Natural Capital Accounting for Climate-Resilient and Low-Carbon Development in Nigeria (December 5, 2022/June 30, 2024)

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OVERALL OBJECTIVE

Support the development of Natural Capital Accounts (NCA) to inform policies, plans, and programs for low-carbon and climate-resilient development for Nigeria.

POLICY OBJECTIVES

- Develop land accounts on the federal level to integrate land use and land cover change data in climate change and environmental sustainability policies and enable the systematic and standardized production of land accounts.
- Pilot the development of ecosystem accounts in two participating states (Kaduna and Nasarawa) in the World Bank-financed program on Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) and use the data in the integrated landscape management planning and selection of project investments.
- Develop GHG accounts and Integrated Environmental-Economic Modelling (IEEM) to determine low-carbon development pathways for Nigeria to meet its emission reduction targets and address transition risks with mitigation outcomes.
- Apply the NCA work to inform the Medium-Term National Development Plan, the Energy Transition Plan, and sectoral action plans in agriculture, forestry, energy, and transport; and state-level investment prioritization in Kaduna and Nasarawa.

KEY ACTIVITIES

- Development of GHG accounts.
- Development of land accounts at the federal level.
- Piloting of ecosystem accounts in Kaduna and Nasarawa States.
- Policy analyses on diversification with mitigation outcomes.
- Policy analyses on deforestation and forest degradation drivers.

MAIN AGENCY AND PARTNERS

National Bureau of Statistics, Federal Ministry of Environment, National Council on Climate Change, Federal Ministry of Agriculture and Food Security, Federal Ministry of Power, Energy Commission of Nigeria, Federal Ministry of Finance, Federal Ministry of Budget and Economic Planning, National Space Research and Development Agency, Kaduna and Nasarawa State Ministries of Environment.

PROGRESS AND RESULTS

- **NCA**: GHG accounts for 2017 developed; land accounts at the federal level and ecosystem accounts for two states developed and endorsed.
- **Policy analyses**: IEEM results and policy options are under review to inform the National Climate Change Action Plan and the Medium-Term Development Plan; Tree cover loss analyses are finalized and will underpin the design of a potential new project.
- **Number of people trained**: 50 (40% percent women)
- **Number of benefitting agencies**: 12

GPS INDICATORS

The NCA for Nigeria has contributed to the overall GPS program indicators through:

- the development of natural capital data and policy analyses;
- informing planning and investment decisions in the ACReSAL Project and a potential new project on deforestation;
- capacity building of government agencies;
- integration of gender, poverty, and inclusion in policy analyses; and
- use of produced data and analyses in the upcoming CPF and CCDR.

2015		Undisturbed forest	Woodlands and disturbed forest	Agroforestry	Arable land	Grassland	Settlement	Bare surfaces	Freshwater swamp	Mangrove	Water bodies	Total 2015
	Undisturbed forest	3,790,160	7,246	0	37,493	0	2,230	0	245	0	781	3,838,155
	Woodlands and disturbed forest	203,803	11,552,671	0	131,325	195	17,727	1,436	527	2,424	8,069	11,918,177
	Agroforestry	0	0	16,797,821	106,750	48	13,760	83	42	1,822	815	16,921,141
	Arable land	0	0	582,920	51,860,659	24,336	169,571	27	38	3,105	3,324	52,643,980
	Grassland	0	0	22,851	52,862	2,596,536	3,266	2,412	0	27	63	2,678,017
	Settlement	0	0	0	0	0	645,987	0	0	0	0	645,987
	Bare surfaces	0	0	0	276	0	15	15,454	0	12	46	15,821
	Freshwater swamp	0	0	4,706	0	0	306	0	378,980	404	143	384,539
	Mangrove	0	0	80	18	0	2,553	6	83	872,027	8,029	882,796
	Water bodies	0	0	48	0	0	0	0	12	1,561	1,043,730	1,045,351
	Total 2020	3,993,963	11,559,917	17,408,702	52,189,107	2,621,130	855,418	19,418	379,927	881,382	1,065,000	90,973,964

(The column headers above are the **2020** categories.)

