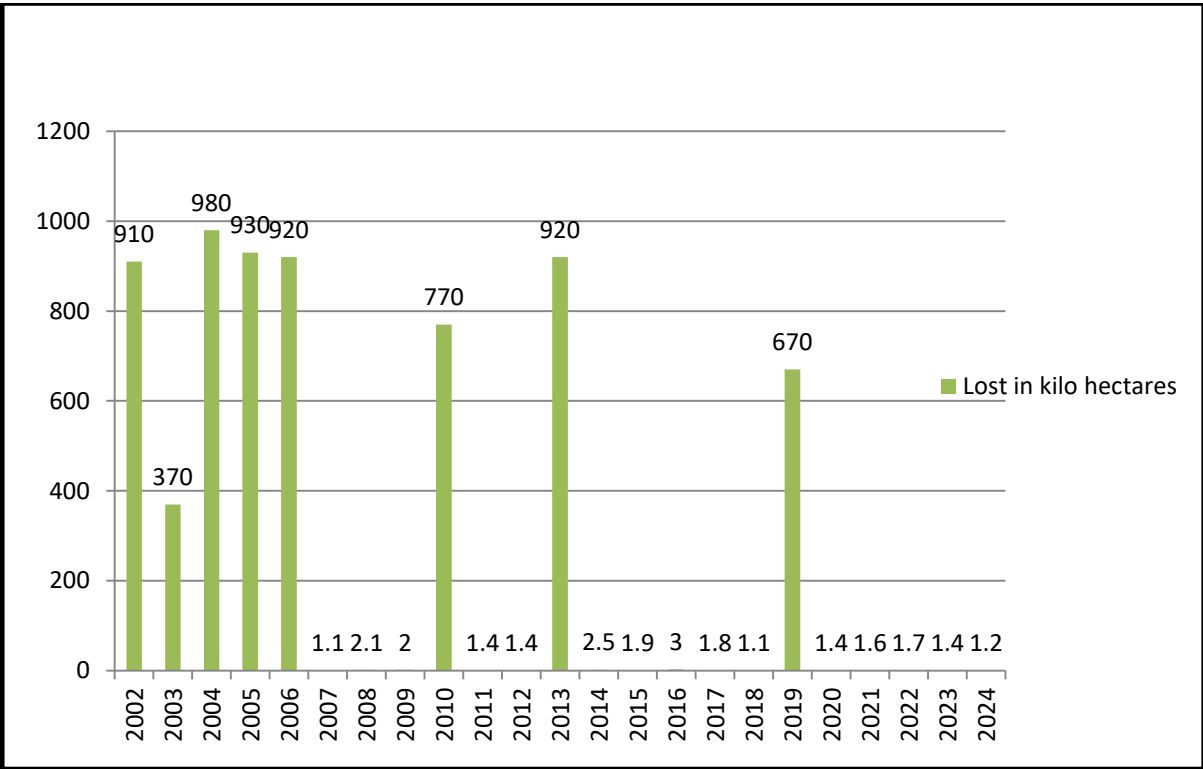


Figure No: 2 Comparing chart of primary forest cover lost from 2002-2024

Table No: 2 Total Tree Cover Lost

Year	Total tree cover loss (In ha)	In %
2001-2005	3,181	1.1
2006-2010	6,959	2.4
2011-2015	8,190	2.8
2016-2020	7,951	2.7
2001-2020	26,281	9.2

Source: (ISFR, Assam-2020)

