Land & Ecosystem Extent Accounts (2015/2021)

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2 - 4 April 2025

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Outline

- Introduction
- Purpose and Rationale
- Land Accounts Development
- Results & Findings
- Policy Implications & Applications
- Next Steps & Conclusion

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Introduction

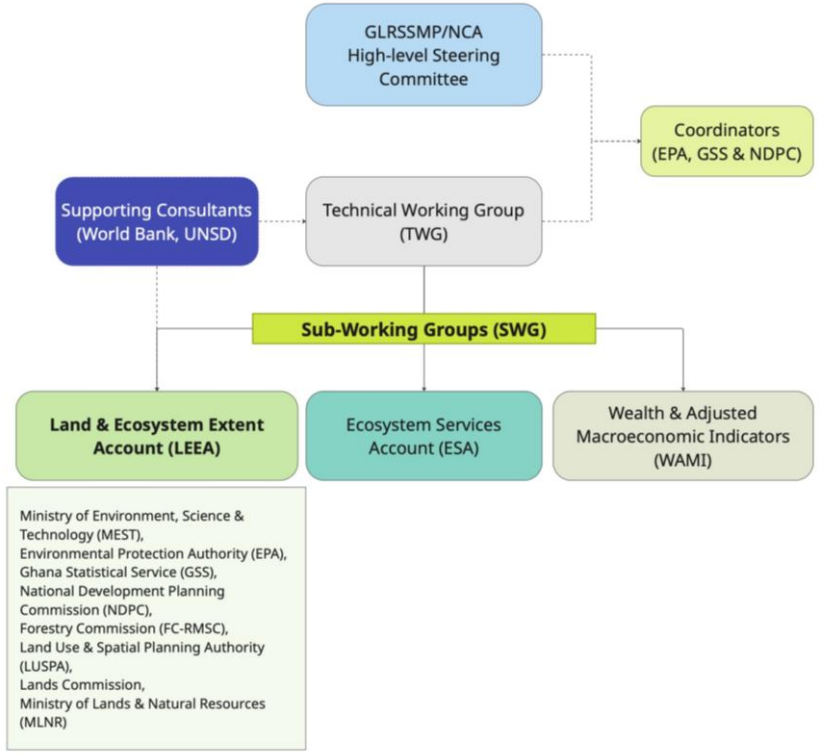
- The Land Accounts provide information on land use and land cover.
- They also provide an assessment of the changing shares of different land uses and land cover in Ghana.
- Land Accounts are generally recorded in two (2) main forms, i.e., physical and monetary asset accounts and how they are linked to the economy.
- The focus of this 1st iteration of the Land accounts is on physical asset accounts.
- The Land Accounts serve as a critical and fundamental component of the ecosystem account, providing an important starting point for compilation.

Purpose & Rationale

- The main purpose and rationale for compiling the land accounts include:
  - > Determine the land cover changes from the year 2015 to year 2021.
  - > Estimate additions and reductions in land cover due to human activity and natural processes.
  - > Integrate existing data to update and develop high-quality land cover data and maps.
  - > Use the accounts to better inform public policy and decision-making processes at the national, regional and district levels.

Land Account Development Process

- Land Accounts were developed using the **United Nations System of Environmental-Economic Accounts (SEEA) Central Framework** as a guide.
- Used existing land cover maps for 2015 and 2021 (10m Resolution) produced by the Resource Management Support Center (RMSC) of the Forestry Commission and Kwame Nkrumah University of Science and Technology (KNUST) with support from the UK Ecometrica.
- The 2015 Map was upgraded under this NCA Programme to match the classification scheme used for the and 2021 maps.
- The LEEA Accounts were compiled by a Sub-Working Group (SWG) with representatives drawn from eight (8) Ministries, Departments and Agencies (MDAs) with technical support from the World Bank and the United Nations Statistical Division (UNSD).



LEEA Sub-Working Group

Land Account Development Process

Spatial Overlay

Land cover change matrices were created by overlaying the 2015 and 2021 land cover maps using ArcGIS 10.5.

Nation & Sub-national Analysis

Regional and forest reserve accounts were generated by clipping maps to respective boundaries and applying the same analytical process.

Change Interpretation

Land cover changes were categorized as degradation, improvement, or neutral, based on UNCCD SDG 15.3.1 guidance.

Landscape Degradation Assessment

Changes were analysed region by region and referred to as landscape degradation to reflect the spatial scale.

Deforestation & Afforestation

The matrices enabled quantification of deforestation and afforestation as specific forms of land degradation and improvement.

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Definitions & Concepts

Additions: The total area added to each land cover type from other types.

Area Unchanged: It is the area of a land cover type that remains unchanged from 2015 to 2021.

Closing Area, 2021: It is the opening area plus Net Change.

Coverage, 2015 (%): It is the opening area expressed as a percentage of the total area.

Coverage, 2021 (%): It is the closing area expressed as a percentage of the total area.

Land degradation: It is the result of human-induced actions which exploit land, causing its utility, biodiversity, soil fertility, and overall health to decline.

Land Stability: It is a state whereby the amount and quality of land resources necessary to support ecosystem function and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems.

Net Change: This represents Additions minus Reductions.

Net Change/Opening Areas (%): The percentage change relative to the opening area.

Opening Area, 2015: This is the total area for each land cover type in 2015.