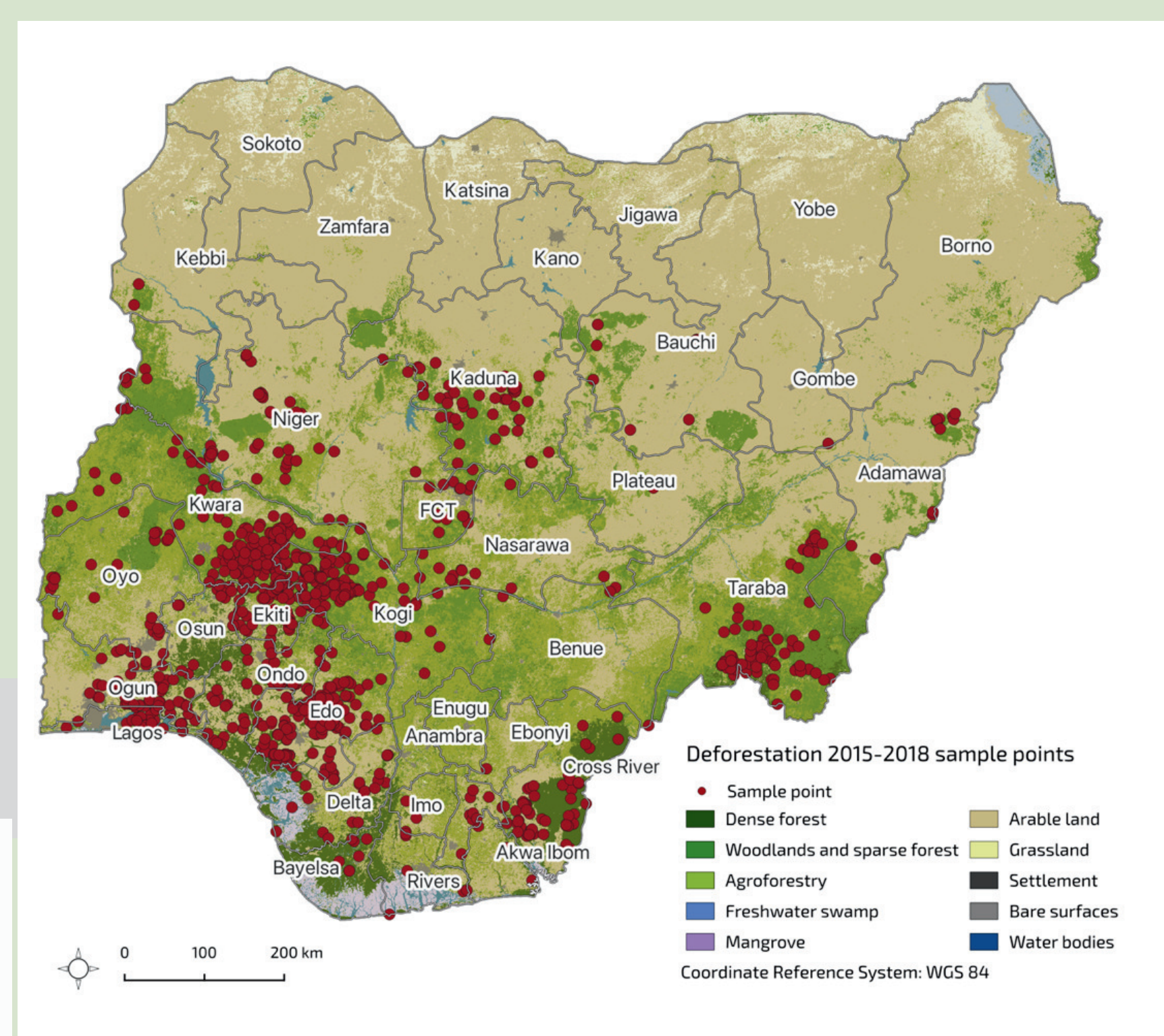Table 1: Land Use Land