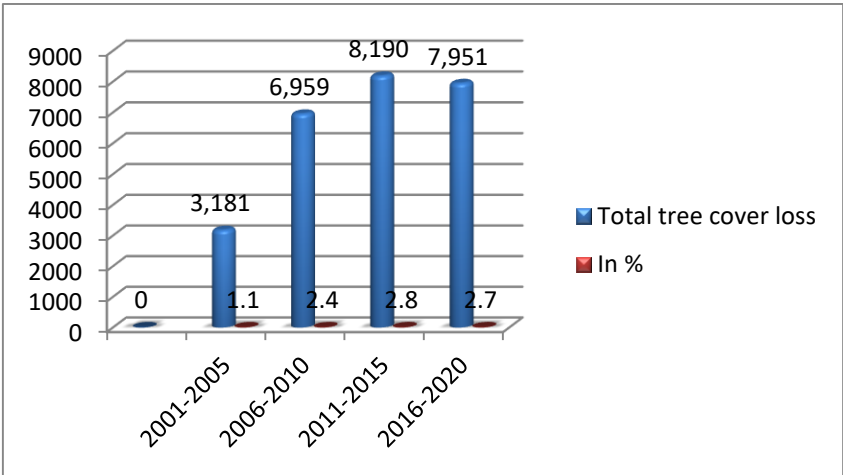


Figure No: 3 (comparing chart of tree cover loss from 2001-20220)

Table No: 3 Annual deforestation rates

Year	Annual deforestation Rate (%)	Forest loss
1988-1998	-0.54	120.07
1998-2007	-1.27	197.42
2007-2016	-0.28	48.15
2016-2025	-0.21	36.44

Source: (Deforestation pattern and its impacts on tress species richness in Karbi Anglong District of Assam, India)

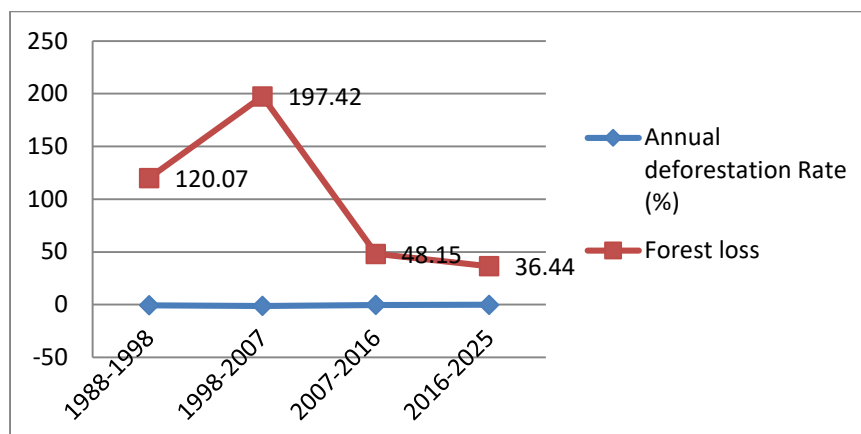
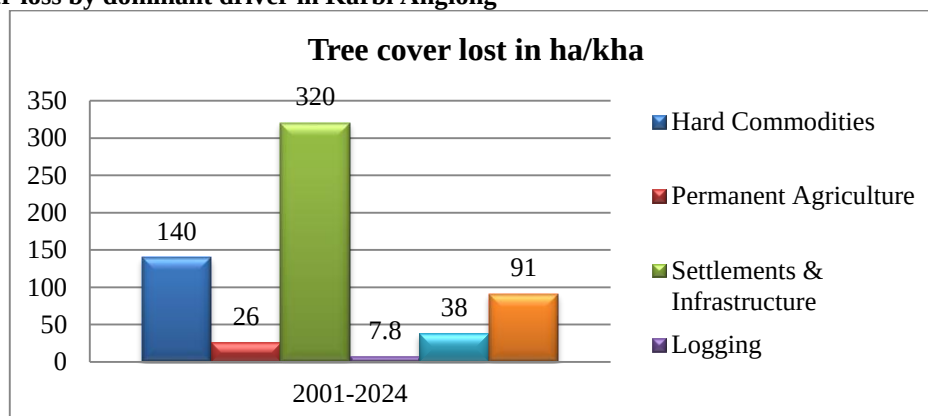


Figure: 4 comparing annual deforestation rate

Figure 5: Tree cover loss by dominant driver in Karbi Anglong



Source: (Global nature watch, Karbi Anglong, Assam)

2.3 Accelerated causes of Deforestation in Karbi Anglong District:

[1] Rapid growth of population:

Rapid growth of population is one of the crucial expedite factors that render to effects on deforestation issues in the global platform. Development of modern medicinal facilities and hospitality that leads to declined mortality rate and increased high birth rate. This alarming has increased the demand for food, living space and other resources. As a result, people have started over exploiting resources and our ecosystems are affected. According to 2011 census the total population of Karbi Anglong district is 9, 56,313.