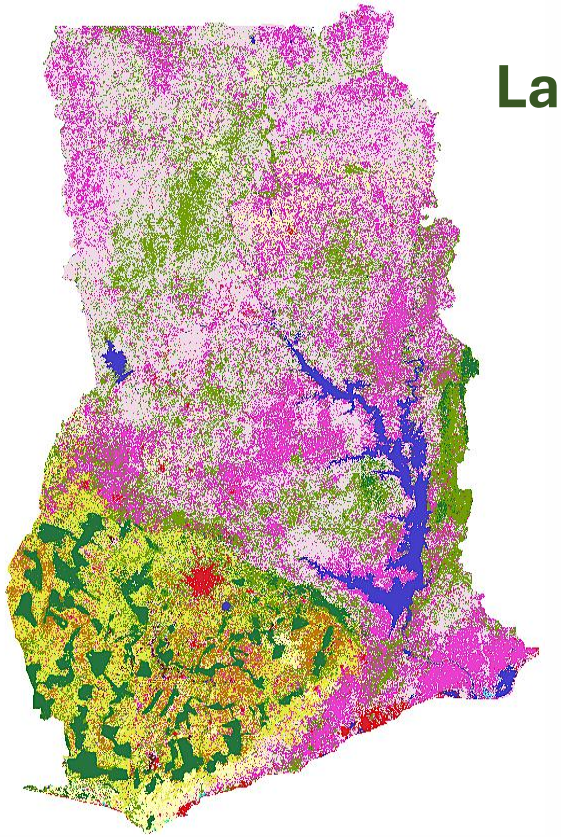
Reductions: The total area lost from each land cover type to other types.

Turnover/Opening Areas (%): The sum of additions and reductions as a percentage of the opening area.

Classification of Land Cover

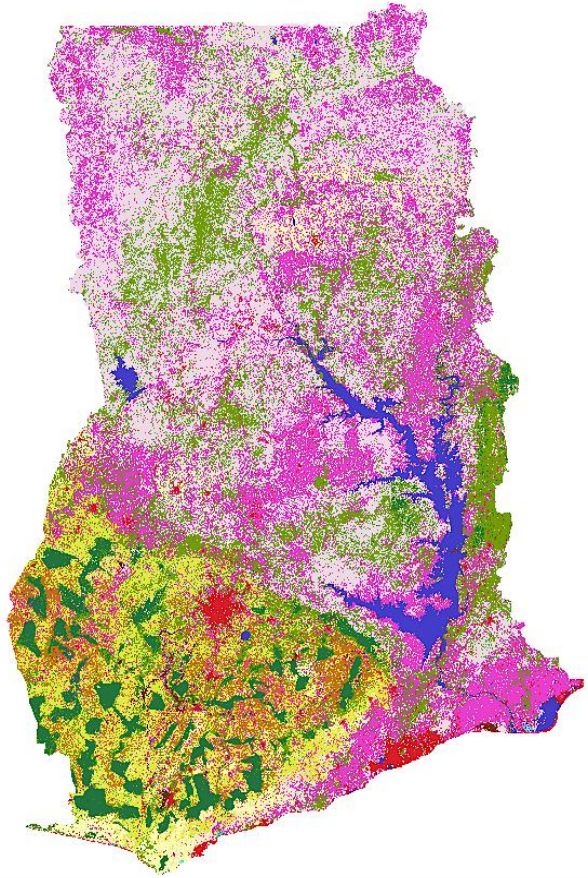
Land Use/Cover	Description
Closed forest	Woody vegetation with canopy cover of more than 60% and minimum mapping unit (MMU) of 1.0 ha
Open forest	Woody vegetation with canopy cover between 15 and 60% and minimum mapping unit (MMU) of 1.0 ha
Water	Rivers, streams, lakes, and ponds
Grassland	Grass, bush, bamboo, and shrubs
Settlement	Built-up areas
Full sun cocoa	Cocoa plantations with no or little natural or planted trees to form enough canopy shade to protect the plantation from direct sunlight
Shaded Cocoa	Cocoa plantation with natural or planted trees and forms enough canopy shade to protect the plantation from direct sunlight
Other Tree Crops	Oil palm, cashew, rubber, mango
Food Crops	Rice, maize, plantain, cassava, vegetables
Mangrove	Mangrove stands (both natural and planted)
Bare Surface	Mainly mining sites

Land Cover (2015-2021): National



Legend

- Closed forest
- Open forest
- Water
- Grassland
- Settlement
- Mono cocoa
- Shaded cocoa
- Other tree crop
- Food crop
- Bare surface
- Mangroves



Land Use/Cover Maps (2015- Left; 2021-Right)

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Land Account (2015 – 2021)

Unit (km²)	Closed Forest	Open Forest	Water	Grassland	Settlement	Mono Cocoa	Shaded Cocoa	Other Tree Crop	Food Crop	Bare Surface	Mangrove	Total
Opening Area (2015)	**14,477**	**43,767**	**7,319**	**87,714**	**4,497**	**17,957**	**6,482**	**11,633**	**44,313**	**294**	**87**	**238,540**
Area Unchanged	10,995	40,232	7,075	80,508	4,493	15,684	6,313	9,030	42,969	243	63	217,604
Additions	96	3,679	720	2,024	2,241	2,760	1,131	2,194	5,553	533	5	20,936
Reductions	3,482	3,534	244	7,206	5	2,273	169	2,603	1,344	51	24	20,936
Net Change	-3,386	145	476	-5,182	2,236	487	962	-409	4,208	482	-20	0
Closing Area (2021)	**11,091**	**43,912**	**7,794**	**82,532**	**6,734**	**18,444**	**7,445**	**11,223**	**48,522**	**776**	**68**	**238,540**
Indicators												
Net Change/ Opening Areas	**-23.4%**	**0.3%**	**6.5%**	**-5.9%**	**49.7%**	**2.7%**	**14.8%**	**-3.5%**	**9.5%**	**163.9%**	**-22.3%**	
Turnover/Opening Areas	**24.7%**	**16.5%**	**13.2%**	**10.5%**	**49.9%**	**28.0%**	**20.1%**	**41.2%**	**15.6%**	**198.8%**	**33.2%**	
Coverage (2015) - Area as % of Total	**6.1%**	**18.3%**	**3.1%**	**36.8%**	**1.9%**	**7.5%**	**2.7%**	**4.9%**	**18.6%**	**0.1%**	**0.0%**	**100.0%**
Coverage (2021) - Area as % of Total	**4.6%**	**18.4%**	**3.3%**	**34.6%**	**2.8%**	**7.7%**	**3.1%**	**4.7%**	**20.3%**	**0.3%**	**0.0%**	**100.0%**

Land Cover Change Matrix (2015 – 2021)