Cover Change Matrix (ha)
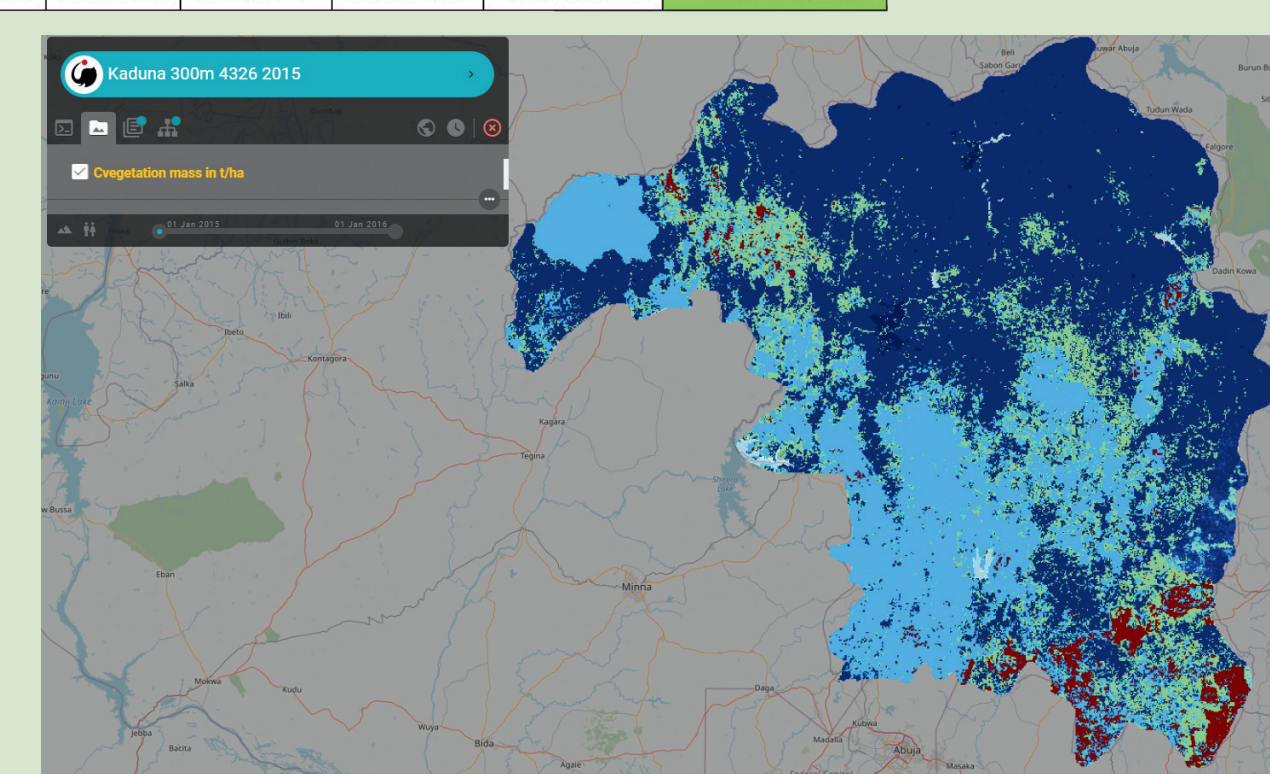