Table No: 4: Projected Population 2026

Year	Population	In lakhs
2001	813,311	8.13
2011	9,56,313	9.56
2021	10,99,200	10.99
2022	1,113,200	11.13
2023	1,125,200	11.25
2024	1,135,500	11.35
2025	1,144,400	11.44
2026	1,151,900	11.52

Source: (Karbi Anglong district population census, 2011-2021-2026)

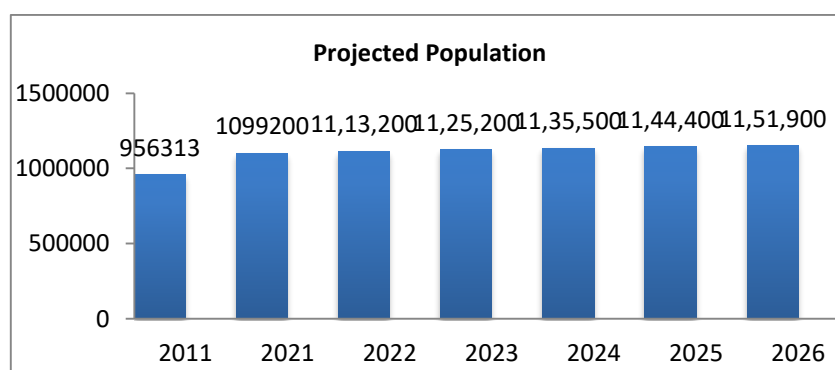


Figure: 6 Comparing projected population from 2011-2026

The above figure indicated quickens increase of population in the district. As per the assessment of 2001-2011 census, the population of Karbi Anglong district increased from 8.13 to 9.56 lakhs. the census assessment of 2001-2011, it can be calculated to compare population growth rate from 10.99 to 11.13 lakhs in between 2021-2022, 11.25 to 11.36 lakh in 2023-2024, and 11.44 to 11.52 lakh in between 2025-2026. Reviewing from the projected population in between 2011 to 2026, the total population of Karbi Anglong district increased about 9.56 to 11.52 lakh. There was radical change of population about 17.58% compared to total population as per 2001. In the previous census of 2001, Karbi Anglong district recorded increase of 22.72% to its population compared to 1991 due to high birth rate, illegal migrants that promoted to growth of over population.

[2] Expansion of agriculture land: Paddy cultivation is the main income sources in Karbi Anglong district. Using modern invention of technology like, tractors, power tiller, JCB paved for high expansion of agriculture land for production. Moreover, the government schemes like PM Kishan, credit loan subsidy, and NABARD to improve and assist the farmer for more production of cultivation. HYV rice cultivation areas increased 7.5% in 2009–10, with 16.26 lakh hectares and 13.45 lakh hectares in 2011. Increasing rate of HYV crops its leads to loss of biodiversity, soil degradation, water scarcity, global warming and climate change.

[3] Jhum or Shifting cultivation: This practice of cultivation is one of the major economic sources in Karbi Anglong district, especially for the Karbi community and other hill tribes. More than 65% family members were engaged. Apparently, these slash and burn methods of cultivation were influenced by their socio-economy and ritual practices since its origin and development of the Karbi culture. In contrast, they cut off plants and trees in a selected area, and transplant a variety of seeds. After being harvested, these fields had harmful effects on flora and fauna as well as soil fertility. According to the Assam Remote Sensing Application Centre, (ARSAC) out of 423,885 hectares of land under jhum cultivation of Karbi Anglong districts, 6844 hectares become degraded forest land.

Table No: 5

Year	Area under Jhum (hectares)	Area affected by Jhum (in hectares)	No. of Family involved
1976	54,000	415,00	45,000
2011	63,000	76,000	54,000

Source: (Director of economics and statistical, govt of Assam, Guwahati, Karbi Anglong Autonomous Council, 2011)

[4] Mining: Directorate of Geology and Mining, Govt. of Assam has permitted five mining plans in Karbi Anglong District. They are given below;

Table No: 6

SL NO	Name of Mining plan	Area in hectares
1	Laijan river (sand)	3.0
2	Nambor River (land stone)	0.72
3	Jamuna River (sand)	3.0
4	Chomna River (sand)	2.64
5	Chomna River (sand)	1.44
	Total	10.8

Source: (Directorate of Geology and Mining, Govt. of Assam)

[a] Coal mining One of the leading issues on environmental degradation in the K/A district. The permitted major areas of coal mining by the KAAC govt. such as Koilajan 177 hectares, Silveta 20 hectares, Jirikindeng, Klurdung, Disobai, Sarpo teron gaon, and Chipip lankso. The proposed areas include Borpung, Rajagaon, Sikarighat, and Langhin. There are 15 illegal rat-hole mines in the Karbi Anglong district.