2015 \ 2021	Closed Forest	Open Forest	Water	Grassland	Settlement	Mono Cocoa	Shaded Cocoa	Other Tree Crop	Food Crop	Bare Surface	Mangrove	Total
Closed Forest	10,995	2,113	6	362	23	523	101	141	201	13	0	**14,477**
Open Forest	3	40,232	73	723	0	753	161	431	1,251	139	0	**43,767**
Water	0	0	7,075	82	-	4	0	4	1	152	1	**7,319**
Grassland	92	1,539	561	80,508	1,760	337	48	510	2,273	82	4	**87,714**
Settlement	-	-	-	-	4,493	-	4	0	0	0	0	**4,497**
Mono Cocoa	-	-	5	-	-	15,684	655	580	950	83	0	**17,957**
Shaded Cocoa	-	-	1	-	-	-	6,313	-	158	10	-	**6,482**
Other Tree Crop	-	25	4	846	-	848	113	9,030	719	48	-	**11,633**
Food Crop	-	-	23	2	458	289	48	517	42,969	8	-	**44,313**
Bare Surface	0	0	47	-	-	3	0	1	0	243	-	**294**
Mangrove	0	3	-	10	0	3	0	8	0	0	63	**87**
Total	**11,091**	**43,912**	**7,794**	**82,532**	**6,734**	**18,444**	**7,445**	**11,223**	**48,522**	**776**	**68**	**238,540**

Colour	Indicator	Area (km²)	%
	Stable landcover	217,604	91.2%
	Landscape degradation	12,812	5.4%
	Deforestation	4,921	2.1%
	Improvement	2,601	1.1%
	Afforestation	1,661	0.7%
	Neutral Change	5,523	2.3%
	Total	**238,540**	**100.0%**

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Results & Findings (National)

1. Land Cover Change Overview

- **Total Area Covered**: 238,540 km^2.
- **Turnover** (Additions + Reductions as % of Opening Area) reflects landscape dynamism:
- Highest Turnover: **Bare Surface (198.8%)**, **Settlement (49.9%)**, and **Mono Cocoa (28.0%)**
- Lowest Turnover: **Water (13.2%)**, **Closed Forest (24.7%)**

Results & Findings (National)

2. Forests

- **Closed Forest**:
- Lost 3,386 km^2 (net loss of -23.4%).
- Coverage dropped from **6.1% (2015)** to **4.6% (2021)**.
- Only 76% of the area remained unchanged.

- **Open Forest**:
- Slight **net gain** of 145 km^2 (0.3% increase).
- Still high turnover (16.5%), indicating internal change dynamics.

- **Key takeaway**: There's an **alarming decline in closed forest** cover, possibly due to expansion of cocoa farms or settlements.

Results & Findings (National)

3. Cropland

- **Mono Cocoa**: +487 km^2 (**+2.7%**) – moderate increase.
- **Shaded Cocoa**: +962 km^2 (**+14.8%**) – strong expansion, perhaps due to sustainable/ agroforestry practices.
- **Other Tree Crop**: **-409 km^2 (-3.5%)**.
- **Food Crop**: Significant net gain of **+4,208 km^2 (+9.5%)**.
- **Key takeaway**: There's a general **expansion in cropland (agriculture)**, especially **shaded cocoa and food crops**.

4. Settlement

- Gained **2,236 km^2,** almost **50% increase** over the 6-year period.
- Now occupy **2.8% of total area,** up from **1.9%** in **2015.**
- **Key takeaway**: Urbanization is rapidly expanding.

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Results & Findings (National)

5. Water

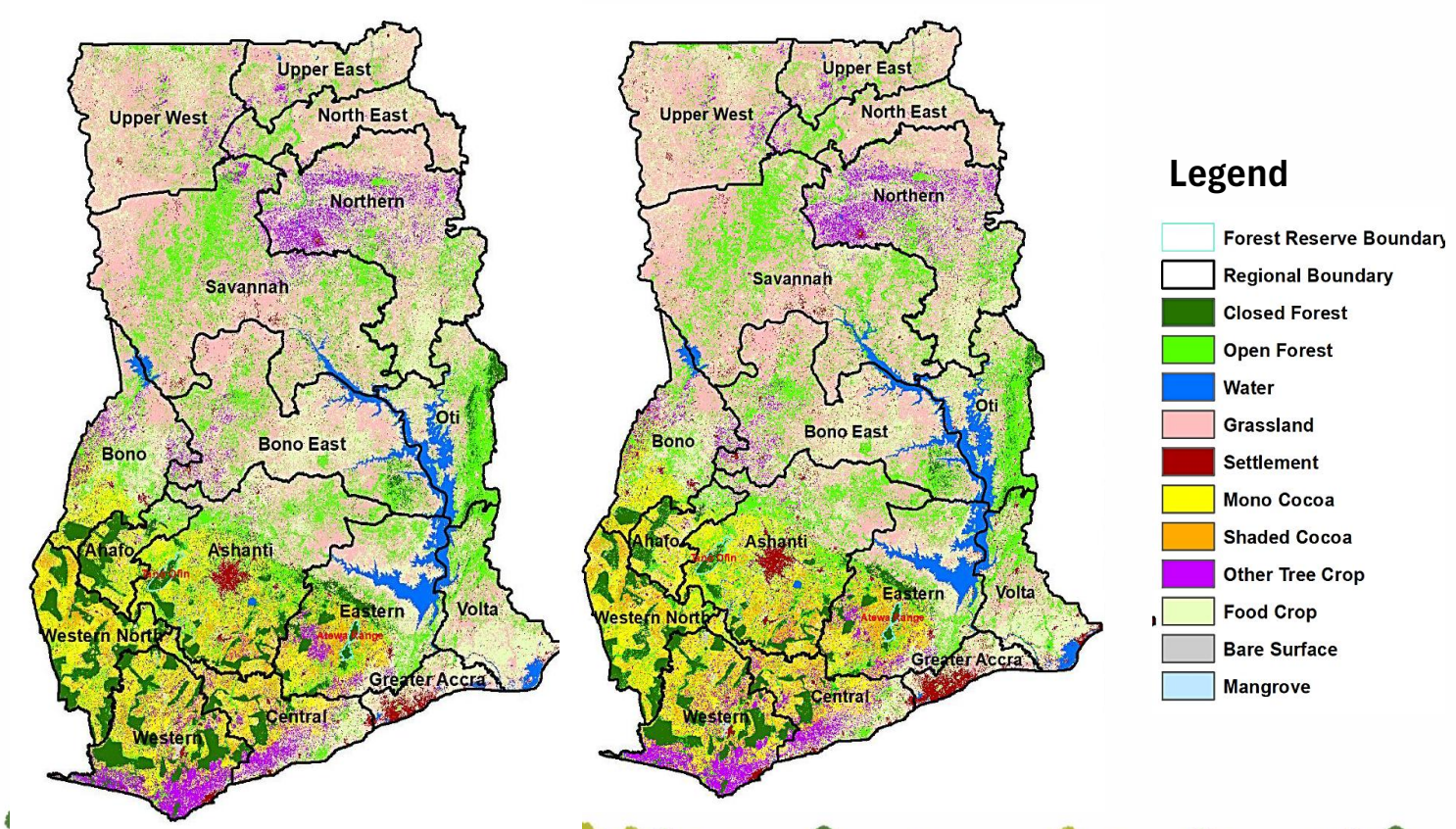
- Water bodies increased by 476 km^2 (+6.5%).
- **Mangroves lost 20 km^2 (-22.3% of original area)**, with only 63 km^2 remaining.
- **Concern**: **Mangroves are under significant threat**, though they occupy a small area.