Figure 1: Locations of forest loss since 2015
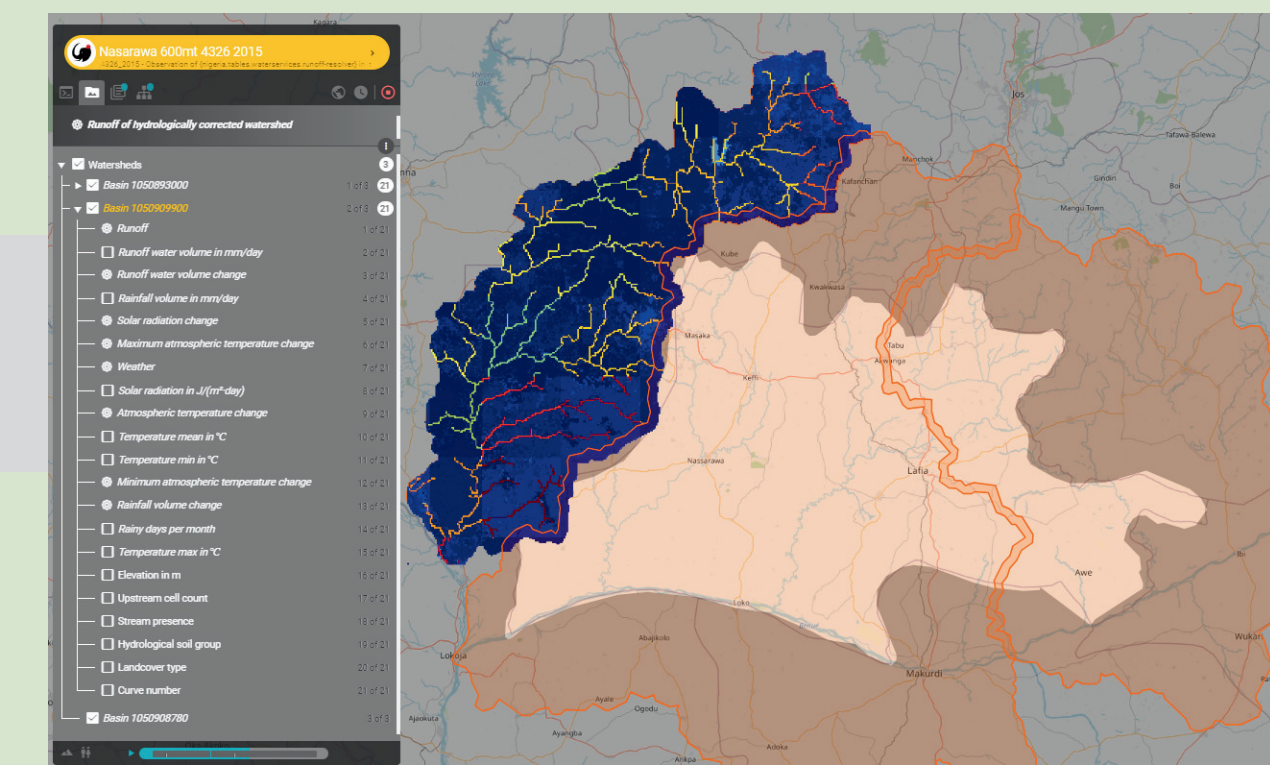