[b] Sand mining: Sands are the vital survival for forest resources. It protects cool, fresh, plenty of rain, aquatic life and food energy for forest. Despite, seeking for luxury life and communication development has set up an illegal mining to it and these activities reduced the fresh and green forest resources. Some major sand mining areas both legal and illegal such as Jamuna river, Dhansiri river, Dikharu river, Kopili river, Daigrung river, Laijan Deopani river, Deithor river, Deihori river, Kalioni river, Karkanthi river, Longnit river, Nambor river, Panjan river, Patradisa river, Lumding river, and Borpani rivers. The KAAC proposed a total of 200 leases covering 426.60 hectares of area. These comprise 87 leases for sand minerals, 8 leases for sand gravel, 1 lease for gravel, 1 lease for silt, 2 leases for boulders, 85 for stone minerals, and 16 for ordinary earth minerals. Moreover, out of these 200 leases, 93 are identified as potential mining zones, comprising 47 for sand, 32 for stone, and 14 for brick earth. At present total 42 sand mahal in Karbi Anglong district.

[5] Stone mining: It also leads to a crucial deforestation issue on environmental depletion. The major stone quarry areas of the Karbi Anglong district are Dolamara, Kakosang, Silonijan, Panimara (2,676 hectares), Hongthor Adong (401 hectares), Rangsal, Parkup Pahar, Mirdo Pathar, Upper Deopani (38 hectares), Borjuri (3.50 hectares), and Chailangso (1 hectare). As per the SEAC committee meeting on 4 January 2025, a total of 19 permitted and non-permitted lease areas of PP land are in the district.

[6] Factory: This segment has also expedited on deforestation issue. At present, there are two leading major factories, in Karbi Anglong district including, Cement and Brick factories. Bokajan Cement factory controlled by the CCI its covered 1792 Bighas, 4 kothas 8 lessas approximately 240 acres of land and mining lease over 171 acres of land. Brick factories also deplete the tree-covered areas. Some major brick factories area in Karbi Anglong District such as, Six-mile areas (4.24 hectares) Diphu, Baithalangso, No-1 Deramukh, Dokamukam, Kapili Brick industries (2.33 hectares), Bokajan, Bakalia and Khatkhathi.

[7] Illegal logging: The collection of timber and logging has changed the forest land into deforestation. Dolamara Hotspot area, Daldali, Kheroni, and Bakaliaghat are the major illegal logging areas in the district.

[8] Illegal Encroachment: This issue one of the accelerated challenging factors of forested area which impeded to growing of plant and trees. Illegal timber poaching, cutting, and slash and burned it that reduced to the chance of new green forestation. Encroachment as per the 1996 data in East Karbi Anglong district had 2,125 with 42.38 sq.km and West Karbi Anglong district 588 numbers with 10.55 sq.km area covered. Recently in 2025 in the West Karbi Anglong district total 10,000 individuals illegally settled in the PGR and VGR land under the Donka Mokam revenue circle total 7,184.7 acres land.

[9] Urbanization: Rapid development of infrastructure and constructions like, road, building, and educational, commercial, railway line construction has massive destruction of forested cover areas. Recently, the Government of Assam has launched 'Assam Mala' this scheme for widening transportation and communication across the state and 'Bharat Mala' scheme for 4 land constructions total its covered 341 hectares by urbanization development.

[10] Rubber Plantation: This kind of farming also render to deforestation issue. Recently, in Karbi Anglong District the rubber cultivation covering 14,000 hectares (together both small & large holdings) and generating employment for about 60,000 people approximately. Moreover, there are about 5,000 rubber growers and covered total area under rubber plantation is around 1121.11 hectares.