6. Bare Surface

- Gained 482 km^2 – a huge +163.9% increase from a small base (294 to 776 km^2).
- **Concern**: This could suggest **land degradation or increased exposure of land due to deforestation/construction.**

Results & Findings: Sub-national

Land Cover Maps Showing All 16 Regions (2015 - Left; 2021- Right)



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Results & Findings (Sub-national)

- **Ahafo region** experienced **23.9% conversion** in its land cover.
- **Three (3) regions** experienced the **highest land degradation** in terms of **closed forest > open forest**: **Ahafo (16.9%)**, **Ashanti (10.40%)** and **Western North (8.97%)**.
- By contrast, the **Upper East (98.42%)** and **North East (97.84%)** had **high land stability**.
- The regions with the most improvement in land cover were **Northern (2.0%)**, **Central (1.5%)**, **Savannah (1.5%)** and **Volta (1.5%) Regions.**
- There are **major differences between the regions in landscape stability and land degradation**.
- In general, land cover is **more stable** and **less degraded** in the **north of Ghana.**

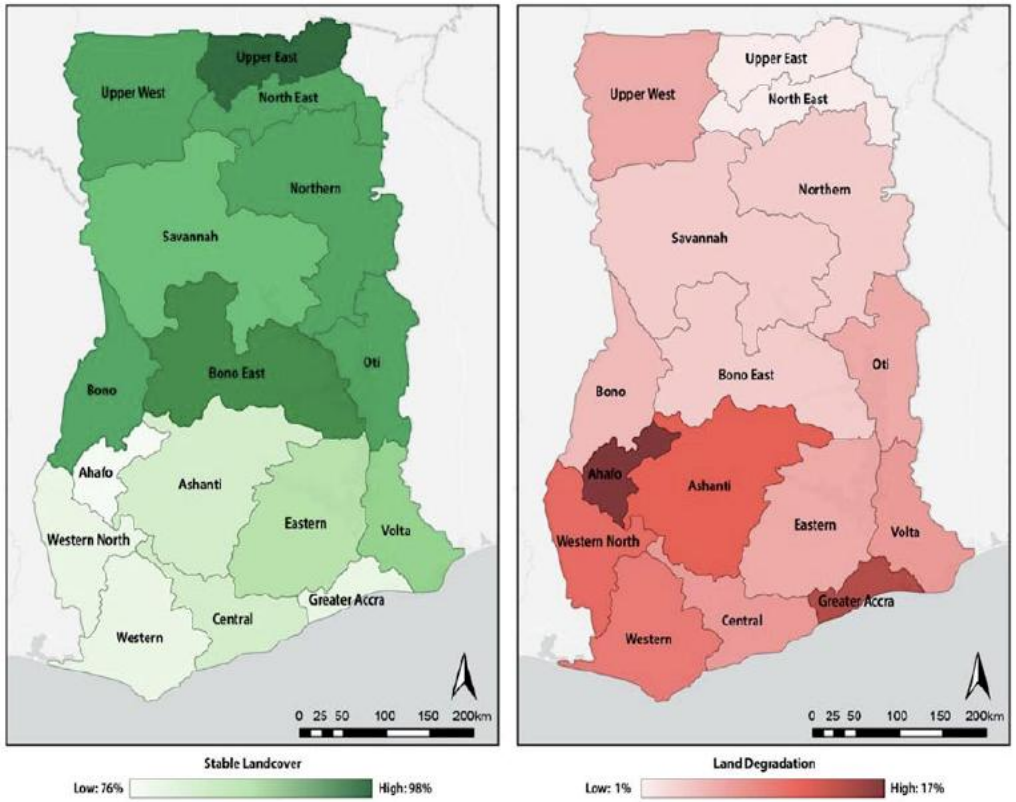
Results & Findings: Sub-national

Key Indicators from Regional Land Accounts

ID	Region	Landscape Stability	Land Degradation	Largest Change	Type of Change
1	Ahafo	76.10%	16.93%	5.4%	closed forest > open forest
2	Ashanti	86.06%	10.40%	2.4%	closed forest > open forest
3	Bono	94.21%	4.16%	0.9%	grassland > settlement
4	Bono East	95.58%	2.61%	1.1%	grassland > food crop
5	Central	86.14%	5.86%	1.9%	mono cocoa > other tree crops
6	Eastern	89.74%	5.28%	1.1%	closed forest > open forest
7	Greater Accra	84.50%	14.55%	10.1%	grassland > settlement
8	North-East	97.84%	0.88%	1.0%	grassland > open forest
9	Northern	93.77%	2.79%	1.5%	grassland > food crops
10	Oti	94.04%	4.90%	2.0%	closed forest > open forest
11	Savannah	93.03%	3.36%	1.7%	other tree crops > food crops
12	Upper East	98.42%	0.93%	0.4%	grassland > food crops
13	Upper West	94.07%	4.98%	2.8%	open forest > food crops
14	Volta	90.98%	5.75%	2.7%	grassland > settlement
15	Western	84.85%	7.93%	2.6%	other tree crops > mono cocoa
16	Western North	84.65%	8.97%	3.5%	closed forest > open forest

NB: Land degradation is the change from one land cover type to another within a region; hence, it is a regional indicator. It is not the degradation of specific land covers (e.g., forests in poor or good condition).