Figure 2: Vegetation Carbon stock in Kaduna from ARIES

Figure 3: Run-off water volume in Nasarawa from ARIES

Figure 4: Organic carbon stock in Kaduna from ARIES

Unit: Gg

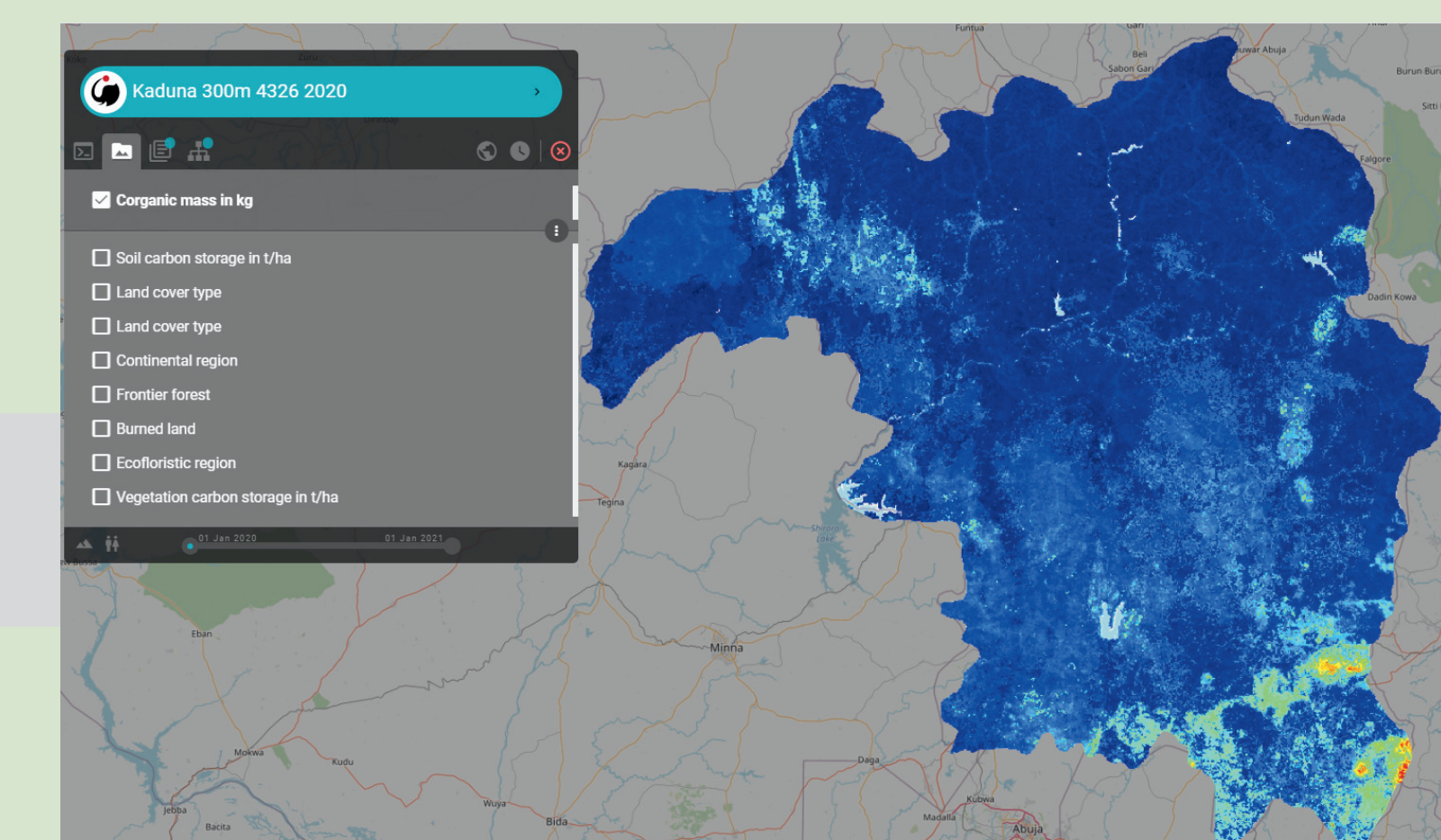| ISIC		CO2	CO2-biomass	Total CO2
A	Agriculture, forestry and fishing	4799	14503	19303
B	Mining and quarrying	6810		6810
C	Manufacturing	26557		26557
D	Electricity, gas, steam and air conditioning supply	55886		55886
E	Water supply; sewerage, waste management and remedi...	38		38
F	Construction	5661		5661
H	Transport	11106	221	11327
Other	Transport	19186	271126	290312
	Household air emissions, total	14592	18704	33296
	Bridging items Total Air emissions accounts (industry (row less National residents abroad	144636	304334	449190
	– National fishing vessels operating abroad	-42		-42
	– Land transport			
	– Water transport			
	– Air transport	-68		-68
	plus Non-residents on the territory	28		28
	+ Land transport			
	+ Water transport			
	+ Air transport	1108		1108
	Other adjustments and statistical discrepancy			
	'Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change			450216
	'land use, land-use change and forestry' (as reported to UNFCCC table 10s2)			11003
	Year of submission to UNFCCC			461220

Table 2: Preliminary CO2 account

CONCLUSION

- Nigeria's NCA is a pivotal step in valuing its natural assets and supporting policymakers in balancing economic policies with environmental goals.
- The process involved multiple state and federal agencies, and capacity-building for relevant staff.
- The GHG approach aligned with the National Inventory Report allows scalability for time series analysis and inclusion of additional GHGs.
- The NCA highlighted the need for a unified approach to producing national LULC maps, leveraging existing data sources, and improving validation, particularly in forest cover.
- Designating lead agencies for LULC mapping and fostering collaboration will enhance spatial dataset accuracy and integration into national accounts and policymaking.
- The NCA, combined with modeling, guides policymakers in achieving NDC emission targets and assessing the impact of policy measures like carbon tax, environmental tax, or payment for ecosystem services, on economic development and poverty reduction.