[11] Irrigation and dam constructions: Total irrigation potential coverage as of 2017-18 is 17.11% of the net cropped area. Jamuna River total GCA 2,874 ha, minor irrigation 63,000 ha in 2014-15, groundwater 2,395 hectare, PMKSY Schemes 360 hectares. The Karbi Langpi Hydro Electric project covered a total area of 1,557 hectare, with a submerged area of 552 hectares. The proposed dams, the Lower Kopili Hydroelectric Project covered areas total 190 hectares and the Tharakunji Hydro Electric project, covered 251.94 ha of land. This includes 134.24 ha forest land and 117.70 ha non-forest land.

[12] Forest fires: Forest fires also leading factors of tree cover lost that caused deforestation. As per the assessment of Global Nature Watch (2026), total 320 ha tree cover lost from the forest fires in 2001 to 2025 sharing 0.24% in the district. As of 25th July 2022 to 20th July 2026, a total of 876 VIIRS forest alerts navigated in Karbi Anglong district. The highest recorded forest fires in the district was 2021 with 523 Visible Infrared Imaging Radiometer Suite (VIIRS) alert.

Conservation policy taken by the KAAC Government:

The forest conservation mechanism initiated by the KAAC can be categorized into two sub-divisions. They are namely West division and East division under the Karbi Anglong district and another is known as Hamren division located at West Karbi Anglong district.

[1] Forest conservation policy: to promote long term strategies for forest protection and improvement for biodiversity ecosystem, the KAAC government has initiated 14 reserve forests, 17 proposed reserve forests and 18 district council reserve forests. They are given below details of its covered areas;

Table No: 7: State Reserve Forest, West Division

Sl. No	State Reserve Forest	Area (sq.km)
1	Dhansiri	1770.38
2	Daldali	123.32
3	Disama	112.15
4	Kaki 1st Addition	121.49
	Total	1,127.34

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 8: District Council Reserve Forest, West Division

Sl. No	District Council Reserve forest	Area (sq.km)
1	Miyungdisa D.C.R.F.	143.92
2	Tamulbari	13.86
3	Englongkiri	74.32
4	Borlongpher	77.31
5	Matipung	33.00
6	Langso li-et	1.60
	Total	344.01

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 9: Proposed Reserve Forest, West Division

Sl. No	Proposed Reserve Forest	Area (sq.km)
1	Hafjan P.R.F.	35.25
2	Langkaijan P.R.F.	44.37
	Total	79.62

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 10: State Reserve Forest, East Division

Sl.No	State Reserve forest	Area (sq.km)
1	Mikir Hills R.F.	221.81
2	Kaliyani R.F.	208.96
3	Nambor R.F. (N. Block)	53.09
4	Nambor R.F. (W. Block)	166.33
5	Chelabor R.F.	33.54
6	Sildharampur R.F.	15.75
7	Jungthung R.F.	32.56
	Total	732.04

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 11: District Council Reserve Forest, East Division

Sl.No	District Council Reserve Forest	Area (sq.km)
1	Longnit D.C.R.F.	117.62
2	Patradisa D.C. R.F.	67.33
3	Hidipi D.C.R.F.	20.08
4	Jamuna D.C.R.F.	11.30
5	Mahamaya D.C.R.F	5.58
6	Khanbamon D.C.R.F	165.50
7	Haithapahar D.C.R.F.	54.39
	Total	441.80

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 12: Proposed Reserve Forest, East Division

Sl.No	Proposed Reserve Forest	Area (sq.km)
1	Lahorijan P.R.F	37.51
2	Western Mikir Hills P.R.F	173.38
3	Langlokso P.R.F	534.71
4	Kaziranga P.R.F	33.88
5	Dolamara P.R.F	20.18
6	Bokajan P.R.F	24.79
7	Kalapahar P.R.F	9.77
8	Borjuri P.R.F	139.00
9	Parkup Pahar P.R.F	27.73
	Total	1000.95

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 13: State Reserve Forest under Hamren Division

Sl.No	State Reserve Forest	Area (In Sq. Km)
1	Amreng R.F. (Addition)	56.94
2	Jokota R.F.	12.35
3	Rongkhang R.F.	33.39
	Total	102.68