Landcover Stability and Degradation (2015 – 2021) by region



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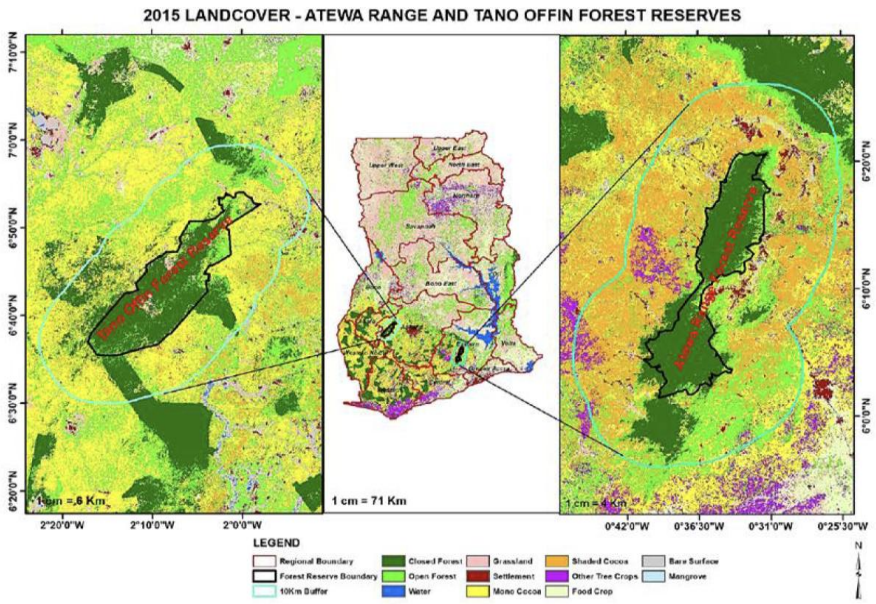

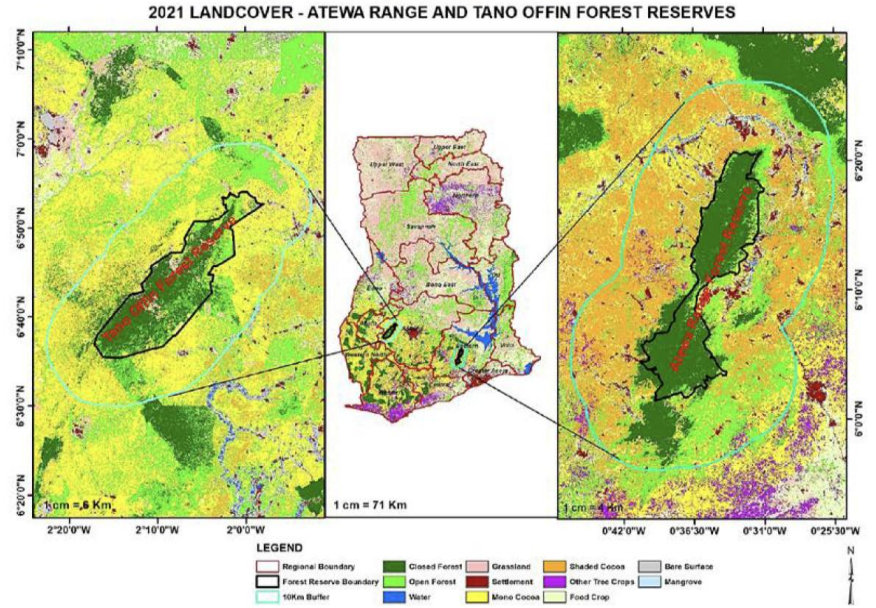

Sub-national/ 2 Forest Reserves

- Land accounts were also compiled for **two (2)** forest reserves: **Atewa and Tano Offin and the surrounding areas (10 km buffer zone)**.
- **Atewa** had a **high landscape stability (97.86%)** compared to **Tano Offin (86.15%)** with landscape **degradation of 13.5%.**
- In both reserves, the **predominant change** is from **closed forest to open forest**, particularly in the **Tano Offin reserve**.

Sub-national/ 2 Forest Reserves

Atewa Forest Reserve and Buffer Land Cover Account (ha)

	Closed Forest	Open Forest	Water	Grassland	Settlement	Mono Cocoa	Shaded Cocoa	Other Tree Crop	Food Crop	Bare Surface	Total
Opening 2015											
Reserve	19,071	1,569	0	12	0	323	126	103	1	0	21,206
Buffer	12,784	28,149	112	3,858	4,212	23,270	44,328	5,094	2,754	1,530	126,091
Total	31,856	29,718	112	3,870	4,212	23,593	44,454	5,197	2,755	1,530	147,297
Closing 2021											
Reserve	18,717	1,776	1	12	3	395	134	160	8	1	21,206
Buffer	11,274	26,007	854	1,820	5,370	21,582	45,435	4,127	7,573	2,048	126,091
Total	29,991	27,783	855	1,832	5,373	21,977	45,569	4,287	7,582	2,049	147,297
Net Change 2015 to 2021											
Reserve	-354	207	0	0	2	72	8	57	7	1	0
Buffer	-1,510	-2,142	742	-2,037	1,158	-1,688	1,107	-967	4,820	518	0
Total	-1,865	-1,935	742	-2,038	1,161	-1,616	1,115	-910	4,826	519	0
Percent Net Change 2015 to 2021											
Reserve	-2%	13%	100%	-4%	733%	22%	6%	55%	474%	9800%	0%
Buffer	-12%	-8%	661%	-53%	28%	-7%	2%	-19%	175%	34%	0%
Total	-6%	-7%	660%	-53%	28%	-7%	3%	-18%	175%	34%	0%

Tano Offin Forest Reserve and Buffer Land Cover Account (ha)

	Closed Forest	Open Forest	Water	Grassland	Settlement	Mono Cocoa	Shaded Cocoa	Other Tree Crop	Food Crop	Bare Surface	Total
Opening 2015											
Reserve	30,175	5,905		1,738	4	2,992	4	143	16		40,977
Buffer	24,176	31,175	4	9,440	965	64,825	7,118	645	844	30	139,220
Total	54,351	37,080	4	11,177	969	67,817	7,122	788	860	30	180,198
Closing 2021											
Reserve	25,101	8,963	1	2,545	9	4,038	5	164	149	2	40,977
Buffer	8,393	35,540	106	8,751	1,285	69,682	9,651	312	5,407	92	139,220
Total	33,494	44,503	107	11,296	1,294	73,720	9,656	476	5,556	95	180,198
Net Change 2015 to 2021											
Reserve	-5,074	3,058	1	807	5	1,046	0	21	133	2	0
Buffer	-15,783	4,365	102	-689	320	4,857	2,534	-333	4,564	63	0
Total	-20,857	7,423	103	118	325	5,903	2,534	-311	4,697	65	0
Percent Net Change 2015 to 2021											
Reserve	-17%	52%	-	46%	126%	35%	3%	15%	824%	-	0%
Buffer	-65%	14%	2,550%	-7%	33%	7%	36%	-52%	541%	211%	0%
Total	-38%	20%	2,575%	1%	34%	9%	36%	-40%	546%	219%	0%

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Policy Implications & Applications

A. Forest Policy & Management	• Significant decline in closed forests (−23.4%). • Shaded cocoa expansion indicates agroforestry potential. • Scale up REDD+ and reforestation efforts. • Enforce forest buffer zone management.
B. Agricultural Policy	• Food crop area increased by 9.5%. • Grasslands are being converted to crops. • Promote sustainable and climate-smart agriculture. • Use natural capital data in land use planning.
C. Land Use Planning	• Settlement areas expanded by nearly 50%. • Urban growth contributes to land degradation. • Align account data with National Spatial Development Framework (NSDF, 2015-2030), Green Infrastructure Network (GIN) and local plans. • Incorporate green infrastructure in cities.

Policy Implications & Applications

D. SDG Monitoring & VNR Reporting	• Supports tracking of SDGs 11, 13, and 15. • Facilitates evidence-based planning. • Integrate into VNRs and M&E systems. • Link to national development plans.
E. Climate Change & NDC	• Loss of carbon sinks (forests, mangroves). • Bare surfaces increased by 163.9%. • Use land data to track NDC progress. • Support reforestation and emission tracking.
F. Atewa & Tano Offin Reserves	• Settlement areas expanded by nearly 50%. • Urban growth contributes to land degradation. • Align account data with National Spatial Development Framework (NSDF, 2015-2030), Green Infrastructure Network (GIN) and local plans. • Incorporate green infrastructure in cities.

Ecosystem Extent Accounts (2015/2021)

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2nd April 2025

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Introduction

- **Ecosystem Extent account** record the total area of each ecosystem, classified by **type within a specified area (ecosystem accounting area i.e.,** nation, region or district, river basin, protected area, etc**).**
- It illustrates the changes in extent from one ecosystem type to another over the accounting period and allows for analysing conversions between different natural and humanly modified ecosystem types.

Purpose & Rationale

- **The main purpose and rationale for compiling the ecosystem extent account include:**
  - Establish a common basis for the composition (mix/combination) and changes in ecosystem types within the country.
  - Support the measurement of ecosystem diversity.
  - Determine the locations and configuration of ecosystem types.