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 14: District Council Reserve Forest, Hamren Division

Sl.No	District Council Reserve Forest	Area (In Sq. Kms)
1	Kolonga D.C.R.F.	17.35
2	Amreng 1st Addition D.C.R.F.	5.80
3	Amreng 2nd Addition D.C.R.F.	56.30
4	Charchim D.C.R.F.	146.00
	Total	225.45

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

Table No: 15: Proposed Reserve Forest, Hamren Division

SL.NO	Proposed Reserve Forest	Area (In Sq. Kms)
1	Amsolong P.R.F.	74.73
2	Umjakini P.R.F.	36.80
3	Punja P.R.F.	4.00
4	Chainanadi P.R.F.	19.87
5	Balazor P.R.F.	82.79
6	Rekhalong P.R.F.	18.25
	Total	236.44

Source: (Biodiversity strategy and action plan for Karbi-Anglong, prepared by Aranyak, 2019)

[2] Wildlife Sanctuaries conservation: To enhance wildlife protection and eco-tourism, there are five reserved wildlife sanctuaries has been taken by the KAAC government including, Garampani WLS, East Karbi Anglong WLS, Nambor WLS, Marat Longri WLS, and North Karbi Anglong WLS (proposed). Additionally, two Elephant Reserve Forests has been adopted for reducing pertinent threats of man-animal conflict, especially the protection for wild elephant namely, Kaziranga-Karbi Anglong Elephant Reserve and Dhansiri-Lumding Elephant Reserve.

[3] Wetlands conservation: In order to protect and improve the forest landscape there are about 89 wetlands under the KAAC government jurisdiction covering about its 58.10 sq.km.

[4] Sacred Grove's conservation: Enhancing forest canopy and preservation for traditional nature worship of the Karbi's socio-religious practice, the KAAC has declared seven reserved sacred groves such as, Rognhang Rongbong, Inglong Kiri, Ritachor, Bichikri, Arlongpuru at Hamren, Mahamaya and Rek Anglong.

[5] Constitution of biodiversity management committee (BMCs): As per the instructive of the Biological Diversity Act 2002, the Karbi Anglong Autonomous Council has constituted about 10 Constitution of Biodiversity Management Committees (BMCs) which will monitored by the Forest Range jurisdiction to protect and enrich more forest canopy in the future. They are Eastern Range BMC, Dalamara BMC, Parkup Pahar BMC, Silonijan BMC, Dokmoka BMC, Central Range of Manja BMC, Diphu BMC, Barlangpher BMC, Langpher BMC and Rangapahar BMC.

[6] PGR and VGR reserved land: To protecting wildlife and refrain from soil degradation as well as deforestation, the KAAC local administration has taken PGR and VGR reserve land under the four revenue circle areas of Donka (total cover 11, 607, 19 bighas), Phuloni, Diphu and Silonijan.

Findings of the research study:

[1] Man-animal conflict: Massive ruin of forest covered area has disturbing to animal habitation. As a result they were searching for food in to the village nearby the jungle.

[2] Poverty and illiteracy issues: Substantial issues of poverty and illiteracy promote to impede sympathy power of human mind. As a result, it has compelled to start collection for foods, firewood; habitation purposes and other ways of process for livelihood which have automatically paved the way of deforestation problems.

[3] Illegal encroachment: This kind of issues one of the accelerated challenging factors of deforestation. Basically, there are two types of illegal encroachment will be seen first one is internal encroachment and second is external encroachment. Internal encroachment refers to indigenous tribe within the district who illegally occupied the forested land without the concerned authority. Basically, the tribal peoples are using for jhum cultivation, reserving for formation of village and fond of jungle dweller. On the other hand, External encroachment indicated to who are illegally occupied the forested area from the outside of Karbi Anglong district. For instance, illegal domination of PGR/VGR land who are coming from Bihar, Dhansiri Reserved Forest, Lahorijan reserved forest who are border areas dominated Naga from Nagaland,

[4] Weak enforcement and political will: Pragmatically, political benefits of vote bank and desiring for self-interest of the political leaders has increased the illegal timber poacher and encroachment in the

government reserved forest and non-cover forested areas. Lack of Insufficient and effective task force management by the KAAC government will expedite to depletion of forest cover. Moreover, involvement of corruption by some forest officers and members of the KAAC also sole responsibility of high growth rate of deforestation.

[5] Implementation gap between central and state government: Accurate mapping and monitoring implementation policy is essential for forest conservation. Despite, Lack of high level discussion, actions oriented, policies implementation, enforcement law between the central, state and local government has deeply rooted the failure of forest conservation.

[6] Revenue collection: In order to rapid socio-economic development, the KAAC government has granted land allotment to many corporate sectors for revenue collections like, APDCL, Ayurveda, Bio-gas, etc.

[7] Mismanagement of the KAAC Government: Lack of proper mapping land record and monitoring agency of the KAAC government has failure of the forest conservation paradigm. For instance, settlement of illegal encroachment in the reserved forest area, jhum practice, rubber plantation, and farming are the crucial factors of deforestation.

[8] Ethnic Conflict: Struggle for native land by diverse tribe and protection from the outside illegal encroachment and migration issues in the border areas promote to border dispute. As a result, advocating for self-determination rights and equality that diversion into disseminating ethnic conflict within the tribe or within the outside tribe. For instance, Karbi-Naga conflict, Karbi-Dimasa Conflict, Karbi-Kuki conflict, Karbi-Khasi Conflict is the prominent leading issues of such reasons.

[9] Lack of Community Support: Basically, the tribal people have ignored the community support in environmental conservation policy due to shyness in character, linguistic barriers, socio-religious barriers and unawareness in sustainability environment for the future purposes. Consequently, it faces huge detrimental to organize an awareness programme and capacity building in the society.

[10] Lack of using modern science and technology tools: Despite, being a digital era the use of modern technology like AI, GPS, and other monitoring and mapping technologies lagged behind by the state government.

[11] Lack of local NGOs and awareness programme: There are many NGOs were formed in the district. Although, lack of awareness programme about on environmental conservation that may lead to deforestation in the remote areas.

[12] Socio-religious barriers: Pragmatically, prevailing rules of traditional socio-religious practice reflects mismanagement of forest resources in the Karbi society. As per the Aron Barim or Honghari or Barithe using of wine during worship is an inevitable in the Karbi society. Although, use of rice wines it is only offer to their faith god and goddess or Hemphu, Mukrang and Rasinja. Albeit, massive used of wine among the Karbis youth in the name of worship that caused huge constraints about any assemble of motivational talk, conversion on capacity building, awareness programme, peace and security, principles of moral ethics.

[12] Over consumption of food: Massive consumption of foods like collection of shrubs leaves, roots and later it was cut down. As a result it has ruined the forested cover area.

Conclusion and Recommendations:

Forest resources give us a fresh and beauty in every sector. Expansion of modern science and technology has widespread comfortable for human life. Improvement of modern medicinal and hospital facilities was rendering to high birth rate. Spend of luxury life and forgetting of sustainability environment is the crucial thinking of our life. Pragmatically, accelerate growing of global warming and climate change is the sole responsibility of deforestation. Recently, the temperature of heat starting from minimum 32 degree Celsius and highest up to 39 in the district. As a result, many aquatic lives, tress, rivers, raw materials and forest food has been depleted due to excessive consumption and needs of human being. Therefore, getting stay green forest it is necessary to change new technique and policies like using AI for monitoring and mapping for forest land record and autonomy powers of special task force forest guard should be deployed.

[1] To organized an awareness programme: For more empowerment of environmental protection including Workshop, public city, drama, art competition, banner poster, mock-drills, and seminar at the village, block, district, state and central level.

[2] Using modern technology: To improve more greening environment, the government, NGOs and other organizations should be used of modern technology tools like, AI, Remote Sensing Satellite, GIS and Cartographic for the proper maintenance of forest covered areas.

[3] To improve collaboration mechanism: To collaborate and sign MoU with the state forest department, NGOs, central forest department, international organizations like, UNFF, FAO, IUCN and others organisations for strengthening financial support as well as implementation policy of forest protection.

[4] Extension more wildlife sanctuary, biodiversity and forest reserve: In order to maintain and protect more flora and fauna, both the government of KAAC and Assam should be cooperated to ensure greater expansion of ecological diversity.