Ecosystem Extent (EA) Compilation Process

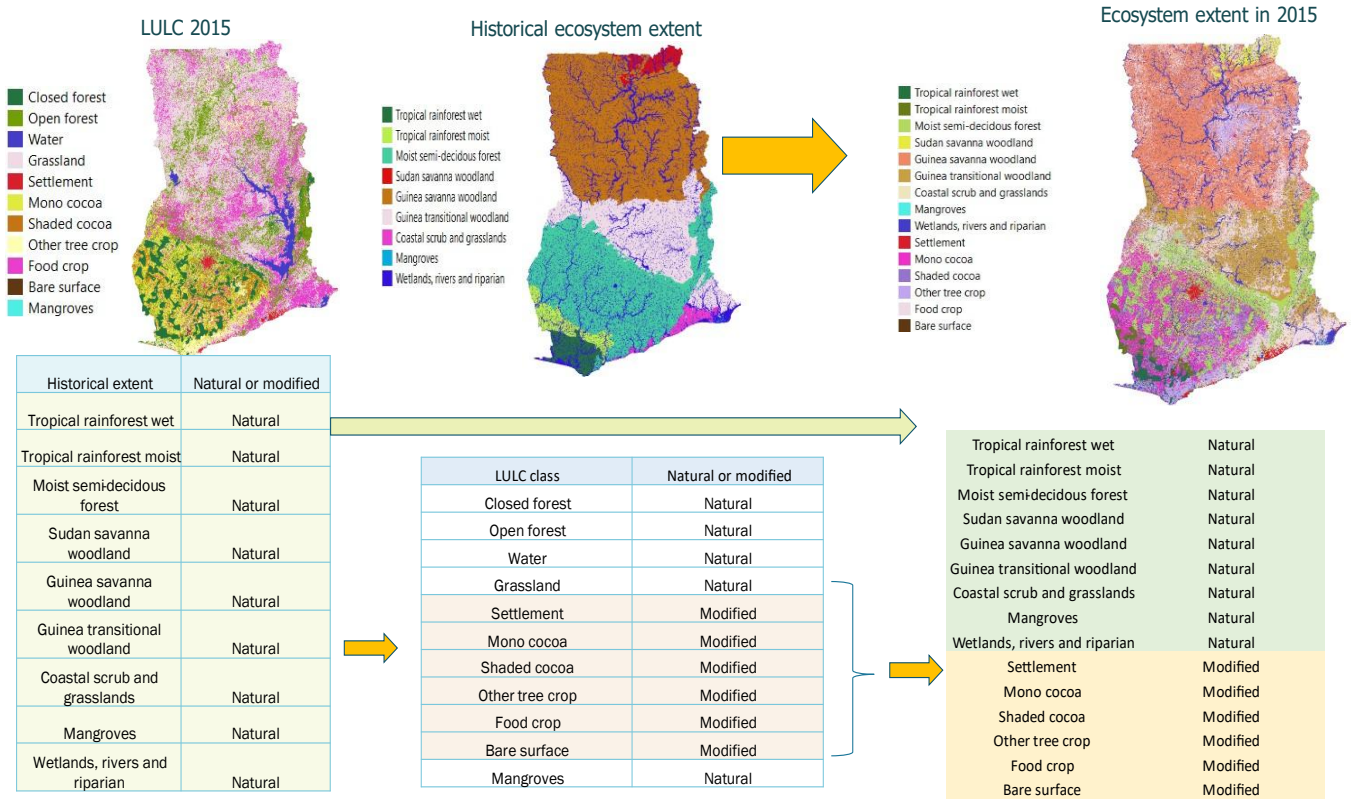
- The ecosystem extent account relied on a baseline map of natural ecosystem occurrence as a starting point.
- Baseline map developed from the **Red List of Ecosystems (RLE) assessment** (National Biosafety Authority & CSIR 2020) as part of the **CONNECT project.**
- The change in ecosystem extent is tracked from this baseline onwards in successive accounting periods by comparing the baseline with the current land cover in those accounting periods.
- An interpretation is made of the land cover classes as to whether they constitute a natural or modified class.

LULC Class	Natural/Modified
Closed forest*	Natural
Open forest	Natural
Water*	Natural
Grassland	Natural
Settlement	Modified
Mono cocoa	Modified
Shaded cocoa	Modified
Other tree crops	Modified
Food crop	Modified
Bare surface	Modified
Mangroves	Natural

Interpretation of Land Cover into Natural or Human-Modified

Ecosystem Extent (EA) Compilation Process

Extent account: overlay land cover map at end of each accounting period on natural ecosystem types, to account for where natural ecosystem assets have been converted to modified ecosystem assets



Historical extent	Natural or modified
Tropical rainforest wet	Natural
Tropical rainforest moist	Natural
Moist semi-decidous forest	Natural
Sudan savanna woodland	Natural
Guinea savanna woodland	Natural
Guinea transitional woodland	Natural
Coastal scrub and grasslands	Natural
Mangroves	Natural
Wetlands, rivers and riparian	Natural

LULC class	Natural or modified
Closed forest	Natural
Open forest	Natural
Water	Natural
Grassland	Natural
Settlement	Modified
Mono cocoa	Modified
Shaded cocoa	Modified
Other tree crop	Modified
Food crop	Modified
Bare surface	Modified
Mangroves	Natural

Tropical rainforest wet	Natural
Tropical rainforest moist	Natural
Moist semi-decidous forest	Natural
Sudan savanna woodland	Natural
Guinea savanna woodland	Natural
Guinea transitional woodland	Natural
Coastal scrub and grasslands	Natural
Mangroves	Natural
Wetlands, rivers and riparian	Natural
Settlement	Modified
Mono cocoa	Modified
Shaded cocoa	Modified
Other tree crop	Modified
Food crop	Modified
Bare surface	Modified

- Change is tracked from a baseline onwards in successive accounting periods.
- The baseline is stable – it changes only if there's improved accuracy, e.g., as a results of better data or additional ground-truthing efforts.
- Map from the CONNECT project was used as historic baseline -> which represents best estimate of natural occurrence of ecosystem types, prior to major human modification.
- Links 1-1 (mostly) to IUCN Global Ecosystem Typology.

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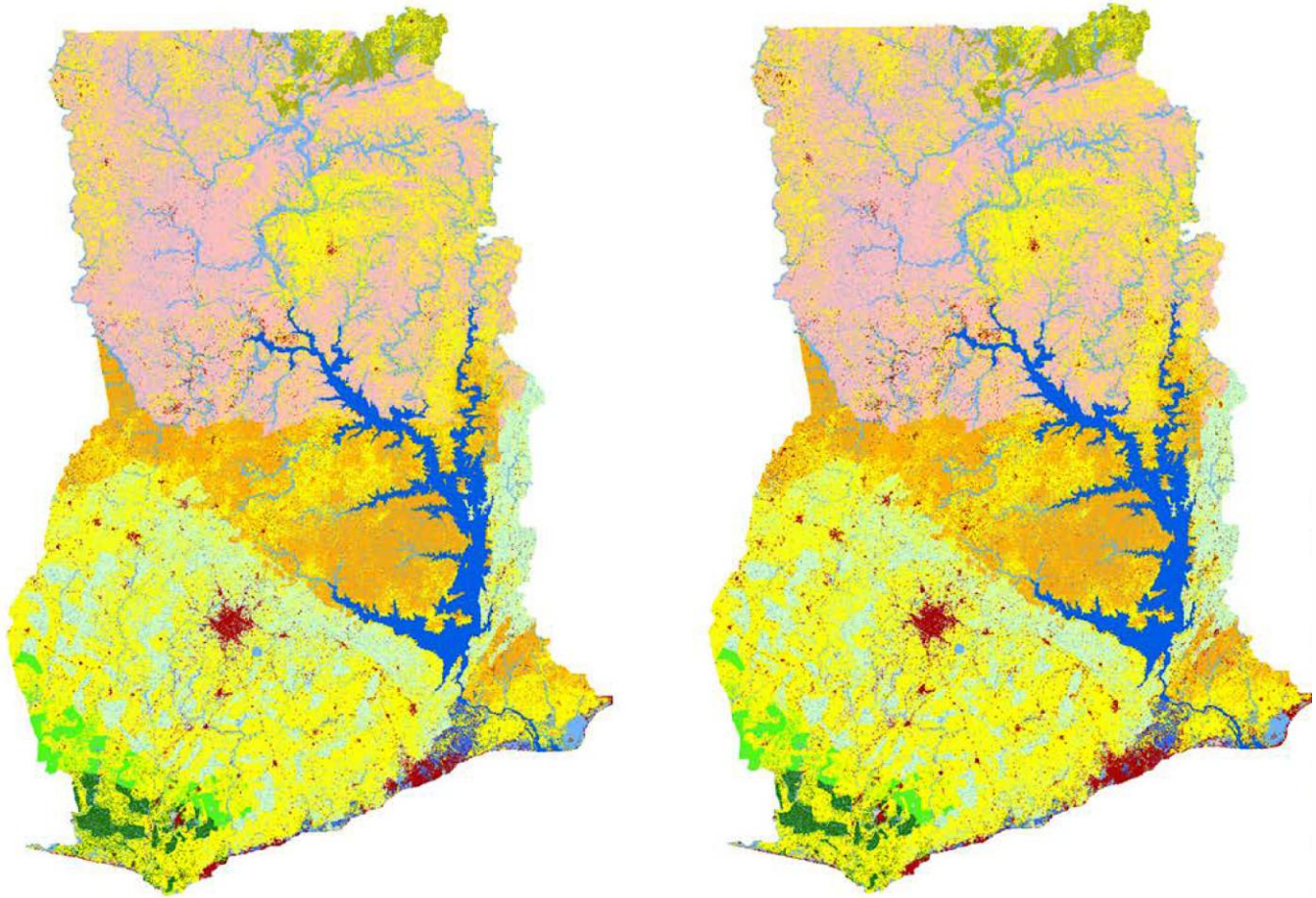
Results & Findings: Ecosystem Extent 2015/2021



Ecosystem Extent Maps 2015 (Left) and 2021 (Right)

Results & Findings: Ecosystem Extent

Ecosystem Extent Account (2015 - 2021)

	Natural									Anthropogenic				Total Area
IUCN GET Class name	Tropical Rainforest Wet	Tropical Rainforest Moist	Moist Semi-Deciduous Forest	Sudan Savanna Woodland	Guinea Savanna Woodland	Guinea Transition-al Wood-land	Coastal Scrub and Grasslands	Mangroves	Wetlands, Rivers and Riparian	Volta Lake	Cropland	Settlement	Bare Surface	
IUCN GET Class Code	T1.1	T1.1	T2.2/T1.3	T4.1	T4.2	T2.2	TM 2.1	MFT1.2	F1.1	F3.1	T7.3	T7.4	T7.4	
Historical extent	5,446	5,759	60,412	3,746	81,945	38,856	3,339	113	39,175	0	0	0	0	238,791
2015	2,394	2,541	29,608	2,542	59,342	22,342	1,261	67	25,430	8,752	79,817	4,406	289	238,791
2021	2,149	2,285	26,335	2,515	57,906	21,619	977	65	23,797	8,752	85,071	6,572	748	238,791
Net change 2015 to 2021	-245	-256	-3,273	-27	-1,436	-723	-284	-2	-1,633	0	5,254	2,166	459	
% Net change 2015 to 2021	-10%	-10%	-11%	-1%	-2%	-3%	-23%	-3%	-6%	0%	7%	49%	159%	
Net change historical to 2021	-3,297	-3,474	-34,077	-1,231	-24,039	-17,237	-2,362	-48	-15,378	8,752	85,071	6,572	748	
% Historical extent in 2015	44%	44%	49%	68%	72%	57%	38%	59%	65%					61%
% Historical extent in 2021	39%	40%	44%	67%	71%	56%	29%	58%	61%					58%

Results & Findings: Ecosystem Extent

- Only **29% of original extent** remaining in **coastal scrub and grassland**. This can be explained by the major coastal developments, especially in Accra.
- **Tropical rainforest** ecosystem types **(wet & moist)** -> about **40% remaining**. During 1990-2015 undergone major reductions in extent.
- Increase in **cropland (303%)** between 1990 and 2021 and in **settlements (673%)**.
- Summing up the remaining natural extent of all ecosystems, the **headline indicator** for the Global Biodiversity Framework (GBF): **The extent of natural ecosystems (Indicator A2).**
- **Extent of natural ecosystems** was **87.7% in 1990**, **64.3% in 2015** and dropped further to **60.9% in 2021**.

Policy Implications, Applications & Conclusion

A. Biodiversity Conservation	• General decline in ecosystem extent. • By extrapolating the average annual trend in reductions of natural ecosystems that occurred over the last 30 years, **tropical rainforests (wet and moist)** will **disappear in about 20 years** if nothing is done. • Strengthen the implementation of effective biodiversity conservation measures. • Develop a National Biodiversity Conservation Policy*
B. Ecosystem Restoration	• **Moist semi-deciduous forests** and **coastal scrub and grasslands** would be lost in the next **30 years if the current rate of loss continues unabated**. • EEA, coupled with ESA should be used to **target investments in restoration** to where they deliver the most environmental benefits and ecosystem services to people. • **Integrated into the modelling**, then the restoration activity could be used to directly **boost income for those in poverty** and in the longer-term, increase the level of ecosystem services of benefit to local people.

Policy Implications, Applications & Conclusion

C. Revision of the NBSAP	• The **percentage of natural ecosystems as a fraction of historical distribution** was **64% in 2015**, dropping to **61% in 2021**. • Incorporating EEA into the development, implementation, and evaluation of NBSAP will enhance the effectiveness of these strategies by ensuring that conservation efforts are grounded in accurate and comprehensive ecological data. • EEA should be used proactively to design and implement strategies to meet the GBF targets

Thank you for your Attention!

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