[5] Reforms tribal forest rights act: Rehabilitation of forest areas and practice of jhum cultivation rights act must be reforms to limit encroachment.

[6] To implement enforcement law: Strict action should be taken against illegal encroachment, logging, poacher, and mining.

[7] To encourage more reforestation/afforestation: To distribute sapling and motivate significance of forest conservation before the public to protecting healthy environment in the future.

[8] To improve capacity building: To conduct and disseminate capacity building programme on forest management like study tour, seminar, workshop, training, research, projects schemes in school, colleges, university, and others institutions.

[9] Building a sustainable future: Using of non-biodegradable like, plastics, metals, glass, e-waste, toxic chemicals, paints, tyres, etc has reduced the soil fertility and damaged the newly emerging plants and trees. As a result, it has impacted on environmental degradation. Therefore, we much used paperless or digital transactions tools for promoting to sustainability environment.

[10] Role of Digital media/Mass media: To accelerate improvement and protection of forest conservation policy, the digital media has played a crucial role including, with mobile phone and web sources like, facebook, YouTube, Google meet, zoom, instagram, and other technologies applications. Through digital media it can be conducted online debate, quiz competition, online drawing competition, and seminar at the rural and urban areas.

[11] Role of NGOs/ Community support: Every institutions and non-institutions also has the sole responsibility of environmental protection issues. Likewise, NGOs, Students organizations, Self-Help Groups, women organizations, religious organizations, farmer associations, commerce and chamber association, village headman association, literature association, youth association, etc should be organized an awareness programme on environmental depletion issues. Furthermore, honouring award mechanism based on who relentless active in forest conservation is essential to initiate for more participation of community support.

References:

- [1] Khan, Murad Ali., (2024): From Forests to Deserts: Analyzing the Global Environmental Impact of Widespread Deforestation, Journal of Recent Advances in Nanomedicine & Nanotechnology, Volume-1, Issue-1, July 2024, Pp.1-6.
- [2] Maurya, Jyoti., & Vivek., (2025): Idealistic Journal of Advanced Research in Progressive Spectrums (IJARPS), Volume-04, Issue-01, January 2025, eISSN-2583-6986, Pp.70-76.
- [3] The UN Global Forest Goals Report 2026, <https://forests.desa.un.org/documents/global-forest-goals-report-2026>.
- [4] Alexandre Marco da Silva and John Rodgers (2018): Deforestation across the World: Causes and Alternatives for Mitigating, International Journal of Environmental Science and Development, Vol. 9, No. 3, March 2018, Pp. 67-73
- [5] Feurer, Melanie., Markovic, Jelena., Starke, Michael., Jerylee Wilkes-Allemand , Wolf, Oliver., (2025): Drivers of deforestation and forest degradation between 1990 and 2023 - A global meta-analysis, Environmental Science and Policy, Volume 173, November 2025, 104242, Pp. 1-11 <https://doi.org/10.1016/j.envsci.2025.104242>.
- [6] Bodo, Tombari., Gbidum Gimah, Batombari., Seomoni, Kemetonye Joy., (2021) Deforestation and Habitat Loss: Human Causes, Consequences and Possible Solutions, Journal of Geographical Research, Volume 04, Issue 02, April 2021, Pp.22-30 (<https://doi.org/10.30564/jgr.v4i2.3059>).
- [7] Khan, Murad Ali., (2024): From Forests to Deserts: Analyzing the Global Environmental Impact of Widespread Deforestation, Journal of Recent Advances in Nanomedicine & Nanotechnology, Volume-1, Issue-1, July 2024, Pp.1-6.
- [8] Sumit & Kumar, Vivek., (2020): Deforestation: Facts, Cause, Effects, And Control Strategies Journal of Indian Associations For Environmental Management, Vol. 40 No.1 (2020), Pp.1-5
- [9] Helmut J. Geist and Eric F. Lambin, (2002): Proximate Causes and Underlying Driving Forces of Tropical Deforestation, February 2002 / Vol. 52 No. 2, Pp. 143-150.
- [10] FAO. 2025. Global Forest Resources Assessment 2025. Rome, <https://doi.org/10.4060/cd6709en>